

## MEETING NOTICE

**Governor's Task Force on Global Warming  
Conservation and Energy Efficiency Workgroup  
Date: Thursday, September 6, 2007, 1:00 p.m. to 4:30 p.m.  
Location: MGE Innovation Center, Room 50,  
505 South Rosa Road, Madison, Wisconsin**

### AGENDA

- 1:00 p.m.      Introductory Remarks
- 1:10 p.m.      Presentation by Center on Wisconsin Strategy (COWS) Regarding Local  
Community Energy Efficiency Efforts
- 1:30 p.m.      Review "New" Draft Policy Templates
- State/Local Government Leadership (Plale/Hall)
  - Demand Response/Load Management (Nick/Caucutt)
  - Consumer Education/Behavior (Kindig/Brandt)
  - Industrial Energy Efficiency
  - Others
- 2:45 p.m.      Break
- 3:00 p.m.      Review "Revised" Policy Templates
- Enhanced Energy Efficiency Savings Target (Stratton/York)
  - Building Codes
    - Commercial (Nesler)
    - Residential (Nilles/Thompson)
  - Lighting (Nekola)
  - Rate Design (Draba/Edgar)
  - Appliance Efficiency Standards (Edgar)
  - Other
- 4:00 p.m.      Public Comment
- 4:15 p.m.      Wrap Up/Next Steps
- 4:30 p.m.      Adjourn

**Note: Next meeting is September 13, 2007, from 1:00 p.m. to 4:30 p.m.  
Location: WECC, Training Room AB, 431 Charmany Drive, Madison, Wisconsin**

**If you have any questions or need special accommodations, please contact Lisa Stefanik at  
the Public Service Commission of Wisconsin at (608) 266-1125 or  
lisa.stefanik@psc.state.wi.us.**

**Governor's Task Force on Global Warming  
Conservation and Energy Efficiency Work Group  
Policy Write Ups**

**Presented at 9.06.07 meeting**

**This packet contains the following write-ups:**

<b>Presenter</b>	<b>Subject</b>	<b>Version</b>
Bruce Nilles (Penn)	Electric Water Heater Conversions	1
Bruce Nilles (Penn)	Non-Regulated Fuels Conservation	1
Bruce Nilles	Residential Rental Lighting	1
Katie Nekola	Lighting	2
Susan Stratton	Statewide Energy Efficiency Program	2
George Edgar	Innovative Rate Design	2
George Edgar	Appliance Standards	2
Clay Nesler	Commercial Building Codes	3

**Wisconsin Global Warming Task Force  
Workgroup Presentation Policy Options -  
Conservation and Energy Efficiency Workgroup  
(Policy: Electric Water Heater Conversions)**

1. **Workgroup:** Utility Energy Conservation and Efficiency
2. **Policy Name:** Electric Water Heater Conversion Program
3. **Policy Type:** Legislation to require an explicit electric water heater conversion program and ban installation of electric water heaters.
4. **Affected Sectors, Sub-Sectors and/or Entities:**
  - Sector: Residential
  - Sub-Sector: Electric and NG Utilities, Fossil Fuel Companies
5. **Estimated Greenhouse Gas Emissions Reduction Impact:** Reduction in 2020 to 81% of the 2007 level equal to 2,247,241 metric tons of CO<sub>2</sub> compared to “business as usual” and to 1,847,254 metric tons of CO<sub>2</sub> in 2025. And to 55% below 2007 levels at 1,533,709 metric tons of CO<sub>2</sub> in 2050
6. **Estimated Costs:** The cost for this program option is assumed to be included in the imminently increasing FOE program. And there are no costs to creating legislation to prohibit installation of electric water heaters (and some other options) except under certain situations.
7. **Specific Description of Policy Proposal:** About 28% of the water heaters in Wisconsin use electricity – this is about 585,000 water heaters. Each water heater that is converted to use fossil fuels results in an average reduction of about 3.1 metric tonnes of CO<sub>2</sub> per year. In addition, converting electric water heaters reduces peak electric demand by about 0.4 kW per home on average. From the GHG and economic perspectives converting

electric water heaters to fossil fuels is a very lucrative policy option. While the LIHEAP program, in recent years, has begun converting electric water heaters. The Focus program has not generally been allowed to focus attention on this option.

This policy proposal suggests that conversion of electric water heaters to fossil fuels be made a significant priority. In addition, it suggests that legislation be passed that prohibits installation on electric water heaters in homes where natural gas, LP gas or oil are available in the home for heating. This proposal suggests that a program be developed that provides significant (but proportional to GHG reductions) incentives and process for replacing electric water heaters with fossil fuels heaters.

8. **Timetables, Duration and Stringency Option:** The timetable for this policy recommendation is continuous from FY 08 through 2050. The funding for this scenario would increase from the first year estimate by up to 30% until 2020 - to maximize early GHG reductions – assisting other options. The metric for this technology would be to reduce emissions from electric water heaters from 2007 levels as we do not have data on the emission from 1990. Given that this is a fuel switching option, we likely cannot reduce emissions to much below 45% of total original emissions by 2050. The proposal assumes we would continue the program through 2050, at which time the emissions would be about 45% of the total 2007 levels. To accomplish this, the funding would be decreased after 2020 by 15.0% annually. This schedule takes advantage of the fact that this policy can be ramped up quickly to help produce early CO<sub>2</sub> and other emissions reductions.

9. **Explanation of Rough Estimate of GHG Reductions:** The CO<sub>2</sub> emissions in the first year would be 5,446 MtCO<sub>2</sub>. This would increase 30% per year through 2020 – at which

time the reduction would be 126,886 MtCO<sub>2</sub> in that year. After 2020 the funding, and therefore conversions, would decrease by 15% per year. In 2025 the annual reduction in GHG emissions would be 56,300 MtCO<sub>2</sub> in that year. Ultimately the total emissions from electric water heaters will be reduced from the current level of 2,778,924 MtCO<sub>2</sub> to 1,533,709 MtCO<sub>2</sub> per year.

10. **Rough Estimate of Costs for Selected Years:** The proposal suggest that a program to replace electric water heaters with fossil fuel heaters be part of the existing Focus on Energy program. Thus this is effectively a no-extra-cost policy. Also, creating legislation to prohibit electric water heaters except under certain conditions would not have a cost.
11. **Barriers to Implementation:** The major barrier to implementation of this policy is the need for legislation to facilitate fuel switching. Opposition may come from electric utilities, including coops and municipal utilities who currently have electric water heater installation programs to build load. In addition, there may be opposition to a law to prohibit electric water heaters from not only the utilities but also builders and developers – especially of rental properties.
12. **Other Factors:** If we are to be serious about the suggested schedules of reductions of GHG emissions it will be important to find as many ways as possible to reduce the use of electricity for thermal loads. The legislation should not be written explicitly for only water heater conversions but should also encourage the Focus program to accomplish fuel switching from thermal processes in all sectors. This would include restaurant cooking equipment, space heating, thermoforming, and much more. And legislation should encourage all LIHEAP homes where there is an electric water heater to be converted automatically to a fossil fuel heater.

**Wisconsin Global Warming Task Force  
Workgroup Presentation Policy Options -  
Conservation and Energy Efficiency Workgroup  
(Policy: Non-Regulated Fuels Conservation)**

Note: this is intentionally long to ensure that the CEE workgroup understands the recommendation. If this is selected to be forwarded to the Technical Advisory Group, I will edit out much of the detail to shorten.

1. **Workgroup:** Utility Energy Conservation and Efficiency
2. **Policy Name:** Non-Regulated Fuels Conservation and Efficiency
3. **Policy Type:** Legislation to develop programs to conserve non-regulated fuels such as LP Gas, oil, bio-fuels and coal
4. **Affected Sectors, Sub-Sectors and/or Entities:**
  - Sector: Residential, commercial, industrial building sectors
  - Sub-Sector: Propane, oil and biomass industry
5. **Estimated Greenhouse Gas Emissions Reduction Impact:** Reduction in 2020 to the 1990 level of 1,845,345 metric tons of CO<sub>2</sub> compared to “business as usual” and to 1,670,141 metric tons of CO<sub>2</sub> in 2025. And to 80% below 1990 levels at 371,740 metric tons of CO<sub>2</sub> in 2050
6. **Estimated Costs:** The first year administrative costs are \$3,126,929 and need to increase by 12.8% annually through 2020 for GHG emissions (back to 1990 levels) and then reduced to 2.55% growth through 2050 to reduce emissions to 80% below 1990 levels.
7. **Specific Description of Policy Proposal:** Wisconsin has successfully implemented programs to reduce the use of electricity and natural gas during the last three decades. This success did not significantly include non-regulated fuels. Seriously reducing GHG emissions in Wisconsin will require reducing the use of all fossil and biomass fuels.

Wedge analyses by EPRI, McKinsey and Princeton University show conservation and energy efficiency to be the largest wedge for reducing GHG emissions. We can not ignore non-regulated fuels if we are to reduce GHG emissions to the levels proposed. Until the passage of Act 141 in 2006, the Focus program was allowed to help homes using eligible electricity to save LPG, oil and other non-regulated fuels to some degree. This policy recommendation will increase the GHG emissions reduction capability. According to the Wisconsin Energy Statistics, liquid petroleum gas (LPG) and fuel oil (oil) make up 17% of the residential sector fossil fuel use (or 21% as much fuel as natural gas use). The total LPG and oil use in Wisconsin is 10% of the total natural gas use in buildings. This suggests the potential savings in the commercial and industrial sectors is lower than in the residential sector but not miniscule.

The projected (from 2007 data) natural gas savings projected for the Focus on Energy (Focus) program for FY08 would be about 29,755,892 first year therms for the residential and business sectors. This is about 0.84% of the 2005 statewide natural gas use.

If we assume that we allow the current programs to include the non-regulated fuels, a simple sales projection would suggest that we can save about 1,930,988 gallons of LPG and oil in the first year. The potential may be greater based on two market conditions: The cost of LPG and oil per Btu is significantly higher than that of natural gas and because homes and businesses using these fuels have not been explicitly eligible for conservation and efficiency programs in the last 20 years, there is more low hanging fruit still available. Also, there is potential not considered here from improving efficiency in homes

and commercial/industrial facilities using biomass and coal to produce thermal energy for heating and processes.

8. **Timetables, Duration and Stringency Option:** The timetable for this policy recommendation could mirror that of the timetable for increasing the budgets for the Focus program initiative. However, the dynamics of the petroleum and biomass markets are different than the natural gas and electric markets. Thus this analysis is based on a likely different funding timetable. For this analysis it is assumed that first year funding (FY08) would be proportional to the Focus FY2007 funding. This would be about 0.49% of first year sales of LPG and fuel oil (not accounting for coal or biomass sales for this analysis). The funding for this scenario would increase from the first year estimate by 12.79% until 2020 - to achieve 1990 levels of GHG emissions. To achieve 80% below 1990 emissions by 2050, the funding would be increased after 2020 by 2.55%. One advantage of this policy is that it can be ramped up quickly to help produce early CO2 and other emissions reductions.

9. **Explanation of Rough Estimate of GHG Reductions:** The CO2 emissions factors for LPG (136 lb/MMBtu) and oil (159 lb/MMBtu) are greater than for natural gas (118 lb/MMBtu). Thus the GHG reductions for equivalent savings in energy are greater for the non-regulated fuels – improving the interest in developing programs to reduce their use. Based on Focus' last year reductions of energy use we can estimate the GHG emissions reductions.

Saving 191,289 MMBtu (first-year total) of LPG and oil results in an estimated 12,030 metric tonnes of CO2. This relates to about 1,803,198 gallons of LPG and 127,790 first-

year gallons of oil. This constitutes about 0.52% of the statewide use of these two fuels in Wisconsin in 2006.

Assuming a program would start in FY2008, the 1990 GHG emissions of 1,845,345 MtCO<sub>2</sub> could be reached in 2020 with reductions of 51,953 MtCO<sub>2</sub> in that year. This is based on an increase in program costs each year until 2020 of 12.79%. The program cost increases between 2021 and 2050 could be reduced to 2.55% and achieve the GHG reductions goal of 80% in 2050 of 371,740 MtCO<sub>2</sub> being emitted in that year.

10. **Rough Estimate of Costs for Selected Years:** The proposal suggest that a program to help Wisconsin residents reduce their use of non-regulated fossil fuels be part of the larger, existing Focus on Energy program. This is intended to reduce the cost of implementation. The non-regulated fuel reduction opportunities are used in some facilities that are eligible for Focus programs based on their electricity provider. Also, these opportunities are available in facilities that are in the proximity of others that are or will participate in existing Focus programs and the local deliverers of the Focus programs typically have the skills and opportunities to implement similar approaches for non-regulated fuels.

The main costs to deliver these programs as extensions of Focus programs are proportional to the focus program cost. The average year 2007 cost to deliver focus programs differ between the residential and business programs. For the residential program, the cost is about \$31.5 per MMBtu and for the business programs the cost is about \$8.50 per MMBtu. These are applied to the projected savings of non-regulated fossil fuels for this proposal to determine the program cost. The estimated first year costs

for delivering the program will be \$2,058,206 for the residential sector and \$1,068,723 for the business sector – for a total of \$3,126,929.

The growth in spending required to reach the year 2020 and year 2050 GHG reduction goals would be proportional to the reductions goals. The cost would rise to \$13,353,709 in 2020 and to \$15,031,965 in 2025. Finally, the program cost in 2050 would be \$28,210,279.

11. **Barriers to Implementation:** The major barrier to implementation of this policy is the need for legislation to fund the program. Opposition may come from purveyors of LPG, oil, and coal in Wisconsin for fear of reduced sales. Opponents may argue that relative to sales of natural gas these non-regulated fuels are small. However, as much as 11% of the fossil fuels used for thermal processes in buildings are non-regulated fuels. And it is likely that about 17% of the GHG emissions from building and business thermal processes are by these non-regulated fuels. However, using a gradual (or equivalent occasional) increase in the funding would mitigate the opponents arguments. One of the simplest ways to capture the necessary funds would be a tax on the fuels that the program seeks to conserve – above the current sales tax. This is how the Focus programs are funded. While the analysis suggests a starting point of 0.49% of sales it may be prudent to start at the same level at which the natural gas and electricity are taxed (1.2% in FY07), or whatever level it will be increased to, based on the recommendations of the Task Force to the governor. If this is done, the required annual increases would be reduced to 0% per year.
12. **Other Factors:** In an era when reducing GHG emissions is in conflict with fear of higher taxes, it may be politically challenging to levy a direct 1% to 3% tax on non-

regulated fuels to pay for such a program. One way to fund this program is through funds collected by a cap-and-trade program or carbon tax. We cannot reduce carbon emissions without funding. Creating non-fuel-discriminatory programs also allows for replacement of fossil fuel technologies with biomass technologies (such as pellets, corn, cherry pits, etc). This could offer much greater potential for reducing GHG than we have discussed here.

In addition, the high cost of LPG and oil provides a significant opportunity to reduce the financial burden on our citizens for energy purchases from out of state. And the local environmental impacts of SO<sub>x</sub>, NO<sub>x</sub> are reduced compared to natural gas (but Hg might go up). Finally, LPG and oil are delivered to each home by trucks – reducing the use of these would have an additional favorable reduction of GHG emission through fewer trips to deliver the fuel.

**1. Workgroup: Energy Efficiency and Conservation**

**2. Policy Name:** Energy Efficiency and Safety for Wisconsin Rental Properties

**3. Policy Type:** Establish minimum lighting efficiency standards for rental properties in Wisconsin.

Efficient fluorescent lighting uses about one-fourth of the electricity that old-fashioned incandescent bulbs use and lasts up to ten times as long. Exit signs lit with light emitting diode bulbs can last up to 25 years and use less than 4% of the electricity required for incandescent exit signs. Requiring efficient lighting in Wisconsin's rental properties would cut electricity and maintenance bills as well as bulb replacement costs. In addition, common areas would be safer for residents because lights would last longer.

There are approximately 278,000 rental buildings in Wisconsin, with 658,000 rental units. If all rental properties that have not already switched to efficient lighting were to do so in common areas, fixed in-unit fixtures, and exit signs, they would:

- Reduce annual energy use by 560 million kwh, or 2% of annual residential electricity demand in Wisconsin, according to the 2006 Wisconsin Energy Statistics report.
- Cut global warming pollution by 612,000 tons each year
- Save over \$46,000,000 each year in energy costs alone, including the cost of bulbs

**Legislation:** New legislation that requires all rental properties in the state of Wisconsin to install fluorescent or light emitting diode bulbs or any other bulb that has an energy efficiency of at least fifty (50) lumens per watt in all common areas and all mounted fixtures with Edison bases at the beginning of each lease period. This requirement shall not apply to fixtures controlled by dimmer switches or to any fixtures in appliances. The legislation should further require that all exit lights in rental properties to be lit by light emitting diode bulbs.

**4. Affected Sectors, Subsectors and/or Entities:** Landlords

**5. Estimated Greenhouse Gas Emission Reduction Impact:** 612,000 tons/year

**6. Estimated Costs:** No anticipated additional enforcement costs. Enforcement would be added to standard inspection procedures. Savings to renters and landlords would be over \$46,000,000.

**7. Specific Description of Policy Proposal:** See above

**8. Timetables, Duration and Stringency Options:** TBD

**9. Explanation of Rough Estimate of GHG Reductions:** See attached worksheets.

**10. Rough Estimate of Costs for Selected Years:** None.

**11. Barriers to Implementation:**

**12. Other Factors:**

**Wisconsin Global Warming Task Force Workgroup**  
**Template For Presentation Policy Options**

1. **Workgroup:** Energy Efficiency and Conservation
  
2. **Policy Description:** Establish energy efficiency standards for light bulb efficacy for Wisconsin that would significantly reduce greenhouse gas emissions from electricity generation. The state standard would be similar to the recommended language in a federal bill proposed by Representative Jane Harman of California.
  
3. **Policy Type:** Legislation to establish a phase-in of high efficacy light bulb standards.
  
4. **Affected Sectors, Sub-Sectors and/or Entities:** All buildings; light bulb manufacturers, retailers and consumers
  
5. **Estimated Greenhouse Gas Emissions Reduction Impact:** Using the Energy Center of Wisconsin (ECW) estimate of 67 million CFL-compatible sockets in Wisconsin residences where none have been installed and assuming that one CFL saves 35.8 KWh per year compared to incandescents, full compliance with the performance standard would result in approximately 2.8 million metric tons of CO<sub>2</sub>-e saved per year for residential use only.
  
6. **Estimated Costs:**
  
7. **Specific Description of Policy Proposal:** Adopting the Harman bill standards would prohibit the sale of lamps (light bulbs) that fail to meet the following efficacy standards based on lumens per watt ( a measure of light output):
  - 60 lumens/watt by 2012
  - 90 lumens/watt by 2016
  - 120 lumen/watt by 2020

In addition, due to concerns with mercury in certain types of light bulbs, the following mercury standards would be adopted as well:

- 5 mg/bulb by 2010
- 3 mg/bulb by 2015
- 1.5 mg/bulb by 2020

The current mercury content for CFLs is approximately 5 mg. There are already present in the market several bulbs with lower mercury content (from 1 mg to 3.5 mg).

The standard would apply to the sale of most general service lamps, but a process would be established to ensure that appropriate exemptions are allowed: e.g. appliance, black light, bug, colored, enhanced spectrum, infrared, marine, and for health and safety reasons. There should be included in the legislation as discussed in “Other Factors” the establishment of effective program efforts to ensure proper recycling of incandescents.

**An alternative approach suggested in California would be to direct an appropriate state agency through legislation to set regulations that achieve reducing power demand for indoor lighting by 50% and for outdoor lighting by 25% within 10 years.** Wisconsin agencies may have less experience in this area than California agencies.

**8. Timetables, Duration and Stringency Option:** The standards would apply starting 2012, which would allow sufficient time for manufacturers to ramp up supply and for residential and commercial customers to begin changing over. The stricter standards in 2016 and 2020 would encourage continuous improvement in lighting technology in the future (including LED lighting).

**9. Explanation of Rough Estimate of GHG Reductions:** Rough estimates of the GHG reductions were made using an average emission rate of 1,850 pounds of carbon dioxide per megawatt hour. This is the average emission rate for electrical generation in Wisconsin, given the existing mix of power plants and emission rates for the state.

**10. Barriers to Implementation:** Compact fluorescent lamps (CFLs) and some LEDs are simple replacements for many incandescent applications and can reduce the energy consumption and corresponding GHG emissions by 75% and last up to 10 times longer than incandescent lamps. The alternatives to incandescents have some drawbacks such as some mercury content (although far less than that emitted by power plants for power lighting) as well as limited dimming or infrared control at the present time and limitations in very cold weather or within non-vented, enclosed fixtures. Affordability may also be an issue for low-income households, but incentives and rebates can mitigate this barrier.

**11. Other Factors:** A consumer education campaign about proper disposal of CFLs should be conducted as part of Enhanced Energy Efficiency Programs as well as effective program efforts to facilitate the appropriate recycling of CFLs.

**Wisconsin Global Warming Task Force Workgroup  
Template For Presentation of Policy Options**

**“Enhanced Energy Efficiency Programs”**

1. **Workgroup:** Conservation and Energy Efficiency
2. **Policy Name:** Enhanced Energy Efficiency Programs (aka public benefits)
3. **Policy Type:** Regulation (including innovative ratemaking policy to remove barriers for utilities).
4. **Affected Sectors, Sub-Sectors and/or Entities:** Electric and Natural Gas Utilities.
5. **Estimated Greenhouse Gas Emissions Reduction Impact:** *(Relevant target year(s) should be selected based on timing of measure, with reductions estimated as of that year(s) and not on a cumulative basis, in comparison with a rough cut business as usual scenario. WRI will assist in this task. Later in the process, reduction estimates will be refined based on Reference Case developed for the Task Force.)*

Overall, reach 1990 levels of CO<sub>2</sub> by 2020 in electric load and natural gas use. Using a statewide public benefits program, we recommend that reduction to 1990 levels of CO<sub>2</sub> be reached in large part by energy efficiency and conservation, as well as additional measures such as innovative tariffs, advanced metering, load management, real time pricing, and enhanced public education and awareness. Assuming a BAU growth rate of 1.5-2.0%, the statewide public benefits programs should reduce 1.5 percent of electric load and 1.0% of natural gas load<sup>1</sup> after a 2-3 year ramp up period. The utilities and PSCW should be given flexibility to be innovative in reaching these goals. Actual budgets should be determined periodically by the PSCW in a contested case hearing process. Annual targets should be established over a program period (e.g. 3-4 years) as the “average” annual savings to be achieved during that period to allow program flexibility as conditions may change over a program period.

6. **Estimated Costs:** *(Rough estimate of administrative costs and other material costs such as electric rate impact, for same years as selected for GHG reduction impact.)*

The state is currently spending 1.2% of electric and natural gas revenues on this effort as well as some additional funds for utility sponsored programs, tariff initiatives and other technical assistance. On average, we should reserve approximately 3.0 to 3.25% of total electric utility revenues and 1.2 to 1.75% per year of natural gas revenues. Actual budgets should be determined periodically by the PSCW in a contested case hearing process. (As a comparison, currently, we expect 1.2% of revenue to result in a reduction of up to about

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<sup>1</sup> This is consistent with the Governor’s Midwest Gas Initiative which has proposed a reduction of 1.0% of load starting in 2009.

0.6% of electric load). Such hearings should include development of incentive mechanisms for utilities and other so-called “decoupling” strategies to provide adequate shareholder and ratepayer benefits. These costs should be compared to the cost of BAU which would include building new generation. These estimates assume that innovative rate design will be implemented to help achieve the desired results. In addition, building code advances, and enhanced consumer awareness will be a key to success at these revenue levels.

7. Specific Description of Policy Proposal: *(Description should be specific, including material terms so that people understand what is being agreed upon; however, legislative or regulatory language should not be drafted.)*

To maximize the result of this effort, we should accomplish these steps during the ramp-up period:

- Study best practices in other areas to transfer to Wisconsin as program grows.
- Utilities and PSCW will provide leadership in determining the best portfolio of approaches to reach 1.5% and 1.0% in annual load reduction for electric utilities and natural gas respectively using efficiency as a resource. PSCW will approve plans in a contested case hearing every 3-4 years.
- Research the gap between the achievable and economic potential of energy efficiency and how consumers and businesses make energy decisions. Broaden the existing Potential Study to inform whether higher targets of sales reduction would be appropriate in 2012 or later.
- Create programs that will increase awareness, understanding and participation through marketing, education, and outreach.
- Create programs of recognition and incentives for the most effective results.
- Create a scorecard of achievement for the state, by sector or by utility or other geographic division or affinity group.
- Integrate individual utility efforts with statewide public benefits programs
- Create new ratemaking approaches to decouple sales from profits for utilities.
- Develop programs that take advantage of innovative ratemaking approaches developed by utilities.

8. Timetables, Duration and Stringency Option: *(When will the measure take effect, how long will it last, how stringent will it be over time?)*

The initial ramp-up period of 2-3 years will take effect when the PSC receives permission from Joint Finance to change the current investment amount and hold a hearing. Earliest possible date is calendar year 2009 for beginning of ramp up. Preparation for ramp-up (as listed above) can begin in 2008. By 2012, annual savings goals of 1.5% for electric use and 1.0 % for natural gas use should be reached. Should the growth rates slow due to other efforts, the PSCW may modify the energy efficiency efforts to track load growth.

9. Explanation of Rough Estimate of GHG Reductions: *(Concise, transparent and well-referenced explanation of estimate of GHG emissions reduction estimate for years*

*selected, including description of important assumptions. Final number should be in million metric tons of CO<sub>2</sub> or other GHG.)*

Using a baseline of about 55 million tons in 1990, and 69 million tons in 2006, this statewide effort should reduce CO<sub>2</sub> to 1990 levels by 2020 if the growth rate is in the lower end of the BAU range (Carbon baseline numbers to be confirmed by WRI calculations) and if other tariff based programs and utility efforts are coordinated with statewide programs.

10. Rough Estimate of Costs for Selected Years: *(Concise, transparent and well-referenced explanation of estimates of administrative cost of policy for designated years and other key material costs that should be considered by the Task Force.)*

Administrative costs are included in program cost estimates. Administrative costs include program oversight, as well as measurement and verification of results.

11. Barriers to Implementation: *(Description of barriers to implementation identified for policy, including technological, political and financial barriers, and where possible, recommendation on how to overcome these barriers.)*

We must be more innovative in investing in energy efficiency, using a best practice approach and an increased amount of customer education and outreach, as well as an integrated customer approach rather than a program approach. This requires long-term program and technological R&D to better design programs. In addition, a broader statewide campaign or “call to action” to reduce our carbon footprint will be necessary to effect the significant behavior change necessary for success in this and other efforts. Simply ramping up existing statewide energy efficiency programs will be inadequate as our potential studies indicate decreasing marginal returns to program expansion.

12. Other Factors: *(Where relevant, identify potential duplication with other policies that may be recommended and other policy interaction issues which group believes the Task Force should be aware of.)*

The costs and projections will depend on the speed of implementation of other initiatives such as building codes, appliance standards, implementation of low carbon generation sources, energy intensity of businesses, and actual underlying growth rates. Wisconsin should continue and expand its initiatives for improved programs and R&D with other regional entities. This recommendation makes no assumptions about PHEVs. Any strategy or recommendation that adds a significant amount of PHEV should separately address carbon effects.

**Wisconsin Global Warming Task Force Workgroup  
Innovative Rate Designs**

1. **Workgroup:** Conservation and Energy Efficiency Workgroup
  
2. **Policy Name:** Innovative Rate Designs
  
3. **Policy Type:** Regulatory: Public Service Commission of Wisconsin policy changes to better align utility electric and natural gas rate designs with the impact of usage on global warming and the need for future energy infrastructure. It is possible some approaches may need legislative authorization.
  
4. **Affected Sectors, Sub-sectors and/or Entities:**  
Sector: Electric and natural gas utilities, electric and natural gas utility customers
  
5. **Estimated Greenhouse Gas Emissions Reduction:** Together with Enhanced Energy Efficiency Programs expected to reduce total annual sales by at least 1.5% per year
  
5. **Estimated Costs:** Limited administrative costs to hold regulatory proceedings. New rate designs would likely result in a different distribution of costs among different customers depending in level and time of usage. Implementing new rate designs will create new costs for recovery by utilities including metering, billing, customer service, marketing and IT, especially if new metering infrastructure must be created.

**7. Specific Description of Policy Proposal:**

**a. Background**

The process of rate design has traditionally been accomplished by the PSCW through specific utility rate cases to ensure that the rate design is appropriate to the characteristics of the utility and that such changes are subject to the establishment of a record on which the PSCW can make a decision. The PSCW has also periodically used generic proceedings to investigate new issues and to make decisions and directions that can be followed up in individual utility cases. These processes should be utilized by the PSCW to define and delineate the principles and core objectives that individual utilities would use to develop and implement a menu of innovative new rate designs that will help mitigate the impacts of global warming as well as help reduce future utility cost exposure (e.g. help relieve tight supply/demand markets).

An effective rate design provides information to a customer about the cost to serve her or his usage as well as information about the best opportunities to reduce usage to lower her or his bill. But, an effective rate design will also reflect the impact of a customer's global warming footprint and the value of the steps that he or she can take to mitigate that footprint.

Wisconsin utilities have for many years used flat rates as the standard default rate offer for smaller customers. Voluntary time-of-use electric rates have also been available but have attracted limited participants (especially from customers who to meaningfully change their consumption patterns). Wisconsin commercial and industrial customers are on time-of-use rates that also include demand charges. The installation of new meter technology, especially for smaller customers has recently expanded the potential for innovative designs that can be efficiently implemented.

Improved rate designs and rate design options are necessary to provide better price signals to customers concerning their cost of consumption and that consumption's impact on global warming and the need to build new physical infrastructure or buy future new supply. A good rate design should better reflect costs that differentiate between demand at the time of system peak, on-peak and off-peak as well as when

carbon costs are significant. The current flat rate and other rate designs provide very blunt signals about the effect of a customer's consumption on global warming or the need for new infrastructure and supply. Innovative rate designs are needed to better reflect these costs and to help to offset adverse global warming impacts and mitigate the sources of future utility cost increases. These innovative rate designs in addition to providing better price signals should also facilitate the ability of customers to effectively respond to such price information to lower their overall bills. Such new rate designs are needed as soon as possible.

Effective, improved rate designs are both a source of efficiency savings in and of themselves (as customer modify their behavior or take action to reduce their bill) and a means to help facilitate other savings efforts such as Enhanced Energy Efficiency programs. It also needs to be recognized that the adoption of significant new rate designs like a substantial increase in energy efficiency efforts can create revenue stability problems for a utility that need to be addressed to eliminate a disincentive for a utility to implement such new designs.

**b. Recommended Action**

The GWTF Conservation and Energy Efficiency Workgroup strongly recommends that the PSCW with all deliberate speed open a proceeding(s) to investigate and implement improved and innovative rate designs for all customer classes that better reflects the impact of consumption on global warming and the need for new energy infrastructure and supply. This inquiry should: (1) provide appropriate price signal to customers that reflect the ultimate costs imposed on the utility to serve as well as impact on global warming; (2) provide effective opportunities for customers to respond to such price signals by reducing their overall bill (including during critical peak pricing periods) and (3) recognize that rate designs should be better integrated with demand response and energy efficiency opportunities as well as improved information and information pathways to affect customer behavior. These latter important linkages in the development of new rate designs should be specifically

integrated in that process to create as valuable, seamless and easy a choice for customers to control their usage as possible. Utilities must also be provided the flexibility to offer a menu of appropriate rate designs.

We believe that the following areas must be investigated and addressed to develop more appropriate and effective rate designs:

1. Providing effective price signals through rate design must start with appropriate cost allocations to various customer classes and subgroups plus explicitly recognizing the impact of externality costs such as carbon (e.g. through carbon taxes or other means). Greater consideration of appropriate cost allocation to allow appropriate price signals (such as a transition to more marginal cost revenue requirements to better allow marginal cost rate designs) would help appropriate price signals from being constrained by cost allocations based on primarily on embedded costs. In addition, better allocation methods and factors should also be explored.
2. The PSCW should use the ability of improved metering to “customize” rate designs that better reflect the time of use and level of usage that affect the impact of usage on global warming and the need for future energy infrastructure. These ‘customized” rate designs should convey the costs – external and internal – of carbon emissions. For smaller customers, we urge the PSCW to specifically analyze and implement inverted rates and/or inverted time-of-use rates to better track and reflect the impact of usage on global warming (and in addition adequately address the situation of customers who have the least-financial ability to respond to such new price signals). For larger customers, we recommend an investigation or real-time pricing or improved time-of –use rates. For all customers, the PSCW should analyze more flexible time-of-use periods that can improve the ability of customers to respond to price signals during those periods as well as the use of interruptible riders to reduce carbon output.

3. The PSCW should also continue to improve utility buy-back tariff designs to both better reflect costs and benefits especially to recognize the carbon reduction value of customer-owned renewable energy.
4. The PSCW should address the potential disincentive of lost revenues from new rate designs that can discourage a utility from pursuing such designs. This could be done in the same proceeding recommended to consider and address as necessary and appropriate the utility disincentives created by substantial increases in cost-effective energy efficiency initiatives.

**8. Timetables, Duration and Stringency Option:**

Improved rate designs that better reflect the costs of global warming and the cost of future supply to meet future consumption should be an immediate priority. While ensuring full participation by interested parties, the PSCW should pursue the development and implementation of improved rate designs with all deliberate speed. Effective opportunities for customer to respond to new price signals by lowering their overall bills should be developed and implemented as part of these innovative design changes. Both improvements in electric and natural gas rate designs should be treated as a priority, but given limited resources and expected greater mitigation impact from improved electric pricing on GHG emissions reduction, the PSCW, if necessary, should proceed with developing and implementing innovative electric rate designs first.

**9. Explanation of Rough estimate of GHG Reductions:**

**10. Rough estimate of Cost for Selected Years:**

As previously noted, the main direct costs are for administrative proceedings although implementing new rate designs will create new costs for utilities potentially for metering, billing and IT. The main costs will come from incurring the metering, IT and billing costs to allow smaller customers to be face and respond to real-time costs.

**11. Barriers to Implementation:**

New costing approaches and the implementation of new rate designs will re-distribute cost responsibility among existing customers. To the extent that some customers incur

greater cost responsibility from better aligned rate designs, they may be resistant to such changes regardless of the overall utility and societal benefits. Currently, not all Wisconsin utilities have the same metering, communications and/or IT capabilities and, as a result, are limited to provide some of the innovative rate designs without additional investment. This latter situation poses both a potential timing and cost barrier. Also, some designs may require legislative authorization.

**12. Other factors:**

While providing better price signals of the cost of global warming and future utility costs is a necessary condition, providing customers effective options to respond to such price signal is also a necessary condition that allows customers, the utility and society to mutually benefit from lower future costs and diminished global warming impacts.

**Wisconsin Global Warming Task Force Workgroup  
State Appliance Efficiency Standards**

1. **Workgroup:** Conservation and Energy Efficiency Workgroup
2. **Policy Name:** State Appliance Efficiency Standards
3. **Policy Type:** Legislation would be required to create state appliance/equipment efficiency standards for products not covered by federal government standards or for which a waiver of the federal standards could be sought
4. **Affected Sectors, Sub-Sectors and/or Entities:**

Businesses that manufacture, distribute or sell at retail the specified appliances/equipment; consumers

5. **Estimated Greenhouse Gas Emissions Reduction Impact:** Based on an estimate by the Appliance Standards Awareness Project and American Council for an Energy-Efficient Economy, the enactment of state standards for approximately 15 items of equipment/appliances similar to those enacted by at least 10 other states (including CA., New Jersey, Connecticut, Oregon and New York) in 2006 would save 294,000 metric tons of carbon by 2020. (Even if some of these items have recently been pre-empted by federal standards these standards continue a new addition to the existing energy efficiency baseline in Wisconsin going forward).
6. **Estimated Costs:** Based on the ASAP/ACEEE estimates, the net present value of the reductions in bill savings for consumers is positive and would yield a NPV of approximately \$1,297,000,000 by 2030. Thus while there would be increased consumer costs from the higher incremental cost of the new equipment, these costs would be recouped by consumers over a payback period ranging from less than year to up to 6-7 years (with many items having a payback of 1-3 years). There would also be some cost for administrative rulemaking to implement and revise the standards as established by the enabling legislation.
7. **Specific Policy Description:** State appliance efficiency standards establish minimum energy efficiency levels for appliances and other energy-consuming equipment not already covered by federal standards or for which an application for waivers of federal pre-emption to increase the standard for selected other equipment would be made.. These standards typically prohibit the sale of less efficient models within a state.

Appliance efficiency standards are a proven means for improving energy efficiency. Their objective is to raise the efficiency of residential, commercial and industrial energy-

consuming equipment where cost-effective to do so. Standards have proved to be an especially effective tool for addressing split incentive situations, emergency purchases and for mass market products where energy efficiency improvements may only be a small element but when aggregated provide a meaningful contribution to load growth (e.g. “plug loads”) and are difficult to capture through voluntary energy efficiency programs. They also are an effective means to ensure that energy use reductions translate into lower greenhouse and other pollutant emissions.

**The recommended action** is that a specific appliance standard bill be developed for Wisconsin based on actions already taken in other states and be enacted by the legislature. The ASAP/ACEE proposed model bill standards for Wisconsin should serve a guide in the enabling bill development process is attached. If the uses in the proposed model bill are pursued then a waiver of the existing federal standard for commercial boilers, would need to be sought. In addition, recent action by DOE on setting standards for residential furnaces and boilers and distribution transformers may also create the need for a waiver of federal pre-emption. There is no explicit federal standard for residential furnace air handlers.

**8. Timetable, Duration and Stringency Option:** The sooner an acceptable state appliance efficiency standard can be developed and enacted. The sooner that important energy reductions can be achieved that will also reduce global warming the better. This is particularly important to begin to effectively address important contributors to load growth such as “plug loads” that are difficult to address by other means. The standards should stay in place until changed by law as part of a periodic review and upgrade process delegated to an agency by the enabling legislation.

**9. Explanation of Rough estimate of GHG Reductions:** See #10 below

**10. Rough Estimate of Costs for Selected Years:** Attached is the estimated costs and carbon reductions for certain years from the ASAP/ACEE Wisconsin model bill (including assumed waivers for items subject to federal pre-emption).

**11. Barriers to Implementation:** There is a need for legislation to enact a state appliance efficiency bill for Wisconsin. The most likely objections would be from the provider/retailer of a specific product/equipment included in the bill or concern about the impact of a specific included product on consumer costs. Meeting with interested providers and retailers of affected products as part of the bill’s development could help mitigate potential concerns. For a specific measure, there may be a need to seek a waiver of federal preemption.

**12. Other Factors:** A Wisconsin Appliance Efficiency Standard would achieve greenhouse gas savings and reduced energy costs from areas that are typically difficult to achieve by other means. It also helps as part of a broader portfolio of policy actions to diversify the cost impacts/incidence to reduce GHG emission rather than concentrating those mitigation costs primarily on a single set of entities or consumers (e.g. electric

customers). This policy complements other policy actions such as Enhanced Energy Efficiency programs and improved Building Codes.

- 13. Regional Coordination:** The state should work with other states in the region to advocate for stronger appliance efficiency standards where this is technically feasible and economically justified.

# Wisconsin Global Warming Task Force Workgroup Energy Efficient and Green Building Codes

1. **Workgroup:** Conservation and Energy Efficiency Workgroup
2. **Policy Name:** Energy Efficient and Green Building Codes
3. **Policy Type:** Legislation for updating commercial building codes (chapter 63) and introducing a higher performance, voluntary commercial building code with incentives

4. **Affected Sectors, Sub-Sectors and/or Entities:**

Sector: Commercial building sector

Sub-Sector: Electric and natural gas utilities

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5. **Estimated Greenhouse Gas Emissions Reduction Impact:** GHG Reduction in 2010 of 55,000 metric tons of CO<sub>2</sub> compared to “business as usual” for the commercial building code update and an incremental 36,700 metric tons of CO<sub>2</sub> for the high performance, green building code.
6. **Estimated Costs:** Administrative costs for the enhanced commercial building code will be minimal beyond current efforts. Enforcement costs would likely increase in order to achieve a targeted level of 90% compliance. There would also be additional cost for education on the new code(s). Establishing an additional high performance, green

building code based on BSR/ASHRAE/USGBC/IESNA 189P would represent an incremental administrative cost but less than that of creating a custom state energy code.

The cost impact of the accelerated permitting process would be neutral through fee adjustments for standard permit applications. The low interest loan (up to 0.5% of construction cost, with a per project cap) would be provided from a ~~\$4.5M~~ revolving line of credit created through public benefit funding. The loans would have a five-year term and can be repaid by owner/developers through the increased energy and operational savings of the high performance buildings. Administrative costs of the loan program would be approximately \$135K (3%).

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7. **Specific Description of Policy Proposal:** This policy proposal consists of two distinct but complementary actions. The first would establish a policy of adopting the latest IECC code, without modification, as the state commercial energy code (chapter 63) within eighteen months of publication. ~~Adoption of this policy would have prevented the~~ IECC 2006 lighting control measures from being eliminated in the recently updated commercial energy code. Future versions of the IECC code will be based on the next ASHRAE 90.1 standard which is expected to increase energy efficiency in commercial buildings by 30%. This policy is consistent with Act 141 which requires three year review/updates and “consideration” of IECC, ASHRAE or other “generally accepted” energy efficiency codes. The second policy recommendation would be to establish a voluntary high performance, green building code based on proposed standard BSR/ASHRAE/USGBC/IESNA 189P. This draft standard, being drafted in code compliance language, includes a number of provisions and requirements to improve the

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energy and environmental performance of commercial buildings. The current draft standard would increase energy efficiency by 30% over ASHRAE 90.1-2007 and require

1% of electrical service load to be provided by renewable power generation. This provides a convenient mechanism to enforce Executive Order 145 which mandates that state buildings be designed to be 30% better than code in energy efficiency. ASHRAE has stated a long-term goal of net zero energy-use buildings and to have standards by 2015 for buildings that consume 70% less energy than buildings built in 2000. There are additional environmental benefits of green buildings including reduced water usage, improved indoor environmental quality and the use of recycled/recovered materials.

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Other green building standards (e.g., LEED, GBI) could be used as equivalent standards for compliance. The legislative options that should be considered to encourage compliance with the high performance, green building code include 1) mandatory compliance for state-owned facilities, 2) a fast-track permitting process for green buildings, 3) a 0.5% of construction cost low interest loan for private sector new construction and major retrofit projects and 4) a 0.5% of construction cost low interest loan for primary, secondary and higher education new construction and major retrofit projects.

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**8. Timetables, Duration and Stringency Option:** This policy of adopting the latest IECC model code and Standard 189 within eighteen months of issuance would remain in effect until changed by law. Adoption of IECC 2006 would begin in 2008 while Standard 189 would be adopted one year after publication.. The stringency of the commercial building code is considered high due to state enforcement authority while the

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high performance, green building code is variable subject to incentives and other market conditions.

9. **Explanation of Rough Estimate of GHG Reductions:** For the enhanced commercial building code, the GHG reductions assume 12.5% average energy efficiency improvement (half of the 25% 2006 IECC improvement due to current over compliance), 90% participation, 31.6M ft<sup>2</sup> new construction and major retrofit per year for commercial buildings greater than 20K ft<sup>2</sup>, 17.1 kWh/ft<sup>2</sup> and 35.5 CF/ft<sup>2</sup> energy use. For the high performance, green building code, the GHG reductions assume an additional 30% energy efficiency improvement (beyond 2006 IECC) with 25% participation.

10. **Rough Estimate of Costs for Selected Years:** The incremental cost of meeting IECC 2006 energy requirements can be considered very small due to the expected high current level of over-compliance to the current IECC 2000 based code. Recent studies (Langdon 2007) have shown that the average incremental cost of meeting a LEED-NC Silver rating is approximately one percent with a resulting annual energy operating cost reduction of 32%. The annual maximum cost of the high performance building revolving loan program is \$4.5M for a total of \$22.5M over five years. This is based on the conservative estimate of 25% of the private sector (non-storage, non-factory) and educational projects taking advantage of the loan.

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11. **Barriers to Implementation:** The primary barrier is the need for legislation to provide incentives to encourage widespread use of the high performance, green building code.

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There may also be opposition to the policy of automatically updating the state commercial building code to reflect the most recent IECC model energy code due to the uncertainty of future content and local impact. There is also concern about the ability to enforce the commercial building codes.

12. **Other Factors:** Some of the GHG reductions claimed by enhancement of state

building codes could be duplicated in other policy proposals including appliance efficiency standards, public benefit funds, energy efficiency resource standards (EERS) and renewable portfolio standards (RPS). This policy would be implemented by the existing state organizations responsible for maintenance and enforcement of commercial building codes and administration of public benefit funds.

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**GWTF Conservation and Energy Efficiency Group Meeting**  
**Thursday, 9.6.2007**  
**WECC**

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**Welcome / Housekeeping**

**Presentation by COWS (Satya Rhodes-Conway) -- Available opportunities in Energy Efficiency in building**

Satya distributes the following handout: **Building Energy Retrofits** by Joel Rogers

Some key steps towards action:

- Get an independent auditor
- What's the payback?
- What's the capital investment?
- Who will do the work (available contractors)?

An additional handout: **Milwaukee Retrofit: Capturing Home Energy Savings in Milwaukee**

Current regulatory barriers / help needed on the state level:

- If we have a carbon constrained economy (with C&T), it changes the financial factors significantly, and EE becomes more significant.
- Put a financial value on efficiency helps incent efficiency projects.
- Decoupling would push this in the right direction.
- Legislative or PSC action to require or permit "follow the meter" billing.

On Jobs in connection with Energy Efficiency (economic development):

Estimating job development is very difficult. COWS is currently working with a University in FL to do research on this topic. However, their hypothesis is fashioned around the fact that building retrofits create jobs.

**Review of New Policy Draft Templates**

**Review of State / Local Government Leadership – POSTPONED**

Request about State/ Local Gov't Leadership policy: if there are any additional thoughts on what is in ACT 141, including the EO 145 -- are there any big items that people think are missed? Anything in particular we should be working in our group's policy template?

Suggestions / observations include:

- Time has moved so quickly it has been difficult to know what's in the act and get it implemented.

- Impression that there is a disjoint between the state budgeting process – between the operating budget and the capital budget.
- Most of the power plants powering the state’s facilities are very old (20-40 years old). There are likely “off the shelf” things we can do to retrofit those plants, upgrade them to co-gen plants, etc. We can inquire on the electric generation group to see if they are covering this issue.
- The EO addresses the four campuses energy supply. Once we figure out how to do that (increase renewable energy use, increase EE) with four, can we implement these ideas at the other campuses? This would include energy efficiency and renewable energy use.
- Is there a way to evaluate, monitor and report back on these campus energy goals?
  - \*\* Better efforts to handle this are in development. George will check.
- State could set up a recognition program for exemplary EE achievements.
- Strong state leadership role will play a part in motivating social change.
- Leverage some of our state dollars with federal dollars to create more funding opportunities for EE and renewable energy use.
- Lt. Governor launched energy efficiency initiatives in the state, and that seems to have faded away – is that still available?

## **Review of Non-regulated Fuel Conservation / Electric Water Heater Conversion**

### **Non-regulated Fuel Conservation**

#### Comments:

- These standard numbers are good for most regions of the country; they are not necessarily Wisconsin-specific.
- Funding was not really answered; it was indicated that program revenue would be raised through a tax.
- Field contractors/operators could be trained on LP conversion. Non-regulated fuel conservation programs would be integrated with current programs.
- The real barrier here is getting the funding. One recommendation includes putting this in our group of policies for a later time that we will have to prioritize. We will not be able to send as many policies as we have to the TF.
- This should stay “on the table” until we reach that time where we have to prioritize which policies move forward.

### **Electric Water Heater Conversions**

#### Comments:

- Previously, they are implicitly excluded.
- This policy is assuming a switch from electric to gas.
- Would the Focus program develop a program/incentives. It’s happening in a few instances but not across the board.

- Suggested legislative change to prohibit electric water heaters might encompass more than we intend. This might best to do with fuel neutral energy efficiency rather than a building code change.
- Appliance standards or adoption of building code changes in the near future do not cover water heaters.
- This program would save an enormous amount of CO2.
- It would be helpful to add in the amount of kilowatt hours saved in addition to emissions.
- What “conversation to fossil fuels” technology are you promoting? If it’s natural gas, many muni/co-op service areas don’t have access to natural gas. This might not work for all areas in Wisconsin.
  - \*\* look for more information about potential in the EE potential study.
  - Don’t preclude solar electric water heaters.
- We may be able to adopt these policy ideas in other policy write-ups. For example, Bruce could integrate the water heating issue in residential building codes. We could use the appliance policy to absorb some of this, as well.

\*\* George Penn to update both policies with discussed changes and resubmit to Lisa.

### **Review of Demand Response policy**

Ilze hands out an additional graph that shows how Energy Efficiency can be gathered through Demand Response strategies.

Comments:

- There would be many classes covered by this program. Ilze just used residential as a cost estimate example.
- Utility timetable and expense towards implantation would vary based on where they currently are with AMI. Development and sophistication of pilots would depend on metering capabilities, IT systems, etc.
- Wrapping this into other utility policies might be the way to go. We ought to prioritize policies or action for the PSC.
- MISO in parallel is developing a program – we need to be aware of other regional and federal initiatives and work with them.
- If you combine demand response pilots with consumer education so that tariffs and home technology is easy to understand, there are increasing arguments that if you send pricing signals, you can see altered behavior. Consumer feedback units should be part of pilot programs.
- Packaging the customer benefit seamlessly and prioritizing a lower transaction cost is key and should be discussed in this policy when applicable.
- Time between pilot and evaluation: is this fast enough? Utilities can likely not move sooner. It depends on the type of pilot.
- Evaluation of rate impact important – it will be a likely barrier. We need to evaluate consumer costs as we examine our final policy package from our group.
- Any load management / demand response programs should be assessed as to whether or not they provide a net reduction in GHG emissions if they are to be

recommended by GHG reduction purposed rather than simply their peak load reduction impacts.

\*\* Janet to send me evaluation tool for GHG emission savings.

\*\* George Penn to send Lisa a tool connected with LP, etc.

## **Review of Previously Presented, Revised Policy Draft Templates**

### **Review of Enhanced Energy Efficiency Savings Target Policy**

- Propose annual offsetting of energy demand -- 1.5% for electric and 1.0 % for natural gas to be met by energy efficiency and conservation. The statewide program should achieve these growth goals.
- This program should be considered along with new rate designs and consumer behavior changes.
- We estimated cost, but not specific energy savings.
- Level of 1.5% was chosen because it is achievable. Under Act 141, the PSCW has the authority to raise the number with joint finance OK.
- Ramp up scales should be added in – perhaps 2009 to 2012.
- We should try to add some rough estimate about how much can be saved by 1.5% alone in this policy to give it some strength.
- It's important to continue to make people understand that we are moving from current program, which is – for electricity – 1.2% of revenues (how the program is currently funded) and moving towards an energy efficiency savings target.
- Moving from a spending paradigm to a results paradigm. We should say that ten years ago, we spent larger shares of money on efficiency. We're moving back up, but it is slow. A historical footnote about energy efficiency spending should be added to the template.
- Displaying information on what other states are doing re: spending levels in connection with energy efficiency should be another change for this template.
- A legislative model such as Act 141 will be the vehicle to achieve this energy efficiency program and target. It will likely be politically challenging. However, ACT 141 gives us existing framework with which to achieve this target.
- We could also add in text that covers job and economic growth and benefits.

### **Review of Commercial Building Codes**

#### Comments:

- Under item 7, we need to put something in about automatic controls, etc. We should say that we recommend adopting the latest IECC code including the lighting provisions.
- Page 3 – change ASHRAE has stated a long-term goal . . . . to something more specific about what we are trying to get to. Achieve zero-net energy buildings by 2030. We can say: our state can adopt a policy that is similar to ASHARE's etc. .

- If new code is adopted, would you continue to assume a 50% over compliance? -- No
- We'll need to have what the net savings are for modeling at each savings level for modeling.

### **Review of Residential Building Codes – POSTPONED to next meeting**

### **Review of Lighting Performance Standard Policy**

- Added residential socket information
- In item 7, instead of using the word 'prohibit', change to have 'require' or 'establish'
- Savings and emissions reductions will be added by next meeting.

### **New Template Presentation on topic of Lighting: Residential Rental Properties**

Comments:

- How will enforcement be handled? Onus will be on tenants who complain. We can't likely assume 100% compliance.
- Add start date for modeling purposes.
- Need consistent GHG reduction numbers.
- Group agrees to keep this policy in final mix for prioritization. Policy seems to have good amount of potential to curb GHG emissions in WI – especially in the short-term.
- Results already reflected to some extent in enhanced EE savings target.

### **Review of Rate Design**

Comments:

- Natural gas was added, but in terms of prioritizing for the Commission, we asked that the Commission start with electric.
- If we pull any elements of ratemaking out to standalone, we should aim to make it inverted rates.

### **Public comment**

Comments from George Penn:

- We should note interactions with other policies on the templates.
- \*\* In general, group members should add assumptions into templates used with calculations
- We should / could also measure other societal benefits – jobs, health, etc
- We need to be able to communicate how important this is in the political arena.
- Using cost, emissions and start date information as early as possible will help.

**Brief reviews of the following templates (minimal changes)**

- Social marketing
- Appliance Efficiency Standards