

**Wisconsin Global Warming Task Force
Industry Work Group
Policy Option: Industrial Boiler Fuel Switching**

1. **Workgroup:** Industry
2. **Policy Name:**
 - a) Provide incentives intended to increase the supply of non-wood biomass and noncommercial forest residues available for use as biofuels. A goal of 50% recovery and use of forest residue for biofuels is recommended.
 - b) Provide incentives to industrial boiler owners to increase the amount of non-wood biomass and noncommercial forest residues used as fuel. These incentives should include regulatory streamlining incentives. Care should be taken to insure that supply-demand market balance is maintained in order to avoid driving up the price of commercial stem wood used as raw material in the pulp, paper, and wood products industries.
 - c) Mandated fuel switching, either to biofuels or from coal to natural gas, is not recommended due to the potentially high cost. It is understood that other policy decisions could drive fuel switching on a site-specific basis. The costs and benefits of fuel switching should be evaluated further within the context of that policy discussion.
3. **Policy Type:** Possible fiscal, regulatory, or technical assistance incentives.
4. **Affected Sectors, Sub-Sectors and/or Entities:** Industrial facilities, primarily in the forest products industry
5. **Estimated Greenhouse Gas Emissions Reduction Potential:** A recent analysis set the amount of forest residues generated in Wisconsin at between 609,000 and 2,325,000 dry tons per year. For every 100,000 tons of forest residues that displace coal, greenhouse gas emissions are estimated to be reduced by about 130,000 tons. A 50% recovery and use goal, if realized and if displacing coal, would reduce greenhouse gas emissions by between approximately 400,000 tons and 1,500,000 tons annually. However, this figure would be reduced by the amount of greenhouse gas emissions associated with collection and transport for use (life-cycle analysis).

6. **Estimated Costs:** Costs for incentives would be dependent on available government funds and legislative will to provide additional funding.
7. **Specific Description of Policy Proposal:**
 - a) Supply-side Incentives: Forest residues include defective portions of trees, unmerchantable trunks, trees removed for purposes of thinning, and materials left behind during logging and management operations. Forest residues do not include pulpwood, saw logs, and other wood used as raw material in the forest products industry. Non-wood biomass would include switchgrass and other similar crops, but not wood. Financial assistance could be provided in the form of grants and low-interest loans to loggers for the purchase of equipment to collect and transport forest residues to market, and for other technical assistance. Funding could be provided through the Focus on Energy Program. Recommended funding is \$1 million per year for three years, with future funding determined by the Focus on Energy Program based on demand. It is also recommended that voluntary best management practices for the recovery of forest residues be developed between DNR and the forest products industry.
 - b) Demand-side Incentives: Financial assistance could be provided in the form of grants and low-interest loans to industrial owners of wood-fired boilers to make physical plant changes necessary to increase the utilization of forest residues or non-wood biomass as fuel (increase wood handling capacity, etc.). Financial assistance could also be provided in the form of a fuel cost subsidy for industrial owners of wood-fired boilers. The source of funding could be the Focus on Energy Program. Recommended funding is \$1.5 million annually in grants for three years and \$1.5 million in low interest loans for three years. Future funding levels should be determined by the Focus on Energy Program based on demand. It is important that market supply and demand balance be maintained in order to avoid driving up the price of commercial stem wood used as raw material in the pulp, paper, and wood products industries. In addition, to the extent allowed under federal regulations, permit streamlining incentives should be provided to offset the regulatory barriers that could be associated with boiler projects.
8. **Timetables, Duration and Stringency Option:** Incentives could take about one year to put in place, if through the Focus on Energy Program. It would likely take a couple of years to put incentives into place through other mechanisms. It would then likely take some time before companies began to utilize the incentives and make related changes.

9. **Explanation of Rough Estimate of GHG Reductions:** Conversion factor developed by NCASI based on commonly used emission factors.
10. **Explanation of Rough Estimate of Costs:** See Item 6.
11. **Barriers to Implementation:**
 - State government costs for incentives
 - Environmental permitting and compliance costs that could negatively impact the cost-effectiveness of projects. For example, federal PSD/NSR and NSPS regulation could come into play. Also, the operation of environmental controls would result in the combustion of fossil fuels or additional energy usage, which would need to be subtracted from total greenhouse gas reduction estimates.
12. **Other Factors:** Two additional options were examined – mandating that all fossil fuel boilers switch to biofuels and mandating that all coal-fired boilers switch to natural gas. These options are not recommended because of the significantly high cost of implementation, operational costs, and the potential lack of available biomass and natural gas to support a statewide conversion in fuel use.
 - Emission Reduction Potential. The following are very rough, ballpark estimates of the general magnitude of reductions that might be expected with 100% implementation of each option.
 - a) Convert fossil fuel boilers to biomass/renewables: Based on a rough estimate in the pulp and paper industry, the maximum statewide reduction might be in the vicinity of 50% from 2005 levels, or approximately 5 million tons. (Total industry sector CO₂ emissions in 2005 were approximately 10 million tons (DNR AEI). Pulp and paper industry is almost 70% of total, or somewhat under 7 million tons. About 70% of pulp and paper CO₂ emissions are associated with fossil fuel combustion, or a little under 5 million tons. Assume more reductions if extrapolated to all industry. Assume less reduction due to a boiler size limit below which conversion would not be required. Assume the increases and decreases offset, resulting in an approximate 5 million ton maximum reduction potential.)
 - b) Convert coal-fired boilers to natural gas: Based on a rough estimate in the pulp and paper industry, the maximum statewide reduction might be in the vicinity of 18% from 2005 levels, or approximately 1.8 million tons. (Approximately 55%, or about 3.8 million tons, of pulp and paper CO₂ emissions in 2005 associated with coal combustion. Assume natural gas emissions are 59% of

coal emissions, adjusted for efficiency. Paper industry maximum potential reduction of approximately 1.6 million tons. Extrapolate to all industry, but assume few coal-fired boilers outside of pulp and paper, resulting in approximately 1.8 million ton maximum reduction potential. This would need to be adjusted for life-cycle emissions (e.g., if CHP units lose efficiency, then purchased power may increase.)

- Costs. The following are very rough, ballpark estimates of the general magnitude of costs that might be expected with 100% implementation of each option.
 - a) Convert fossil fuel boilers to biomass/renewables: Based on a rough estimate in the pulp and paper industry, the capital costs for boiler conversions alone might be expected to approach \$2 billion. The capital costs for related facility changes and pollution controls are unknown, but could approach \$1 to \$2 billion, based on anecdotal evidence. This would bring total capital costs into the \$3-4 billion range, subject to other caveats noted below. Operation costs could increase or decrease, depending on site-specific conditions. (There were 83 pulp and paper industry boilers listed in the 2005 DNR AEI. Assume 15 boiler replacements at \$33 million and 45 boiler rebuilds at \$23 million. Total pulp and paper costs would exceed \$1.5 billion. Extrapolate to all industry and costs could be expected to approach \$2 billion. Costs are in 2001 dollars, so actual costs would be higher. Costs are for a model boiler based on steam demand. The model boiler is toward the small end of the boiler size spectrum, so costs must be scaled (most likely up) to account for actual steam demand.)
 - b) Convert coal-fired boilers to natural gas: Capital costs are unknown, but would be substantial. Energy operation costs could be expected to increase by a factor of about 3.5, based on the average annual price differential between coal and natural gas in 2005 as reported in Wisconsin Energy Statistics 2006.

**Wisconsin Global Warming Task Force
Industry Work Group
Policy Option: Industrial Boiler Fuel Switching**

1. **Workgroup:** Industry
2. **Policy Name:**
 - a) Provide incentives intended to increase the supply of non-wood biomass and noncommercial forest residues available for use as biofuels. A goal of 50% recovery and use of forest residue for biofuels is recommended.
 - b) Provide incentives to industrial boiler owners to increase the amount of non-wood biomass and noncommercial forest residues used as fuel. These incentives should include regulatory streamlining incentives. Care should be taken to insure that supply-demand market balance is maintained in order to avoid driving up the price of commercial stem wood used as raw material in the pulp, paper, and wood products industries.
 - c) Mandated fuel switching, either to biofuels or from coal to natural gas, is not recommended due to the potentially high cost. It is understood that other policy decisions could drive fuel switching on a site-specific basis. The costs and benefits of fuel switching should be evaluated further within the context of that policy discussion.
3. **Policy Type:** Possible fiscal, regulatory, or technical assistance incentives.
4. **Affected Sectors, Sub-Sectors and/or Entities:** Industrial facilities, primarily in the forest products industry
5. **Estimated Greenhouse Gas Emissions Reduction Potential:** A recent analysis set the amount of forest residues generated in Wisconsin at between 609,000 and 2,325,000 dry tons per year. For every 100,000 tons of forest residues that displace coal, greenhouse gas emissions are estimated to be reduced by about 130,000 tons. A 50% recovery and use goal, if realized and if displacing coal, would reduce greenhouse gas emissions by between approximately 400,000 tons and 1,500,000 tons annually. However, this figure would be reduced by the amount of greenhouse gas emissions associated with collection and transport for use (life-cycle analysis).

6. **Estimated Costs:** Costs for incentives would be dependent on available government funds and legislative will to provide additional funding.
7. **Specific Description of Policy Proposal:**
 - a) Supply-side Incentives: Forest residues include defective portions of trees, unmerchantable trunks, trees removed for purposes of thinning, and materials left behind during logging and management operations. Forest residues do not include pulpwood, saw logs, and other wood used as raw material in the forest products industry. Non-wood biomass would include switchgrass and other similar crops, but not wood. Financial assistance could be provided in the form of grants and low-interest loans to loggers for the purchase of equipment to collect and transport forest residues to market, and for other technical assistance. Funding could be provided through the Focus on Energy Program. Recommended funding is \$1 million per year for three years, with future funding determined by the Focus on Energy Program based on demand. It is also recommended that voluntary best management practices for the recovery of forest residues be developed between DNR and the forest products industry.
 - b) Demand-side Incentives: Financial assistance could be provided in the form of grants and low-interest loans to industrial owners of wood-fired boilers to make physical plant changes necessary to increase the utilization of forest residues or non-wood biomass as fuel (increase wood handling capacity, etc.). Financial assistance could also be provided in the form of a fuel cost subsidy for industrial owners of wood-fired boilers. The source of funding could be the Focus on Energy Program. Recommended funding is \$1.5 million annually in grants for three years and \$1.5 million in low interest loans for three years. Future funding levels should be determined by the Focus on Energy Program based on demand. It is important that market supply and demand balance be maintained in order to avoid driving up the price of commercial stem wood used as raw material in the pulp, paper, and wood products industries. In addition, to the extent allowed under federal regulations, permit streamlining incentives should be provided to offset the regulatory barriers that could be associated with boiler projects.
8. **Timetables, Duration and Stringency Option:** Incentives could take about one year to put in place, if through the Focus on Energy Program. It would likely take a couple of years to put incentives into place through other mechanisms. It would then likely take some time before companies began to utilize the incentives and make related changes.

9. **Explanation of Rough Estimate of GHG Reductions:** Conversion factor developed by NCASI based on commonly used emission factors.
10. **Explanation of Rough Estimate of Costs:** See Item 6.
11. **Barriers to Implementation:**
 - State government costs for incentives
 - Environmental permitting and compliance costs that could negatively impact the cost-effectiveness of projects. For example, federal PSD/NSR and NSPS regulation could come into play. Also, the operation of environmental controls would result in the combustion of fossil fuels or additional energy usage, which would need to be subtracted from total greenhouse gas reduction estimates.
12. **Other Factors:** Two additional options were examined – mandating that all fossil fuel boilers switch to biofuels and mandating that all coal-fired boilers switch to natural gas. These options are not recommended because of the significantly high cost of implementation, operational costs, and the potential lack of available biomass and natural gas to support a statewide conversion in fuel use.
 - Emission Reduction Potential. The following are very rough, ballpark estimates of the general magnitude of reductions that might be expected with 100% implementation of each option.
 - a) Convert fossil fuel boilers to biomass/renewables: Based on a rough estimate in the pulp and paper industry, the maximum statewide reduction might be in the vicinity of 50% from 2005 levels, or approximately 5 million tons. (Total industry sector CO₂ emissions in 2005 were approximately 10 million tons (DNR AEI). Pulp and paper industry is almost 70% of total, or somewhat under 7 million tons. About 70% of pulp and paper CO₂ emissions are associated with fossil fuel combustion, or a little under 5 million tons. Assume more reductions if extrapolated to all industry. Assume less reduction due to a boiler size limit below which conversion would not be required. Assume the increases and decreases offset, resulting in an approximate 5 million ton maximum reduction potential.)
 - b) Convert coal-fired boilers to natural gas: Based on a rough estimate in the pulp and paper industry, the maximum statewide reduction might be in the vicinity of 18% from 2005 levels, or approximately 1.8 million tons. (Approximately 55%, or about 3.8 million tons, of pulp and paper CO₂ emissions in 2005 associated with coal combustion. Assume natural gas emissions are 59% of

coal emissions, adjusted for efficiency. Paper industry maximum potential reduction of approximately 1.6 million tons. Extrapolate to all industry, but assume few coal-fired boilers outside of pulp and paper, resulting in approximately 1.8 million ton maximum reduction potential. This would need to be adjusted for life-cycle emissions (e.g., if CHP units lose efficiency, then purchased power may increase.)

- Costs. The following are very rough, ballpark estimates of the general magnitude of costs that might be expected with 100% implementation of each option.
 - a) Convert fossil fuel boilers to biomass/renewables: Based on a rough estimate in the pulp and paper industry, the capital costs for boiler conversions alone might be expected to approach \$2 billion. The capital costs for related facility changes and pollution controls are unknown, but could approach \$1 to \$2 billion, based on anecdotal evidence. This would bring total capital costs into the \$3-4 billion range, subject to other caveats noted below. Operation costs could increase or decrease, depending on site-specific conditions. (There were 83 pulp and paper industry boilers listed in the 2005 DNR AEI. Assume 15 boiler replacements at \$33 million and 45 boiler rebuilds at \$23 million. Total pulp and paper costs would exceed \$1.5 billion. Extrapolate to all industry and costs could be expected to approach \$2 billion. Costs are in 2001 dollars, so actual costs would be higher. Costs are for a model boiler based on steam demand. The model boiler is toward the small end of the boiler size spectrum, so costs must be scaled (most likely up) to account for actual steam demand.)
 - b) Convert coal-fired boilers to natural gas: Capital costs are unknown, but would be substantial. Energy operation costs could be expected to increase by a factor of about 3.5, based on the average annual price differential between coal and natural gas in 2005 as reported in Wisconsin Energy Statistics 2006. More specifically, according to Wisconsin Energy Statistics 2006:
 - Industry used 47.2 TBtu of energy from coal
 - The price premium for natural gas is \$6.86/MBtu (\$9.41 - \$2.55)
 - The total cost of switching from coal to gas would be \$323,792,000
 - The paper industry accounts for 93.5% of industry coal purchases
 - \$302,745,520 of the total cost would be born by the paper industry
 - This does not include consideration of a boiler efficiency penalty of 2-4% for switching to gas

Wisconsin Global Warming Task Force Industry Work Group

1. Workgroup: Industry Work Group

2. Policy Name: Enhance outreach/extension/education about GHG reduction to business, especially small to medium sized business, and include GHG reduction related jobs in Workforce Development programs.

3. Policy Type: Education and facilitation.

4. Affected Sectors, Sub-Sectors and/or Entities: Small entrepreneurs, WMEP, UW and Technical College Systems, UW extension, unions, Workforce Development Boards, employers. Priority may be placed on businesses that have the most improvement to make; however, other businesses which have already improved their energy efficiency should also be encouraged to move toward high efficiency, not only for the GHG impacts but for the demonstration effect in the industry sector as well as in local communities.

5. Estimated Greenhouse Gas Emissions Reduction Impact: This is a policy that can be implemented immediately with little initial seed money. However, there may be some cost in overcoming barriers. Small entrepreneurs can be expected to act in their own best interest in choosing energy savings. Reductions in GHG emissions will be in proportion to the number of participants.

6. Estimated Costs: This policy would require some organization to initiate, but since the WMEP, UW and Technical College Systems are already active in this area the effort could be turned over to them quite quickly. The challenge in priming the existing information and incentive channels is the apparent lack of available money.

Part A (below), ~;

Part B, depends on success of obtaining federal funding and scope;

7. Specific Description of Policy Proposal: Information flow to entrepreneurs, especially small entrepreneurs, tends to be constrained by the time and money available in the context of many competing priorities. Wisconsin is fortunate that both the UW and Technical College Systems have existing outreach programs on energy efficiency so the information conduits already exist. These efforts go back at least 10 years so there is some awareness within the small and medium entrepreneur sector. In some cases the needed technology is already available. Workforce development for the emerging green jobs sector may need more coordination.

We propose that the Governor take some immediate steps.

A. Request that the UW System take the lead in convening WMEP, UW and Technical College Systems, UW extension, unions, and Workforce Development Boards etc.

- Key questions are: What outreach/extension/education to small and medium sized business about GHG reduction is particularly effective, where are the barriers or opportunities for enhancement.
- Outcomes expected by July 2008 are: Assessment of the current GHG reduction outreach/extension/education to small and medium sized business. Identification of needed changes.

B. Request that the Secretary of the Dept. of Workforce Development take the lead in convening employers, Technical Colleges, UW, DWD Job Centers, unions, etc.

- Key questions are: What "green collar" jobs exist/where will labor shortages be (i.e. skilled trades); what training is needed to secure these "green collar" jobs/advance into them; who is looking for work and what skills do they have/need. Some suggested models are the Milwaukee-based Wisconsin Regional Training Partnership (WRTP), Jobs with a Future (JWF) of South Central Wisconsin and the Grow Wisconsin Initiative.

- Outcomes expected by July 2008 are: Assessment of the readiness of the Wisconsin workforce for the emerging green jobs sector. Identification of where changes are needed and recommendations for public and private sector changes in structures and/or reallocations of funds to meet those training needs.
- C. Direct his staff to assess the proposed Federal Green Jobs Act and determine if;
- the Wisconsin Congressional delegation should be asked to support the Bill, and
 - if the Bill becomes law explore accessing the \$125 million funds for green job training.
- D. Request the Secretary of the Dept. of Commerce expand the focus in the existing Customized Labor Training Program to explicitly include and promote training for “green collar” jobs and to support manufacturing conversion to the production of renewable and efficiency components.
- Outcomes expected by September 2008 are: Customized Labor Training Program is expending at least 10% of its funds for “green collar” training and manufacturing conversion. Assessment of on-going funding needs by Secretary of the Dept. of Commerce, and submission of a budget DIN if necessary.
- E. Request the Secretary of the Dept. of Natural Resources, and the PSC Commissioners examine the barriers that may exist in the swift adoption of energy efficient technology, especially in the area of permitting.
- Outcomes expected by July 2008 are: Assessment of the ability of DNR and PSC permitting processes to adapt to swift adoption of energy efficient technology.

8. Timetables, Duration and Stringency Option: This effort could start as early as desired, however the barriers to adoption must be addressed first.

9. Explanation of Rough Estimate of GHG Reductions: See Barriers

10. Rough Estimate of Costs for Selected Years: See Barriers

11. Barriers to Implementation: There are two major barriers to more extensive deployment of energy efficient methods, cost and permitting. Both of these increase the perceived cost of innovation and hence reduce the perceived ROI.

The cost and permitting barriers can be addressed as interdependent components of the same system. The PSC, currently pre-auditing Focus on Energy and Green Tier projects, may be consuming resources better spent on GHG reduction. In effect plans by the company are validated by Focus on Energy or Green Tier and then again by PSC or hired consultants. The effect is to slow permitting and to introduce unnecessary costs. The Governor could request/direct PSC to conduct a pilot project in which projects approved by Focus on Energy or Green Tier would be deemed approved if PSC did not act in 10 business days.

The second barrier to more extensive deployment of energy efficient methods is cost. Because the investment may be too large or “lumpy” especially for small businesses there may be a need to provide means to reduce or spread the costs. The Governor could request/direct PSC to use the saved staff time, estimated to be 10% of current Focus on Energy and Green Tier budgets, to create a funding pool that can provide revolving longer term loans. Although the funding from this source would be small initially, over time the revolving fund could be enhanced from other sources, such as savings from DNR if a similar pilot program of deeming a class of permits with significant reductions were to be implemented at DNR.

The major barriers in workforce development involve the level of organization, facilitation and ongoing support that is required for a successful program. Defining job types and career ladders can be difficult; however, by convening groups under an appointee, accountability will be in place.

12. Other Factors: It may be argued that a more efficient use of public funds would be to focus on large energy users which give a higher GHG reduction per replacement. However it may also be argued that small employers can serve as a potent local demonstration that GHG reduction matters and brings economic gain. In that context small and medium sized entrepreneurs can demonstrate that it is possible to move out of a carbon based economy.

Wisconsin Global Warming Task Force Workgroup

1. Workgroup: Industry Work Group

2. Policy Name: Enhance outreach/extension/education about GHG reduction to business, especially small to medium sized business, and include GHG reduction related jobs in Workforce Development programs.

3. Policy Type: Education and facilitation.

4. Affected Sectors, Sub-Sectors and/or Entities: Small entrepreneurs, WMEP, UW and Technical College Systems, UW extension, unions, Workforce Development Boards, employers. Priority may be placed on businesses that have the most improvement to make; however, other businesses which have already improved their energy efficiency should also be encouraged to move toward high efficiency, not only for the GHG impacts but for the demonstration effect in the industry sector as well as in local communities. On-going research and development of energy efficient industrial equipment is important but there already exists a wealth of products that can be immediately utilized.

5. Estimated Greenhouse Gas Emissions Reduction Impact: This is a policy that can be implemented immediately with little initial seed money. However, there may be some cost in overcoming barriers. Small entrepreneurs can be expected to act in their own best interest in choosing energy savings. Reductions in GHG emissions will be in proportion to the number of participants.

6. Estimated Costs: This policy would require some organization to initiate, but since the WMEP, UW and Technical College Systems are already active in this area the effort could be turned over to them quite quickly. The challenge in priming the existing information and incentive channels is the apparent lack of available money.

7. Specific Description of Policy Proposal: Information flow to entrepreneurs, especially small entrepreneurs, tends to be constrained by the time and money available in the context of many competing priorities. Wisconsin is fortunate that both the UW and Technical College Systems have existing outreach programs on energy efficiency so the information conduits already exist. These efforts go back at least 10 years so there is some awareness within the small and medium entrepreneur sector. In some cases the needed technology is already available. Workforce development for the emerging green jobs sector may need more coordination.

We propose that the Governor take some immediate steps.

A. Request that the UW System take the lead in convening WMEP, UW and Technical College Systems, UW extension, unions, and Workforce Development Boards etc.

- Key questions are: What outreach/extension/education to small and medium sized business about GHG reduction is particularly effective, where are the barriers or opportunities for enhancement.
- Outcomes expected by July 2008 are: Assessment of the current GHG reduction outreach/extension/education to small and medium sized business. Identification of needed changes.

B. Request that the Secretary of the Dept. of Workforce Development take the lead in convening employers, Technical Colleges, UW, DWD Job Centers, unions, etc.

- Key questions are: What "green collar" jobs exist/where will labor shortages be (i.e. skilled trades); what training is needed to secure these "green collar" jobs/advance into them; who is looking for work and what skills do they have/need. Some suggested

models are the Milwaukee-based Wisconsin Regional Training Partnership (WRTP), Jobs with a Future (JWF) of South Central Wisconsin and the Grow Wisconsin Initiative.

- Outcomes expected by July 2008 are: Assessment of the readiness of the Wisconsin workforce for the emerging green jobs sector. Identification of where changes are needed and recommendations for public and private sector changes in structures and/or reallocations of funds to meet those training needs.

C. Direct his staff to assess the proposed Federal Green Jobs Act and determine if;

- the Wisconsin Congressional delegation should be asked to support the Bill, and
- if the Bill becomes law explore accessing the \$125 million funds for green job training.

D. Request the Secretary of the Dept. of Workforce Development, the Secretary of the Dept. of Commerce and the Board of the Technical College System to jointly explore ways to expand the focus in the existing Customized Labor Training Program to explicitly include and promote training for “green collar” jobs and to support manufacturing conversion to the production of renewable and efficiency components.

- Outcomes expected by September 2008 are: Customized Labor Training Program is expending at least 10% of its funds for “green collar” training and manufacturing conversion. Assessment of on-going funding needs by the Secretary of the Dept. of Workforce Development, the Secretary of the Dept. of Commerce and the Board of the Technical College System, and submission of a budget DIN if necessary.

E. Request the Secretary of the Dept. of Natural Resources, and the PSC Commissioners examine the barriers that may exist in the swift adoption of energy efficient technology, especially in the area of permitting.

- Outcomes expected by July 2008 are: Assessment of the ability of DNR and PSC permitting processes to adapt to swift adoption of energy efficient technology. Recommendations on how state based barriers can be removed, and which waivers would be required for EPA or other Federal agencies to remove federally based barriers.

8. Timetables, Duration and Stringency Option: This effort could start as early as desired with minimal administrative structure or budget, however the barriers to adoption must be addressed first.

9. Explanation of Rough Estimate of GHG Reductions: See Barriers

10. Rough Estimate of Costs for Selected Years: See Barriers

11. Barriers to Implementation: There are two major barriers to more extensive deployment of energy efficient methods, cost and permitting. Both of these increase the perceived cost of innovation and hence reduce the perceived ROI.

The cost and permitting barriers can be addressed as interdependent components of the same system. The PSC, currently pre-auditing Focus on Energy and Green Tier projects, may be consuming resources better spent on GHG reduction. In effect plans by the company are validated by Focus on Energy or Green Tier and then again by PSC or hired consultants. The effect is to slow permitting and to introduce unnecessary costs. The Governor could request/direct PSC to conduct a pilot project in which projects approved by Focus on Energy or Green Tier would be deemed approved if PSC did not act in 10 business days.

The second barrier to more extensive deployment of energy efficient methods is cost. Because the investment may be too large or “lumpy” especially for small businesses there may be a need to provide means to reduce or spread the costs. The Governor could request/direct PSC to use the saved staff time, estimated to be 10% of current Focus on Energy and Green Tier budgets, to create a funding pool that can provide revolving longer term loans. Although the funding from this source would be small initially, over time the revolving fund could be enhanced from other

sources, such as savings from DNR if a similar pilot program of deeming a class of permits with significant reductions were to be implemented at DNR.

The major barriers in workforce development involve the level of organization, facilitation and ongoing support that is required for a successful program. Defining job types and career ladders can be difficult; however, by convening groups under an appointee, accountability will be in place.

12. **Other Factors:** It may be argued that a more efficient use of public funds would be to focus on large energy users which give a higher GHG reduction per replacement. However it may also be argued that small employers can serve as a potent local demonstration that GHG reduction matters and brings economic gain. In that context small and medium sized entrepreneurs can demonstrate that it is possible to move out of a carbon based economy.

Wisconsin Global Warming Task Force Industry Work Group
Wisconsin Business Sustainability Council,
Recognition and Pilot Projects for Business GHG Reductions

- 1) **Workgroup:**
 - a) Industry Work Group

- 2) **Policy Name:**
 - a) **Recognition and Pilot Projects for Business GHG Reductions Wisconsin.**
The WI Business Sustainability Council will be a statewide advocate for Business and Industry to embrace workplace environmentally sustainable best practices. **Recognition/awards** for early actions of to reduce GHG. **One-stop shopping referral** for companies and organizations to enhance existing information flows and address current barriers to adoption of more energy efficient methods. **Demonstration/Pilot projects** to reduce GHG. Identify and recommend state policies to create an innovative and robust way to ensure that Wisconsin **businesses get credit** for the early actions to reduce GHG emissions.

- 3) **Policy Types:**
 - a) Executive Order, Legislation and funding authorization;
 - b) Legislation: special study of relationship between GHG reduction & quality job growth

- 4) **Affected Sectors, Sub-Sectors and/or Entities:**
 - a) All Industry Sectors, Sub-Sectors, and Entities (Facilities) using on-site power generating sources or capable of direct generation
 - b) Existing programs, such as Focus on Energy, Green Tier, WMEP and UW and Technical College Systems
 - c) Research and Development
 - d) Manufacturing
 - e) Small entrepreneurs

- 5) **Estimated Greenhouse Gas Emissions Reduction Impact:**
 - a) Target should be 3-5% reduction annually from all sectors combined, i.e. reduce CO2 equivalents by 2.9 million tons annually.

- 6) **Estimated Costs:**
 - a) An independent board would have oversight over the programs, finances, policies, etc of the organization.
 - b) Operational costs could be estimated by looking at the Wisconsin Forward Award, which operates a model for workplace quality that is similar to this proposal for workplace environmental best practices. Operational costs would include staff support and I&E on business case, projects and awards,
 - c) \$5 Million/yr, beginning in the second year, will be available to fund pilot projects and field demonstration projects.

- 7) **Specific Description of Policy Proposal:**
 - a) Recognition/awards for early actions of to reduce GHG by the WI Business Sustainability Council
 - i) As a policy advisory council of the DNR's Green Tier Program, but also in collaboration with Commerce Department and others, the Council will publicize and leverage major corporate sustainability initiatives and build business leadership support for environmentally sustainable best practices.
 - (1) The council will be made up of an equal collaboration of Business, government and NGOs that are leaders in the environmental and emissions fields or in enacting best practices.
 - (2) Eligibility for Council projects and awards would be available to those companies with a clear desire to go beyond compliance

- (3) If a company has had a recent infraction, they can still become part of the program with regular audits of agreed upon benchmarks (similar to current Green Tier program).
- (4) Program will be self monitoring, with required EMS with experts coming to companies to evaluate progress against award criteria
- ii) The Council will develop a self assessment protocol which companies can use to qualify for and annual award, similar to the Wisconsin Forward award. The award could be given at different levels of achievement.
- iii) The Council will prepare a business case for environmental sustainability and market it through a website, regional summits, collaborations with business groups like Chambers of Commerce and regional economic entities, etc
- b) Demonstration/Pilot projects to reduce GHG
 - i) The pilot project funding policy would provide a mechanism for the funding of technically solid projects that can demonstrate the commercial viability in Wisconsin of technical innovations that will improve GHG emission prevention or control. The funding will assist technologies that can help reduce emissions while promoting new industries and jobs in Wisconsin, improve industrial productivity and reduce control costs. \$5 Million will be available per year to fund pilot projects and field demonstration projects. The following are elements of the funding program:
 - (1) Goal is to fund gap between proof of concept and marketable product
 - (2) Funding limited to pilot projects and field demonstration of technology or innovation in the private
 - (3) Administration of the program will be by the Wisconsin Department of Natural Resources
 - (4) Funding will be limited to no more than 50% of the project budget
 - (5) Funding will be limited to R&D expenses; no funding of marketing expenses
 - (6) Submissions of projects for consideration will require project plan
 - (7) Final and interim reports required
 - (8) Selections of projects will be made by a panel (including WDNR, WDOC, UW-Energy Center?, Tech School, FOE, others?)
 - (9) WDNR will regularly oversee progress of selected projects
 - (10) Technology developer will retain rights to intellectual property
 - ii) Criteria for a project to be selected for funding:
 - (1) Must have potential for Wisconsin economic benefit
 - (2) Limited to parties with a presence in Wisconsin(?)
 - (3) GHG reduction potential in Wisconsin
 - (a) Fuel conversion
 - (b) Emission control
 - (c) Energy saving innovation
 - (4) In scope:
 - (a) Product related technology (engines, industrial machinery, etc.)
 - (b) Manufacturing process improvements
 - (c) Technology that reduces direct GHG emissions
 - (d) Technology that results in improved fuel economy
 - (e) Technology that results in improved energy efficiency
 - (5) Out of scope:
 - (a) Energy conservation projects
 - (b) Energy efficiency projects using available technology
- c) Referral to existing educational systems for GHG reduction
 - i) The Council staff will provide one-stop shopping referral to enhance existing information flows and address current barriers to adoption of more energy efficient methods.
 - ii) Information flow to entrepreneurs, especially small entrepreneurs, tends to be constrained by the time and money available in the context of many competing priorities. With regard to GHG reduction Wisconsin is fortunate that both the UW and Technical College Systems have existing outreach programs on energy efficiency so the information conduits already exist. These efforts go back at least 10 years so there is some awareness within the small and medium entrepreneur sector. In some cases the needed technology is already available.

- d) Early actions to reduce GHG emissions.
 - i) The Council will promote incentives for industrial sector businesses to implement energy conservation and efficiency projects, practices and measures resulting in reduced energy consumption from non-renewable sources. Potential incentives could include: Monetary incentives; Tax incentives; Loan Program; Environmental permitting incentives e.g. fast track permitting for retrofit and/or equipment replacement.
 - ii) The Council will Identify and recommend state policies to create an innovative and robust way to ensure that Wisconsin businesses get credit for the early actions to reduce GHG emissions

8) Timetables, Duration and Stringency Option:

- a) Executive Order to authorize the Council could be in early 2008
- b) Program Funding
 - i) Funding beginning FY09 continuing annually through 2020
 - ii) Program review every 5 years
- c) Incentives
 - i) Implementation of incentive policies is dependant upon legislative approval, and the availability of state revenue. Under a very optimistic scenario, legislation could be passed in the 2009 legislative session and funding appropriated for the FY09.
 - ii) To maximize effectiveness, the incentives should be considered as continuous ongoing appropriations.

9) Explanation of Rough Estimate of GHG Reduction:

- a) As the business case for environmental sustainability is spread to more businesses, the resulting reduction could be phenomenal. The business ethic will become to seek out programs such as Focus on Energy, WMEP, one-stop-shopping, etc. We would need actual data on business emissions to be able to predict the results.
- b) If Wisconsin Industry could average a 3% reduction annually, it would reduce CO2 by 2.9 million tons annually.
- c) GHG reductions will be calculated by project technology based upon the baseline calculation of emissions prior to implementation of the technology and calculation or estimate of emissions after implementation of the funded technology project
- d) A number of performance measures could be tracked in the program including (funding \$/emission reduction) or other measures of economic benefit to Wisconsin (Gross-State-Product/kWh, GSP/kWh)

10) Rough Estimate of Costs for Selected Years:

- a) Program management costs for State Government, the DNR and Commerce, are minor, but still need to be estimated.
- b) Costs to private industry will be significantly larger and need to be carefully assessed and estimated on a facility level where business units in both large and small companies are typically defined. These estimates, including data collection and reporting burden that needs to be generated as part of the initial program design process, will help determine precisely the type and detail of information to be collected from industry, the reporting periods, and format.

11) Barriers to Implementation:

- a) Reluctance of industry to adopt yet another self-reporting requirement due to direct expense of periodic data collection and reporting, and concern that data will result in future imposition of GHG emissions control requirements and expenditures.
- b) Adequate funding of government program resources, especially resources to administer data collection and reporting program; gather, collate, evaluate, and disseminate reported data from/to industry and the public; and ensure compliance with emissions data reporting requirements.
- c) DNR regulations inhibit quick response of industry to invest and make changes in their operations. Construction Permits for GHG reduction need fast approvals.
- d) Reluctance of Industry to believe in slow return on investments.

- e) Energy costs are not part of capital budgets, thus unnoticed at many small and medium businesses.
- f) Lack of internal education on what is available: Techniques, Tools, Resources, Funding, etc.
- g) Lack of resources for energy management in small business
- h) Third Party verification costs can be greater than savings. Industry Associations should help reduce these costs by providing these services.
- i) Challenge of funding the program
- j) Maintaining funding
- k) Setting criteria that attract effective projects that will benefit Wisconsin.
- l) Providing an incentive for a manufacturer to address GHG reductions while complying with product related emissions regulations and quality of end product.
- m) The incentives would require legislative approval, including the appropriation of state revenue during a time when the budget is tight. There would also need to be an administrative component to each of these incentives, including, in some cases, the likelihood of a competitive application process or the certification of tax credits. Also, as noted above, the incremental benefit of energy efficiency and conservation is uncertain given that lean manufacturing and other market-driven forces have caused many industrial sector businesses to implement energy efficiency and conservation measures already.

There are two major barriers to more extensive deployment of energy efficient methods, cost and permitting. Both of these increase the perceived cost of innovation and hence reduce the perceived ROI.

The cost and permitting barriers can be addressed as interdependent components of the same system. The PSC, currently pre-auditing Focus on Energy and Green Tier projects, may be consuming resources better spent on GHG reduction. In effect plans by the company are validated by Focus on Energy or Green Tier and then again by PSC or hired consultants. The effect is to slow permitting and to introduce unnecessary costs. The Governor could request/direct PSC to conduct a pilot project in which projects approved by Focus on Energy or Green Tier would be deemed approved if PSC did not act in 10 business days.

The second barrier to more extensive deployment of energy efficient methods is cost. Because the investment may be too large or “lumpy” especially for small businesses, there may be a need to provide means to reduce or spread the costs. The Governor could request/direct PSC to use the saved staff time, estimated to be 10% of current Focus on Energy and Green Tier budgets, to create a funding pool that can provide revolving longer term loans. Although the funding from this source would be small initially, over time the revolving fund could be enhanced from other sources, such as savings from DNR if a similar pilot program of deeming a class of permits with significant reductions were to be implemented at DNR.

12) Other Factors:

- a) Industry Associations should also come forward with training, tools, techniques and education on GHG and what businesses can do within each of their limitations.
- b) It may be argued that a more efficient use of public funds would be to focus on large energy users which give a higher GHG reduction per replacement. However it may also be argued that small employers can serve as a potent local demonstration that GHG reduction matters and brings economic gain. In that context small and medium sized entrepreneurs can demonstrate that it is possible to move out of a carbon based economy.

Wisconsin GWTF Industry Workgroup “Emissions Data Feedback Policy”

1. Workgroup:

Industry

2. Policy Name:

Provide Data Feedback to Industry on Baseline GHG Emissions and GHG Emissions Reductions - immediate, medium, long term. This policy focuses on baseline and periodic industry emissions data collection and reporting; identification of tools to help industry measure and quantify emissions; establishing sector goals for GHG emissions reductions; adopting energy auditing and budgeting by industrial sector; providing convenient-to-use measuring devices (smart meters); and, finally, setting emissions reduction targets and measuring reductions in relation to impact on “quality” job metrics.

3. Policy Types:

- a. Legislation and funding authorization;
- b. Voluntary industry best practices systems;
- c. Legislation: Special study of relationship between GHG reduction & economic and quality job metrics.

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

- a. All Industry Sectors, Sub-Sectors, and Entities (Facilities) using on-site power generating sources.

5. Estimated Greenhouse Gas Emissions Reduction Impact:

- a. Target should be 3-5% increment of reduction annually from all sectors beyond that achieved without this inventory system, the publicized data feedback loop, and the array of tools deployed under this policy for moving facilities beyond routine compliance.

6. Estimated Costs:

- a. Companies investing in GHG emissions monitoring/reporting for the inventory will see at most a negligible initial investment on their present operating budgets. Because those same companies that meet the threshold reporting requirements of this inventory system (see 7.a. below) already monitor and report air emissions for various other parameters, the initial investment for this purpose is negligible.
- b. State government costs might include funding for incentives (i.e. grants, loans, tax credits, etc.) and technical assistance through UWEX, etc. to help businesses, especially medium to small-size, design and execute energy auditing and GHG measuring programs that will, in part, provide GHG emissions data.
- c. Industry associations will incur costs to create their own technical assistance programs and, possibly, incentive and loan programs, for use by members in acquiring and using special measuring devices.

7. Specific Description of Policy Proposal:

- a. Wisconsin Legislature should authorize and fund a program to collect baseline GHG emissions data and updated emissions data from facilities in all industrial sectors to establish, update, and publish a comprehensive, empirical emissions inventory. Facilities will be included in this inventory system if they individually meet or exceed a specified level between 10,000 – 25,000 tons per year of direct CO2 emissions. Ideally, this inventory will provide a reliable macro-measure of state industry emissions of GHG,

as well as a facility-specific micro-baseline measure, that will accomplish two objectives:

1. quantify, using empirical means, the direct GHG gas emissions loading into the atmosphere from facilities meeting the minimum, annual direct CO2 emissions threshold and industry sectors for a specific baseline year in the near future; and
2. establish GHG measurement protocol and industry reporting and feedback process, procedure, and schedule to enable valid, empirical measurement of progress in reducing GHG emissions at the micro (facility) level and the macro (industry) level.

- b. Industry, through voluntary adoption of best practices and government encouragement, should adopt energy auditing and budgeting systems, including the establishment of publicized goals (reduction targets) for annual, short-term and long-term GHG emissions reductions, and GHG emissions reporting in relation to goals. Annually, industry should report results by sector and by facility.

8. Timetables, Duration and Stringency Option:

- a. Annual, depending on data collection/reporting costs and effectiveness for GHG emissions reporting. Scope, level of detail, types of GHG to be reported, frequency of data collection and reporting, and other system design details will establish the “stringency” of the data collection and reporting requirement.

9. Explanation of Rough Estimate of GHG Reduction:

- a. If Wisconsin industry averaged a 3% reduction annually, it would reduce CO2 by 2.9 million tons annually. NB: By comparison, at some companies, Toxic Release Inventory (TRI) reductions have averaged over 5% per year over 10+ year period.

10. Rough Estimate of Costs for Selected Years:

- a. Program management costs for state government, presumably the DNR, are minor, but still need to be specifically estimated.
- b. Costs to private industry will be significantly larger and need to be carefully assessed and estimated on a facility level where business units in both large and small companies are typically defined. These estimates, including data collection and reporting burden that need to be generated as part of the initial program design process, will help determine precisely the type and detail of information to be collected from industry, the reporting periods, and format.

11. Barriers to Implementation:

- a. Reluctance of industry to adopt yet another self-reporting requirement due to direct expense of periodic data collection and reporting, and concern that data will result in future imposition of GHG emissions control requirements and expenditures.
- b. Adequate funding of government program resources, especially resources to administer data collection and reporting program; gather, collate, evaluate, and disseminate reported data from/to industry and the public; and ensure compliance with emissions data reporting requirements.
- c. Energy auditing protocols and procedures with respect to GHG emissions widely unknown to many small and medium businesses, especially.
- d. Lack of resources for energy auditing and GHG emissions monitoring and reporting.
- e. Lack of perceived short-term economic value from periodic GHG emissions data collection and reporting activity.

12. Other Factors:

- a. None.

Wisconsin Global Warming Task Force Industry Work Group Reduction of Emissions of High GWP Gases

Please Note: The Industry Work Group is submitting this policy for public comment and Task Force review recognizing it is still in rough draft form. We realize it is not at the same stage as the rest of the “draft-policy-templates” but are looking for comments and input to aid us in completing it.

1. **Workgroup:** Industry Work Group
2. **Policy Name:** Reduction of Emissions of High GWP Gases
3. **Policy Type:** Regulatory actions to require leak testing, repair, recovery and recycling of High Greenhouse Warming Potential (GWP) gases from various operations. Require the phase-out of sulfur hexafluoride in the magnesium industry.
4. **Affected Sources, Sub-sectors and/or Entities:** HVAC contractors, Refrigeration Contractors, Electric Utilities, Scrap Recyclers, Magnesium die-casters.
5. **Estimated Greenhouse Gas Emissions Reduction:** In a report prepared for the Wisconsin Task Force on Global Warming dated June 25, 2007 the World Resources Institute estimated that the emissions of High GWP gases is 2.2 million metric tons of GHG on a CO₂ equivalent basis (MtCO₂e). It is not possible to determine emission reductions from this policy recommendation, but the policy should at a minimum abate future growth of emissions from the regulated sources.
6. **Estimated Costs:** The infrastructure for implementing these recommendations is currently in place for the monitoring and capture of CFCs and HCFCs. Extending these protections to the use of HFCs maintains costs currently being undertaken in the maintenance and disposal of the equipment as opposed to creating a new cost structure.
7. **Specific Description of Policy Proposal:** In 1987 the United Nations adopted the Montreal Protocol on Substances that Deplete the Ozone Layer. This policy required the phase out of CFCs and HCFCs over a period of decades. These chemicals not only contribute to the depletion of the ozone layer, but also have high greenhouse warming potential. As the compounds were being phased out, regulations were put into place requiring leak testing, repair, recovery and recycling of these compounds in their current applications, such as air conditioning, refrigeration, and fire protection

systems, as a method of reducing the emissions from their use. In Wisconsin the enabling regulation for the reduction of these emissions can be found in NR 488 of the Wisconsin Administrative Code. In the last two decades an infrastructure has arisen to ensure that these compounds will be properly used, recycled and disposed. People working with these compounds require training, and testing and recordkeeping is necessary to assure that leaks quickly addressed and repaired. This policy suggests that the provisions of this code be extended to HFCs, which are now coming into the market as the replacements for the compounds being phased out. Extending these regulations to HFCs amounts to continuing a best management practice that is now accepted by the industry through organizations such as ASHRAE. This approach is also being taken in Europe through European Regulation number 842/2006 dated May 17, 2006. In 1999, the US EPA joined forces with the International Magnesium Association to eliminate the use of sulfur hexafluoride in magnesium melting applications by 2010. WDNR should establish if this project is moving forward successfully and determine whether there are companies in the state to which this would apply.

8. **Timetables, Duration, and Stringency Options:** WDNR could undertake the regulatory revisions to NR 488 immediately. Giving time for writing the regulation, public comment and final publication, the rule could be in place by 2009.
9. **Explanation of Rough Estimate of GHG Reductions:** Not applicable
10. **Rough Estimate of Costs for Selected Years:** Administrative cost to the WDNR to implement rule change. Insignificant.
11. **Barriers to Implementation:** Unanticipated or currently unregulated uses of HFCs may come under regulation by the extension of NR 488 to HFCs. Certain chemical manufacturers or chemical users may push back on regulation due to the lack of alternative compounds or the risks associated with the use of the alternative compounds, such as greater toxicity or fire hazard.

**Wisconsin Global Warming Task Force
Industry Work Group Policy Option:
Sector based 2% annual energy intensity reduction
with Feebate provision**

1. **Workgroup:** Industry
2. **Policy Name:** Sector based 2 % energy intensity reduction with feebate provision
3. **Policy Type:** Voluntary market based energy efficiency initiative with revenue-neutral feebate funding mechanism for clean energy portfolio and carbon footprint reduction projects.
4. **Affected Sectors, Sub-Sectors and/or Entities:** Extend across a broad range of sectors and entities.
5. **Estimated Greenhouse Gas Emissions Reduction Impact:**

A 2% reduction in 2003 WI Industrial electricity sales would yield an estimated 408,234 metric ton reduction in GHGs. See section 9 for a rough estimation of the GHG reduction methodology.

6. **Estimated Costs:**

Administrative costs to negotiate sector agreements, program start-up and ramp-up. Sector management of goal setting, performance tracking and reporting requirements will reduce public oversight costs. Feebate collection and allocation by utilities would also reduce public costs. Additional funding may be needed for public outreach, marketing and promotional activities to highlight best practices and recognize top performers. An annual feebate payment will be required for below average performers. As an example: 1%-2% percent of all industrial electricity expenditures were \$13 - \$26 million in 2005. 1%-2% percent of all industrial natural gas expenditures were also about \$13-\$26 million in 2005.

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

The proposal essentially combines two ideas: First, that “everyone does their part” through a minimum 2% reduction in energy intensity. Second, that we accommodate growth in sector energy demand with further investments in energy efficiency, renewable technologies and other carbon footprint reducing activities. This strategy, coupled with the replacement of old, inefficient power plants with new, vastly more efficient ones, would dramatically reduce greenhouse gas emissions and other pollution overtime.

Each sector business or entity will be required to reduce its energy intensity/electricity/natural gas use per unit of output by at least 2.0% percent per year on a continuing basis. The unit of output / business metric can be expressed as a production factor, dollar of sales, number of employees or some other agreed upon standard within each sector. The goal is to reduce energy intensity for each sector by 2% each year. In addition, a feebate would be structured so that below average performers pay a fee that would be fed back to above average performers to reimburse clean energy portfolio and carbon footprint reduction costs.

"Feebates" are economic instruments based upon the principle that efficient use of resources should be rewarded by the inefficient. Under this policy option, a fee and a rebate would be combined in such a way that the incentive drives reductions in energy intensity while generating a source of funds for clean energy portfolio investments that help offset growth in sector energy demand. It is important to note that feebates are revenue-neutral, with sector fees paying the rebates, rather than as a tax or budgetary item.

A sector based feebate might work something like this: Each sector business or entity would establish its' baseline energy intensity per unit of production. This ratio is adjusted each year by the average overall percent reduction among all companies in the sector. Companies whose ratio is below the average percentage pay the feebate rate and those funds are fed back to those whose performance is above average to reimburse clean energy portfolio and carbon footprint reduction costs.

The feebate "rate" might be based on the state average electricity and natural gas rates. Companies who perform below the average percentage reduction would pay the difference between their performance and the average performance. For example, if the average overall percentage reduction among all companies in a sector is 3% and a company's reduction is only 1%, the company pays a feebate equal to the difference (2%) of their total annual energy bill. Feebates would be collected from all the below average performers and then fed back to above average performers to reimburse clean energy portfolio and carbon footprint reduction costs.

If the average overall percent reduction among all companies in a sector in a particular year is less than 2%, then each company would pay a feebate equal to the difference between their performance and the 2% reduction requirement. Again, feebates would be earmarked to fund clean energy and carbon footprint reduction projects within each sector.

Selected industry examples:

*In 1996, Quad/Graphics, the state's largest printer, voluntarily committed to reduce its electricity use by 3.0% per year per unit of output (one million printing impressions) on an ongoing basis. As of 2007, the company's estimated average

annual electricity use reduction is 2.9%, or equivalent to a 35% reduction in overall electricity use per unit of output compared to 1996.

*As reported in the Milwaukee Journal Sentinel (12/6/07), Johnson Controls "...had set a target of reducing its U.S. greenhouse gas emissions intensity by 18% per dollar of sales between 2002 and 2012, but the company was progressing so quickly toward meeting that goal that it has now set a new target of a 30% drop in emissions per dollar of sales..."

*Miller Brewing Company set a target to reduce greenhouse gas emissions by 18 percent per barrel of production from 2001 to 2006.

Questions to consider?

Should there be a "Good Actor Clause" for those companies with an exemplary track record of energy efficiency so as to opt out of the 2% requirement?

Similarly, do we give credit to companies that already meet some threshold of energy efficiency performance and management system that includes provisions for energy audits, process efficiency improvements, lighting retrofits, etc.?

Is there an opportunity for business mentoring by large companies for small companies within sectors? Might large companies receive additional flexibility or incentives for their mentoring efforts?

Might "Green Tier Charters" be used as the negotiation framework for sectors to manage and report their energy efficiency commitments?

How can we position leading sector businesses to receive significant financial gains from generating carbon credits for a future cap-and-trade system?

Are there potential marketing and branding benefits for sector leaders and for the state as a whole because of innovative energy management and superior environmental performance?

8. Timetables, Duration and Stringency Option:

Implement as soon as practical based upon 2007 benchmarked energy use and production outputs. Write agreements, develop charters, market and promote for implementation beginning Jan. 2009. Eventually fold into Midwestern Governor's Association goal requiring 2 percent in energy efficiency improvements each year after 2015.

9. Explanation of Rough Estimate of GHG Reductions:

An estimate of GHG reductions can be found looking at a theoretical 2% reduction in 2003 WI industrial electricity use.

According to the Energy Information Administration 2003 Wisconsin Industrial Electricity Sales were 25,821,248 MWhs.

Two percent of this total is roughly 516,425 MWhs.
That's $25,821,248 \text{ MWhs} \times .02 = 516,424.96 \text{ MWhs}$.

Best practice for GHG estimates from electricity consumption is to multiply total consumption by the EPA eGrid electricity subregion emissions rate average. An average of Wisconsin's 3 subregion averages generates an emissions factor of approximately 0.7905 metric tons/MWh.

Therefore, we have the following calculation:
 $0.7905 \text{ metric tons/MWh} \times 516,425 \text{ MWhs} = 408,233.9625 \text{ metric tons}$

So, a 2% reduction in 2003 WI Industrial electricity sales would yield an estimated 408,234 metric ton reduction in GHGs.

10. Rough Estimate of Costs for Selected Years:

Public administrative costs should be low because each sector will establish energy efficiency goals, negotiate agreements, and provide program oversight. Some third-party oversight of sector performance may be required. Feebate collection, allocation and reimbursement within existing utility bills might also reduce public costs. Additional funding may be needed for public outreach, marketing and promotional activities to share best practices and recognize top performance.

11. Barriers to Implementation:

Business sectors may resist the idea of a "feebate" that raises the price of below average performance and lowers the price of above average performance. Sectors must make energy efficiency determinations that are meaningful and account for large and small businesses within each sector. Possible legislation needed to authorize "feebate" funding mechanism.

12. Other Factors:

Determine implications for Cap & Trade program implementation, if any.

**Wisconsin Global Warming Task Force
Industry Work Group Policy Option:
Sector based 2% annual energy intensity reduction
with Feebate provision
(revised 3-4-08)**

1. **Workgroup:** Industry
2. **Policy Name:** Sector based 2 % energy intensity reduction with feebate provision
3. **Policy Type:** Voluntary market based energy efficiency initiative with revenue-neutral feebate funding mechanism for clean energy portfolio and carbon footprint reduction projects.
4. **Affected Sectors, Sub-Sectors and/or Entities:** Make available to a broad range of sectors and entities.
5. **Estimated Greenhouse Gas Emissions Reduction Impact:**

If all industrial facilities in Wisconsin voluntarily reduced energy intensity by 2% percent each year, the result would be an estimated 408,234 metric ton reduction in GHG emissions each year based on 2003 WI Industrial electricity sales. See section 9 for a rough estimation of the GHG reduction methodology.

6. **Estimated Costs:**

Administrative costs to negotiate sector agreements, program start-up and ramp-up. Sector management of goal setting, performance tracking and reporting requirements will reduce public administration costs. Utility feebate collection and distribution would also reduce public costs. A portion of the fees collected may be allocated for public outreach, marketing and promotional activities to highlight best practices and recognize top performers within sectors. An annual feebate payment will be required for below average performers. As an example: 1%-2% percent of all industrial electricity expenditures were \$13 - \$26 million in 2005. 1%-2% percent of all industrial natural gas expenditures were also about \$13-\$26 million in 2005.

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

The proposal essentially combines two ideas: First, that “everyone does their part” through a minimum 2% annual reduction in energy intensity. Second, that we accommodate growth in sector energy demand with further investments in energy efficiency, renewable technologies and other carbon footprint reducing activities.

This strategy, coupled with the replacement of old, inefficient power plants with new, vastly more efficient ones, would dramatically reduce greenhouse gas emissions and other pollution overtime.

Each participating sector business or entity will be required to reduce its energy intensity/electricity/natural gas use per unit of output by at least 2.0% percent per year on a continuing basis. The unit of output / business metric can be expressed as a production factor, dollar of sales, number of employees or some other agreed upon standard within each sector. The goal is to reduce energy intensity for each sector by 2% each year. In addition, a feebate would be structured so that below average performers pay a fee that would be fed back to above average performers (or the sector) to reimburse clean energy portfolio and carbon footprint reduction costs.

"Feebates" are economic instruments based upon the principle that efficient use of resources should be rewarded by the inefficient. Under this policy option, a fee and a rebate would be combined in such a way that the incentive drives reductions in energy intensity while generating a source of funds for clean energy portfolio investments that help offset growth in sector energy demand. It is important to note that feebates are revenue-neutral, with sector fees paying the rebates, rather than as a tax or budgetary item.

A sector based feebate might work something like this: Each sector business or entity would establish its' baseline energy intensity per unit of production. This ratio is adjusted each year by the average overall percent reduction among all companies in the sector. Companies whose ratio is below the average percentage pay the feebate rate and those funds are fed back to above average performers (or the sector) to reimburse clean energy portfolio and carbon footprint reduction costs.

The feebate "rate" might be based on the state average electricity and natural gas rates. Companies who perform below the average percentage reduction would pay the difference between their performance and the average performance. For example, if the average overall percentage reduction among all companies in a sector is 3% and a company's reduction is only 1%, the company pays a feebate equal to the difference (2%) of their total annual energy bill. Feebates would be collected from all the below average performers and then fed back to above average performers (or the sector) to reimburse clean energy portfolio and carbon footprint reduction costs.

If the average overall percent reduction among all companies in a sector in a particular year is less than 2%, then each company would pay a feebate equal to the difference between their performance and the 2% reduction requirement. Again, feebates would be earmarked to fund clean energy and carbon footprint reduction projects within each sector.

Selected industry examples:

*In 1996, Quad/Graphics, the state's largest printer, voluntarily committed to reduce its electricity use by 3.0% per year per unit of output (one million printing impressions) on an ongoing basis. As of 2007, the company's estimated average annual electricity use reduction is 2.9%, or equivalent to a 35% reduction in overall electricity use per unit of output compared to 1996.

*As reported in the Milwaukee Journal Sentinel (12/6/07), Johnson Controls "...had set a target of reducing its U.S. greenhouse gas emissions intensity by 18% per dollar of sales between 2002 and 2012, but the company was progressing so quickly toward meeting that goal that it has now set a new target of a 30% drop in emissions per dollar of sales..."

*Miller Brewing Company set a target to reduce greenhouse gas emissions by 18 percent per barrel of production from 2001 to 2006.

Policy Options:

Provide a "Good Actor Clause" for those sector companies with an exemplary track record of energy efficiency so as to opt out of the 2% requirement.

Moreover, credit those companies that already meet some threshold of energy efficiency performance including: provisions for energy audits, process efficiency improvements, lighting retrofits and continuous improvement.

Provide opportunities for energy efficiency mentoring by large companies for small companies within sectors. Provide participating companies with additional regulatory flexibility or incentives for their mentoring efforts.

Use "Green Tier Charters" as the negotiation framework for sectors to manage and report their energy efficiency commitments. Provide additional flexibility for Charter participants to overcome the real or perceived risk of regulatory barriers such as New Source Review.

Provide marketing, promotion and branding benefits for participating sectors and for the state as a whole because of innovative energy management and superior environmental performance.

8. Timetables, Duration and Stringency Option:

Implement as soon as practical based upon 2007 benchmarked energy use and production outputs. Recruit sectors, write agreements, develop charters, market and promote for implementation beginning Jan. 2009. Eventually fold into Midwestern Governor's Association goal requiring 2 percent in energy efficiency improvements each year after 2015.

9. Explanation of Rough Estimate of GHG Reductions:

An estimate of GHG reductions can be found looking at a theoretical 2% reduction in 2003 WI industrial electricity use.

According to the Energy Information Administration 2003 Wisconsin Industrial Electricity Sales were 25,821,248 MWhs.

Two percent of this total is roughly 516,425 MWhs.

That's 25,821,248 MWhs X .02 = 516,424.96 MWhs.

Best practice for GHG estimates from electricity consumption is to multiply total consumption by the EPA eGrid electricity sub region emissions rate average. An average of Wisconsin's 3 sub region averages generates an emissions factor of approximately 0.7905 metric tons/MWh.

Therefore, we have the following calculation:

0.7905 metric tons/MWh X 516,425 MWhs = 408,233.9625 metric tons

So, a 2% reduction in 2003 WI Industrial electricity sales would yield an estimated 408,234 metric ton reduction in GHGs.

10. Rough Estimate of Costs for Selected Years:

Public administrative costs should be low because each participating sector will establish energy efficiency goals, negotiate agreements, and provide program implementation. Some third-party oversight of sector performance will be required. Feebate collection, allocation and reimbursement within existing utility bills might also reduce public costs. Additional funding may be needed for public outreach, marketing and promotional activities to share best practices and recognize top performance.

11. Barriers to Implementation:

Some sectors may resist the idea of a "feebate" that raises the price of below average performance and lowers the price of above average performance. Sectors must make energy efficiency determinations that are meaningful and account for large and small businesses within each sector. The "feebate" funding mechanism should be addressed by flexibility in current Green Tier law or within existing agency appropriation authority to avoid the need for additional authorizing legislation.

12. Other Factors:

Determine implications for Cap & Trade program implementation, if any.

**Wisconsin Global Warming Task Force
Industry Work Group
Policy Option: Industrial Boiler Efficiency
Improvements**

1. **Workgroup:** Industry
2. **Policy Name:** Regulatory and financial incentives for industrial boiler owners to undertake boiler efficiency improvements
3. **Policy Type:** Regulatory incentive; financial incentive
4. **Affected Sectors, Sub-Sectors and/or Entities:** Industrial facilities
5. **Estimated Greenhouse Gas Emissions Reduction Potential:**
Evaluation of six boiler efficiency options covering a range of fuels and boiler types showed potential CO₂ emission reductions of between 6,000 and 25,000 tons per year for a model facility. Actual reductions may be higher or lower, but would probably be lower because most boilers are smaller than assumed in the model facility. The estimated universe of industrial boilers in Wisconsin is approximately 3,000.
6. **Estimated Costs:** Evaluation of six boiler efficiency options showed:
 - a) Capital costs are variable because they are dependent on site-specific conditions, which are variable.
 - b) Operational cost savings range between \$205,000 and \$845,000 annually for a model facility. Actual cost savings could be higher or lower.
 - c) Regulatory compliance costs could range from insignificant for small boilers at minor sources to significant for boilers at major sources regulated by the PSD/NSR program.

7. **Specific Description of Policy Proposal:**
 - a) Regulatory Incentives: Provide permitting relief for boiler efficiency projects. Provide expedited permit approvals.
 - b) Financial Incentives: Annual funding of \$5 million for grants and loans should be provided through the Focus on Energy Program. Funding purposes should include technical assistance, equipment purchases and installation costs. Alternatively, a larger one-time revolving low-interest loan program could be established.

8. **Timetables, Duration and Stringency Option**: Regulatory incentives could take several years to put in place, depending on the need to modify rules and statutes, and to address any legal challenges to regulatory incentives. The duration is dependent on future federal regulatory actions, but should be permanent, if possible. Financial incentives, if provided through the Focus on Energy Program, could be accomplished within a year.

9. **Explanation of Rough Estimate of GHG Reductions**: Based on analysis of: (1) preheating demineralized water with secondary heat before steam heating; (2) installation of a steam accumulator to facilitate efficient control of steam header pressure; (3) installation of an ash reinjection system in a hog fuel boiler; (4) installation of a bark press or dryer to increase utilization of biofuels; (5) installation of additional heat recovery systems to lower losses with flue gases; and (6) implementation of an energy management system. From "Technologies for Reducing Carbon Dioxide Emissions: A Resource Manual for Pulp, Paper, and Wood Products Manufacturers," December 2001, NCASI and EKONO, Inc. Estimate of statewide boiler base from Department of Commerce records.

10. **Explanation of Rough Estimate of Costs**: See Item 9.

11. **Barriers to Implementation**:
 - Potential limitations on regulatory incentives for major sources due to federal pre-emption
 - State government costs for incentives
 - Availability of engineering contractors and equipment suppliers if initiative is expanded to a larger scale.

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

1. **Workgroup:** Industry Workgroup

2. **Policy Name:** General incentives for industrial energy conservation and efficiency, and incentive to help Wisconsin companies transition to become suppliers to the new energy economy.

3. **Policy Type:** Incentives to encourage industrial sector businesses to conserve energy, implement energy efficiency projects, and retool industry for new energy technology.

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

5. **Estimated Greenhouse Gas Emissions Reduction Impact:** Will depend upon the breadth and scope of implementation of industrial energy conservation and efficiency projects. It is assumed that the availability and attractiveness of the incentives will directly impact the extent to which conservation and efficiency projects are implemented. WRI data suggests 21 million metric tonnes of CO₂ equivalent emissions are attributable as indirect emissions due to industrial electricity consumption, and 15.9 million metric tonnes of direct industrial CO₂ equivalent emissions. If conservation and efficiency incentives were able to achieve a net 5% reduction in direct and indirect industrial emissions, that would result in a 1.84 million metric tonnes of CO₂ equivalent reduction.

6. **Estimated Costs:** Unknown, as funding levels would be determined by the Legislature. Funding level of \$15 million per year suggested.

7. Specific Description of Policy Proposal: Establish incentives for industrial sector businesses to implement energy conservation and efficiency projects, practices and measures resulting in reduced energy consumption from non-renewable sources, with an emphasis on funding for projects that are not feasible with the constraints of existing programs such as Focus on Energy. In addition, create an energy efficiency loan program to offer low-interest or no-interest loans for large capital expenditures intended to reduce energy consumption, and thereby make possible projects that may otherwise be economically infeasible. There are huge potential benefits in manufacturing and other heavy industrial firms as we move into a new energy economy, because these firms are in a good position to produce the component parts that are the backbone of many renewable energy and energy efficiency systems. The following incentives are intended to assist Wisconsin companies in undertaking measurable energy efficiency and conservation improvements, as well as transition to become suppliers to the new energy economy.

- A. **Monetary incentives.** These could take the form of cash grants for the purpose of (1) conducting comprehensive energy audits and implementing corresponding measures to improve energy efficiency or to conserve energy; or (2) purchasing replacement or retrofit equipment that is more energy efficient.
- B. **Tax incentives.** Provide a refundable tax credit for the purchase equipment or other capital expenditures that will result in quantifiable energy savings. The percentage of the credit could be flat, or set to a sliding scale based upon the expected efficiency savings, or a combination thereof. In addition, provide manufacturing transition tax credits to assist companies that redesign production facilities to produce new, cutting-age technologies. Tax credits would be given for a percent of the value of the equipment bought or facilities built to produce the new product, and would be targeted to companies that transition to the manufacturing of technology with fewer GHG emissions. Similarly, these credits could be used to provide incentives for component part manufacturers that already produce parts that can be used in clean energy systems to transition to producing mainly for those industries.

C. Loan Program. Create an energy efficiency loan program to offer low-interest or no-interest loans for large capital expenditures intended to reduce energy consumption, and thereby make possible projects that may otherwise be economically infeasible. Consideration should also be given to issuance of industrial development bonds, which are a form of conduit financing whereby private investors provide loans to companies through the state or local government. Under the arrangement, the government sells bonds to investors and uses the proceeds to make loans to private businesses, generally for the acquisition, construction, or expansion/rehabilitation of manufacturing facilities. Interest income from the bonds is tax free, allowing the loans to be low interest. These loans require some showing of public benefit – though this is usually expressed in economic terms, the benefits can also be measured through clean energy production.

D. Environmental permitting incentives. Provide fast track permitting for retrofit and/or equipment replacement projects that would otherwise proceed on a traditional permitting path, if the equipment will result in energy efficiency or conservation savings. Examples might include the expanded use of commence construction waivers, expanded application of RCP and ROP permitting for sources above 25 TPY actual emissions, and exemptions from construction permitting at true minor sources. Emphasis should be given to providing permitting incentives on a project basis.

E. Industrial Development Bonds

Industrial development bonds are a form of conduit financing whereby private investors provide loans to companies through the state or local government. Under the arrangement, the government sells bonds to investors and uses the proceeds to make loans to private businesses, generally for the acquisition, construction, or expansion/rehabilitation of manufacturing facilities. Interest income from the bonds is tax free, allowing the loans to be low interest. These loans require some showing of public benefit – though this is usually expressed in economic terms, the benefits can also be

measured through clean energy production. Following is a list of examples to which Wisconsin could target a portion of existing IDB financing:

- begin manufacturing energy efficient fixtures, metering equipment and/or appliances.
- begin manufacturing renewable energy products and/or components, or that install renewable power generators in their facilities.
- begin manufacturing component parts for renewable fuel or hybrid/flex-fuel vehicle operations, and
- transition from manufacturing traditional vehicles to manufacturing hybrids, advanced diesel, flex-fuel and other advanced drive train vehicles and related components.

8. Timetables, Duration and Stringency Option: Implementation of incentive policies is dependant upon legislative approval, and the availability of state revenue. Under a very optimistic scenario, legislation could be passed in the 2009 legislative session and funding appropriated for the fiscal year beginning July 1, 2009. To maximize effectiveness, the incentives should be considered as continuous ongoing appropriations. To be effective, these programs should be relatively long term – perhaps a 10 year lifespan with the possibility of renewal.

9. Explanation of Rough Estimate of GHG Reductions: The estimated energy savings of 5% below baseline levels represents an estimate of what can occur given that many industrial energy users have already undertaken energy conservation and efficiency measures that were driven by the rising cost of energy.

10. Rough Estimate of Costs for Selected Years: To maximize the attractiveness and energy-saving potential of the incentives, and to provide a broad spectrum of incentives available to meet the need of small, medium and large companies, a funding level in the range of at least \$15 million per year should be considered.

11. Barriers to Implementation: The incentives would require legislative approval, including the appropriation of state revenue during a time when the budget is tight.

There would also need to be an administrative component to each of these incentives, including, in some cases, the likelihood of a competitive application process or the certification of tax credits. Also, as noted above, the incremental benefit of energy efficiency and conservation is uncertain given that lean manufacturing and other market-driven forces have caused many industrial sector businesses to implement energy efficiency and conservation measures already.

12. Other Factors:

Wisconsin Global Warming Task Force
Industry Work Group

**CONTINUATION OF FUNDING FOR EXISTING PROGRAMS THAT ARE
ENERGY MANAGEMENT DRIVEN**

1. Workgroup:
 - Industry Work Group
2. Policy Name:
 - a. Utilize, Emphasis, Expand existing programs that are energy management focused. Target small to medium sized businesses that need resources. Allow credits to businesses that are already participating and leading the way in energy management.
3. Policy Type:
 - a. Legislation and Funding Authorization
 - b. Voluntary Industry Best Practice Acknowledgement
 - c. If Cap and Trade becomes reality, recognition to companies already embracing energy management cannot be overlooked.
4. Affected Sectors, Sub-Sectors and/or Entities:
 - a. Wisconsin Educational Outlets: UW, UW Extensions, Technical Institutes
 - b. Focus on Energy
 - c. Green Tier
 - d. WMEP
 - e. Industry in general, Targeting small to medium business
5. Estimated Greenhouse Gas Emissions Reduction Impact:
 - a. Target should be 3% reduction annually from all sectors.
6. Estimated Costs:
 - a. Companies investing in Energy Management will see an initial investment of 5% on their present capital budget. ROI's will vary between 1-3 yrs in most instances; Focus on Energy is a key contributor to rebates and cost reductions of these investments but many do not meet the present thresholds. The government needs to add incentives to Focus on Energy's criteria to help all industries working on GHG reductions. Suggestions: ROI of 0-2yrs receive Grants, ROI of 2-5yrs receive No Interest Loans and an ROI of 5-10yrs may receive Low Interest Loans.
 - b. Initially target \$5 million per year from 2009 to 2014 to put an emphasis on this program.
7. Specific Description of Policy Proposal:
 - a. The legislature of Wisconsin should continue its funding and support of the above mentioned programs already in place today. These programs provide education, training, funding and resources for businesses to reduce energy and power consumption, thus saving money for the business and reducing GHG emissions.
 - b. Legislature needs to bring the DNR into active support of these programs and allow industries who are investing for GHG reduction within regulations receive construction permits within 60 days of filing.
 - c. Enhance the Green Tier group to be the ONE STOP SHOPPING authority for contact from industry. Promote a number to call or website to visit for business to get all the resources

available to them on Energy Management. This will include carbon information resources, Focus on Energy information, WMEP information, Educational resources, incentives available, Industry Groups available, etc.

- d. Expand and promote the development of Green Tier Charters for small business sectors (e.g. through a trade association) by extending flexibility and incentives to participants that implement GHG emission reduction as part of their efforts to achieve superior environmental performance.
 - e. New Technology is unknown to many businesses, the educational systems and industry associations need to educate businesses in the following:
 - i. What is New?
 - ii. Is it Available?
 - iii. Is it Affordable?
 - iv. Is it Permissible?
 - v. What is the Reward/Benefit?
 - f. Third Party Verification of programs are too costly and need to be revisited by the Green Tier group. Many savings seen by a business are absorbed in this process thus energy management programs are not seen as financially beneficial.
8. Timetables, Duration and Stringency Option:
- a. There should be no timetable set for elimination of these programs. They are well established organizations that have proven their effectiveness. Annual reporting from programs.
 - b. Funding reviewed in 5 yrs
 - c. Incentives reviewed as Industry Groups voice concerns for future GHG reduction methods.
9. Explanation of Rough Estimate of GHG Reduction:
- a. If Wisconsin Industry reporting today could average a 3% reduction annually, it would reduce CO₂ by 2.9 million tons annually.
 - b. If Wisconsin Small Businesses could become involved and incentivized, the reduction could be triple that of industry already reporting.
10. Rough Estimate of Costs for Selected Years:
- a. Costs should not increase greatly as we are proposing better utilization of what already is being supported. As more businesses report their efforts to receive benefits, an increase in staff may be needed at the DNR for processing.
11. Barriers to Implementation:
- a. DNR regulations inhibit quick response of industry to invest and make changes in their operations. Construction Permits for GHG reduction need fast approvals.
 - b. Reluctance of Industry to believe in slow return on investments.
 - c. Energy costs are not part of capital budgets, thus unnoticed at many small and medium businesses.
 - d. Lack of resources for energy management in small business
 - e. Third Party verification costs can be greater than savings. Industry Associations could help reduce these costs by providing these services.
 - f. Wisconsin budget is already tight, further credits and funding may be difficult to provide
12. Other Factors:
- a. Industry Associations should also come forward with training, tools, techniques and education on GHG and what businesses can do within each of their limitations.
 - b. GHG is seen as a political item and not a real ecology fear

Wisconsin Task Force on Global Warming Policy Template

1. **Work Group:** Industry Work Group

2. **Policy Name:** Training for Green Jobs

3. **Policy Type:** Enabling Policy

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

Sectors: Industry, Labor, Educational Institutions and state agencies

5. **Estimated Greenhouse Gas Emissions Reduction Impact:** This is an enabling policy to help transition the state's economy from a carbon-based to a carbon-constrained one.

6. **Estimated Costs:** To be determined

Funding Sources: Reallocation of funds for work force training; possible federal funds

7. **Specific Description of Policy Proposal:** The thrust of this policy proposal is to coordinate workforce development for the emerging green jobs sector.

1. Direct the Secretary of the Department of Workforce Development (DWD) to convene a group to assess future training needs for the emerging green jobs sector and to report back to the Governor by January 2009.

- The group should include members from employers, Technical Colleges, University of Wisconsin Extension, DWD Job Centers, unions and other representatives
- The group should assess what "green collar" jobs exist and are emerging, the skills and training needed to secure or advance into these jobs, the readiness of the labor force to fill these jobs (are there labor shortages, who is looking for work and what skills do they have and need).
- The report should identify where changes are needed and make recommendations for public and private sector changes in structures and/or allocation of funds to meet those training needs.

2. Direct the Secretary of the DWD to assess the proposed Federal Green Jobs Act, or other such legislation, to determine whether the Wisconsin Congressional delegation should be asked to support the bill. If legislation is enacted, efforts should be made to access funds for green job training.

3. Request the Secretary of the Department of Commerce to expand the focus of the existing Customized Labor Training Program to expend at least 10% of its funds for "green collar" training and for support of converting manufacturing operations to the production of renewable and efficiency components.

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

- By January 2009, the report on Green Job Training Programs should be submitted to the Governor.
 - By September 2008, the Customized Labor Training Program should be expending at least the 10% targeted amount on green collar training and job development.
- 9. Explanation of Rough Estimate of GHG Reductions:** N/A The objective of this policy is to help smooth the transition of Wisconsin's economy and workforce to a carbon-constrained economy in order to mitigate adverse economic impacts and to take advantage of new opportunities to grow the state's economy.
- 10. Rough Estimate of Costs for Selected Years:** To be determined
- 11. Barriers to Implementation:** The major barriers in workforce development involve the level of organization, facilitation and ongoing support that is required for a successful program. Defining job types and career ladders can be difficult; however, convening groups under an appointee will help ensure accountability.
- 12. Other Factors:** The transition from a carbon-based to a carbon-constrained economy is likely to create dislocations. By anticipating some of these dislocations and being pro-active, Wisconsin may emerge as an economic leader.
- 13. Related Policies:** This policy is related to some of the business development activities that may be undertaken as part of the Comprehensive Initiative to Support Voluntary Long Term Greenhouse Gas Emissions Reductions and may tie into efforts under the Enhanced Energy Efficiency Program and the Enhanced Renewables Portfolio Standards.

Wisconsin Task Force on Global Warming Policy Template

1. **Work Group:** Industry
2. **Policy Name:** General incentives for (1) industrial conservation and energy efficiency; (2) to help Wisconsin companies transition to become suppliers to the new energy economy (Industrial Efficiency Incentives)
3. **Policy Type:** Incentives: monetary, tax, and environmental permitting, loan program and bond program
4. **Affected Sectors, Sub-Sectors and/or Entities:** Industrial sector
5. **Estimated Greenhouse Gas Emissions Reduction Impact:** Reductions will depend upon the breadth and scope of implementation of industrial conservation and energy efficiency projects. If conservation and efficiency incentives were able to achieve a total net 5% reduction in both direct and indirect industrial emissions by the year 2020, that would result in an annual reduction of 1.84 million metric tons (MMt) of CO₂ equivalents.
6. **Estimated Costs:** Unknown, as funding levels would be determined by the Legislature. Funding level of \$15 million per year suggested.

Funding Sources: State budget appropriation

7. **Specific Description of Policy Proposal:** Establish incentives for industrial sector businesses to implement conservation and energy efficiency projects, practices and measures resulting in reduced energy consumption from non-renewable sources, with an emphasis on funding for projects that are not feasible within the constraints of existing programs such as Focus on Energy. The following incentives are intended to achieve these goals, as well as assist Wisconsin companies transitioning to become suppliers in a “new energy economy.”

A. Monetary incentives. These could take the form of cash grants for the purpose of (1) conducting comprehensive energy audits and implementing corresponding measures to improve energy efficiency or to conserve energy; or (2) purchasing replacement or retrofit equipment that is more energy efficient.

B. Tax incentives. Provide a refundable tax credit for the purchase of equipment or other capital expenditures that will result in quantifiable energy savings. The percentage of the credit could be flat, or set to a sliding scale based upon the expected efficiency savings, or a combination thereof. In addition, provide manufacturing transition tax credits to assist companies that redesign production facilities to produce new, cutting-age technologies. Tax credits would be given for a percent of the value of the equipment bought or facilities built to produce the new product, and would be targeted to companies that transition to the manufacturing of technology with fewer greenhouse gas (GHG) emissions. Similarly, these credits could be used to provide incentives for component part manufacturers that already

produce parts that can be used in clean energy systems to transition to producing mainly for those industries.

C. Environmental permitting incentives. Provide fast track permitting for retrofit and/or equipment replacement projects that would otherwise proceed on a traditional permitting path, if the equipment will result in conservation or energy efficiency savings. Examples might include the expanded use of commence construction waivers, expanded application of Registration Construction Permits and Registration Operation Permits for sources above 25 tons per year actual emissions, and exemptions from construction permitting at true minor sources. Emphasis should be given to providing permitting incentives on a project basis.

D. Loan program. Create an energy efficiency loan program to offer low-interest or no-interest loans for large capital expenditures intended to reduce energy consumption, and thereby make possible projects that may otherwise be economically infeasible.

E. Industrial development bonds. There are huge potential benefits in manufacturing and other heavy industrial firms as we move into a new energy economy, because these firms are in a good position to produce the component parts that are the backbone of many renewable energy and energy efficiency systems. Industrial development bonds (IDBs) are a form of conduit financing whereby private investors provide loans to companies through the state or local government. Under the arrangement, the government sells bonds to investors and uses the proceeds to make loans to private businesses, generally for the acquisition, construction, or expansion/rehabilitation of manufacturing facilities. Interest income from the bonds is tax free, allowing the loans to be low interest. These loans require some showing of public benefit – though this is usually expressed in economic terms, the benefits can also be measured through clean energy production. For example, Wisconsin could target a portion of existing IDB financing to businesses that do any of the following:

- Begin manufacturing energy efficient fixtures, metering equipment and/or appliances
- Begin manufacturing renewable energy products and/or components
- Install renewable power generators in their facilities
- Begin manufacturing component parts for renewable fuel or hybrid/flex-fuel vehicle operations
- Transition from manufacturing traditional vehicles to manufacturing hybrids, advanced diesel, flex-fuel and other advanced drive train vehicles and related components.

8. Timetables, Duration and Stringency Option: Implementation of incentive policies is dependant upon legislative approval, and the availability of state revenue. Under a very optimistic scenario, legislation could be passed in the 2009 legislative session and funding appropriated for the fiscal year beginning July 1, 2009. To maximize effectiveness, the incentives should be considered as continuous ongoing appropriations. To be effective, these programs should be relatively long term – perhaps a 10 year lifespan with the possibility of renewal.

9. Explanation of Rough Estimate of GHG Reductions: The estimated emission reductions, based on energy savings of 5% below baseline levels by 2020, represents an estimate of what

can occur given that many industrial energy users have already undertaken conservation and energy efficiency measures that were driven by the rising cost of energy.

It is assumed that the availability and attractiveness of the incentives will directly impact the extent to which conservation and efficiency projects are implemented.

The estimated reduction of 1.84 MMt of CO₂ equivalents is based on the following:

- World Resources Institute data suggests 21 MMt of CO₂ equivalents are attributable to the industrial sector annually as indirect emissions due to electricity consumption, and 15.9 MMt of CO₂ equivalents are attributable annually as direct emissions.
- A 5% reduction in indirect emissions yields 1.05 MMt of CO₂ equivalents (21 MMt X .05 = 1.05 MMt).
- A 5% reduction in direct emissions yields .795 MMt of CO₂ equivalents (15.9 MMt X .05 = .795 MMt).
- 1.05 MMt + .795 MMt = 1.84 MMt of CO₂ equivalents

10. Rough Estimate of Costs for Selected Years: To maximize the attractiveness and energy-saving potential of the incentives, and to provide a broad spectrum of incentives available to meet the need of small, medium and large companies, a funding level in the range of at least \$15 million per year should be considered.

11. Barriers to Implementation: The incentives would require legislative approval, including the appropriation of state revenue during a time when the budget is tight. There would also need to be an administrative component to each of these incentives, including, in some cases, the likelihood of a competitive application process or the certification of tax credits. Also, as noted above, the incremental benefit of conservation and energy efficiency is uncertain given that lean manufacturing and other market-driven forces have caused many industrial sector businesses to implement conservation and energy efficiency measures already.

12. Other Factors:

13. Related Policies:

- Enhanced Conservation and Energy Efficiency Programs
- Industrial Boiler Efficiency Improvements
- Comprehensive Initiative to Support Voluntary Long Term Greenhouse Gas Emissions Reductions

Wisconsin Task Force on Global Warming Policy Template

- 1. Work Group:** Industry and Task Force Co-Chairs Through the Strawman Proposal
- 2. Policy Name:** Sector Based 2% Energy Intensity Reduction with Feebate Provision (Energy Intensity Reduction With Feebates)
- 3. Policy Type:** Exploratory action
- 4. Affected Sectors, Sub-Sectors and/or Entities:** Make available to a broad range of sectors and entities
- 5. Estimated Greenhouse Gas Emissions Reduction Impact:** This is an enabling policy and would not result in any direct greenhouse gas (GHG) reductions. An estimate of potential shows that if Wisconsin industrial facilities reduced electric energy use by 2%, it would result in an estimated 408,234 metric ton reduction in GHG emissions.
- 6. Estimated Costs:** No additional costs in exploring the level of interest in establishing Feebate agreements under Green Tier.

Funding Sources: Exploration of this policy would be completed within the DNR operating budget.

- 7. Specific Description of Policy Proposal:** The DNR should explore the Sector Based 2% Energy Intensity Reduction with Feebate Provision proposal, as described below, with its advocates and Green Tier participants. If there is significant interest among Green Tier participants in pursuing the proposal, they, together with the DNR, should develop the program as part of Green Tier.

This proposal essentially combines two ideas: First, that “everyone does their part” through a minimum sector-wide 2% annual reduction in energy intensity. Second, that we accommodate growth in sector energy demand with further investments in energy efficiency, renewable technologies and other carbon footprint reducing activities.

Each participating sector business or entity will be required to reduce its energy intensity/electricity/natural gas use per unit of output by at least 2% per year on a continuing basis. The unit of output/business metric can be expressed as a production factor, dollar of sales, number of employees or some other agreed upon standard within each sector. The goal is to reduce energy intensity for each sector by 2% each year. In addition, a feebate would be structured so that below average performers pay a fee that would be fed back to above average performers (or the sector) to reimburse clean energy portfolio and carbon footprint reduction costs.

“Feebates” are economic instruments based upon the principle that efficient use of resources should be rewarded by the inefficient. Under this policy option, a fee and a rebate would be combined in such a way that the incentive drives reductions in energy intensity while

generating a source of funds for clean energy portfolio investments that help offset growth in sector energy demand. It is important to note that feebates are revenue-neutral, with sector fees paying the rebates, rather than as a tax or budgetary item.

A sector based feebate might work something like this: Each sector business or entity would establish its' baseline energy intensity per unit of production (expressed as a ratio). This ratio is adjusted each year by the average overall percent reduction among all companies in the sector. Companies whose ratio is below the average percentage pay the feebate rate and those funds are fed back to above average performers (or the sector). The feebate "rate" might be based on the state average electricity and natural gas rates. For example, if the average overall percentage reduction among all companies in a sector is 4% and a company's reduction is only 3%, the company pays a feebate equal to the difference (1%) of their total annual energy bill.

If the average overall percent reduction among all companies in a sector in a particular year is less than 2%, then each company would pay a feebate equal to the difference between their performance and the 2% reduction requirement. Again, feebates would be earmarked to fund clean energy and carbon footprint reduction projects within each sector.

Specific Policy Options:

- Implement based upon 2007 benchmarked energy use and production outputs.
- Provide a "Good Actor Clause" for those sector companies with an exemplary track record of energy efficiency so as to opt out of the 2% requirement.
- Moreover, credit those companies that already meet some threshold of energy efficiency performance including: provisions for energy audits, process efficiency improvements, lighting retrofits and continuous improvement.
- Provide opportunities for energy efficiency mentoring by large companies for small companies within sectors. Provide participating companies with additional regulatory flexibility or incentives for their mentoring efforts.
- Provide marketing, promotion and branding benefits for participating sectors and for the state as a whole because of innovative energy management and superior environmental performance.
- Eventually fold into Midwestern Governor's Association goal requiring 2% in energy efficiency improvements each year after 2015.

8. Timetables, Duration and Stringency Option: The DNR should explore the proposal as soon as practical.

9. Explanation of Rough Estimate of GHG Reductions: This is an enabling policy and would not result in any direct GHG reductions. However, an estimate of potential GHG reductions can be found looking at a theoretical 2% reduction in 2003 Wisconsin industrial

electricity use. According to the Energy Information Administration 2003 Wisconsin Industrial Electricity Sales were 25,821,248 MWhs. 2% of this total is roughly 516,425 MWhs. (That's 25,821,248 MWhs X .02 = 516,424.96 MWhs)

Best practice for GHG estimates from electricity consumption is to multiply total consumption by the EPA eGrid electricity sub region emissions rate average. An average of Wisconsin's 3 sub region averages generates an emissions factor of approximately 0.7905 metric tons/MWh.

Therefore, we have the following calculation:

$$0.7905 \text{ metric tons/MWh} \times 516,425 \text{ MWhs} = 408,233.9625 \text{ metric tons}$$

So, a 2% reduction in 2003 Wisconsin Industrial electricity sales would yield an estimated 408,234 metric ton reduction in GHGs.

10. Rough Estimate of Costs for Selected Years: Any costs associated with DNR exploration of this proposal will likely be limited to the near term.

If interest in the proposal warrants Green Tier agreements, costs would include the administration costs to negotiate sector agreements, program start-up and ramp-up. Sector management of goal setting, performance tracking and reporting requirements will reduce public administration costs. Utility feebate collection and distribution would also reduce public costs. Some third-party oversight of sector performance will be required. A portion of the fees collected may be allocated for public outreach, marketing and promotional activities to highlight best practices and recognize top performers within sectors. An annual feebate payment will be required for below average performers. As an example: 1% - 2% of all industrial electricity expenditures were \$13 - \$26 million in 2005. 1% - 2% of all industrial natural gas expenditures were also about \$13 - \$26 million in 2005.

11. Barriers to Implementation: Any barriers will likely be identified during the exploration of this proposal. These may include the following: (1) some sectors may resist the idea of a feebate that raises the price of below average performance and lowers the price of above average performance; (2) sectors must make energy efficiency determinations that are meaningful and account for large and small businesses within each sector.

12. Other Factors: If any Green Tier agreements are developed utilizing this proposal, attention should be given to any mandatory cap and trade program that includes industrial sources to ensure that no industrial sources are subject to both the cap and trade policy and this policy over the same time period.

13. Related Policies:

Wisconsin Task Force on Global Warming Policy Template

1. **Work Group:** Industry
2. **Policy Name:** Incentives for Industrial Boiler Fuel Switching (Boiler Fuel Switching)
3. **Policy Type:** fiscal, regulatory, or technical assistance incentives
4. **Affected Sectors, Sub-Sectors and/or Entities:** Industrial facilities, primarily in the forest products industry
5. **Estimated Greenhouse Gas Emissions Reduction Impact:** A recent analysis set the amount of forest residues generated in Wisconsin at between 609,000 and 2,325,000 dry tons per year. Every 100,000 tons of forest residues that displace coal yield an emission reduction of almost 120,000 metric tons of CO₂ equivalents. A 50% recovery and use goal, if realized and if displacing coal, would reduce GHG emissions by between approximately 365,000 tons and 1,400,000 tons of CO₂ equivalents annually. However, this figure would be reduced by the amount of GHG emissions associated with collection and transport for use (life-cycle analysis).
6. **Estimated Costs:** Costs for incentives would be dependent on available government funds and legislative will to provide additional funding.

Funding Sources: possibilities include the Focus on Energy Program¹

7. Specific Description of Policy Proposal:

A. Supply-side Incentives. Provide incentives intended to increase the supply of non-wood biomass and noncommercial forest residues available for use as biofuels. A goal of 50% recovery and use of forest residue for biofuels is recommended. Forest residues include defective portions of trees, unmerchantable trunks, trees removed for purposes of thinning, and materials left behind during logging and management operations. Forest residues do not include pulpwood, saw logs, and other wood used as raw material in the forest products industry. Non-wood biomass would include switchgrass and other similar crops, but not wood. Financial assistance could be provided in the form of grants and low-interest loans to loggers for the purchase of equipment to collect and transport forest residues to market, and for other technical assistance. It is also recommended that voluntary best management

¹ This template assumes that both the Enhanced Conservation and Energy Efficiency Program template and the Non-regulated Fuels Efficiency and Conservation template are implemented as recommended by the Conservation and Energy Efficiency work group. These two templates would help provide for: (1) an adequately funded Focus on Energy program dealing with boilers utilizing regulated fuels (e.g. natural gas) for projects such as efficiency improvements or fuel switching; and (2) an adequately funded non-regulated fuel (e.g. propane, coal) program (presumably an additional part of Focus on Energy, and as such sharing the name) dealing with boilers utilizing these fuels.

practices for the recovery of forest residues be developed between the DNR and the forest products industry.

B. Demand-side Incentives. Provide incentives to industrial boiler owners to increase the amount of non-wood biomass and noncommercial forest residues used as fuel. Financial assistance could be provided in the form of grants and low-interest loans to industrial owners of wood-fired boilers to make physical plant changes necessary to increase the utilization of forest residues or non-wood biomass as fuel (increase wood handling capacity, etc.). Financial assistance could also be provided in the form of a fuel cost subsidy for industrial owners of wood-fired boilers. It is important that market supply and demand balance be maintained in order to avoid driving up the price of commercial stem wood used as raw material in the pulp, paper, and wood products industries. In addition, to the extent allowed under federal regulations, permit streamlining incentives should be provided to offset the regulatory barriers that could be associated with boiler projects.

- 8. Timetables, Duration and Stringency Option:** Incentives could take about one year to put in place, if through the Focus on Energy Program. It would likely take a couple of years to put incentives into place through other mechanisms. It would then likely take some time before companies began to utilize the incentives and make related changes.
- 9. Explanation of Rough Estimate of GHG Reductions:** Conversion factor developed by National Council for Air and Stream Improvement based on commonly used emission factors. From the study: “Technologies for Reducing Carbon Dioxide Emissions: A Resource Manual for Pulp, Paper, and Wood Products Manufacturers,” December 2001, NCASI and EKONO, Inc.
- 10. Rough Estimate of Costs for Selected Years:** For supply-side incentives the recommended funding level is \$1 million per year for three years, with future funding determined by the Focus on Energy Program based on demand. For demand-side incentives the recommended funding level is \$1.5 million annually in grants for three years and \$1.5 million in low interest loans for three years. Future funding levels should be determined by the Focus on Energy Program based on demand.
- 11. Barriers to Implementation:**
 - State government costs for incentives
 - Environmental permitting and compliance costs that could negatively impact the cost-effectiveness of projects. For example, federal Prevention of Significant Deterioration / New Source Review and New Source Performance Standard regulation could come into play.
- 12. Other Factors:** The operation of environmental emission controls would result in the combustion of fossil fuels or additional energy usage, which would need to be subtracted from total GHG reduction estimates.

Two additional options were examined: (1) a mandate that all fossil fuel boilers switch to biofuels; and (2) a mandate that all coal-fired boilers switch to natural gas. These options are not recommended because of the significantly implementation costs, operational costs, and

the potential lack of available biomass and natural gas to support a statewide conversion in fuel use. It is understood that other policy decisions could drive fuel switching on a site-specific basis. The costs and benefits of fuel switching should be evaluated further within the context of that policy discussion.

Mandate that all fossil fuel boilers switch to biofuels

- The following is a very rough, ballpark estimate of the general magnitude of emission reduction that might be expected with 100% implementation of this mandate. Based on a rough estimate in the pulp and paper industry, the maximum statewide reduction might be in the vicinity of 50% from 2005 levels, or approximately 5 million tons. (Total industry sector CO₂ emissions in 2005 were approximately 10 million tons (DNR AEI). Pulp and paper industry is almost 70% of total, or somewhat under 7 million tons. About 70% of pulp and paper CO₂ emissions are associated with fossil fuel combustion, or a little under 5 million tons. Assume more reductions if extrapolated to all industry. Assume less reduction due to a boiler size limit below which conversion would not be required. Assume the increases and decreases offset, resulting in an approximate 5 million ton maximum reduction potential.)
- The following are very rough, ballpark estimates of the general magnitude of costs that might be expected with 100% implementation this mandate. Based on a rough estimate in the pulp and paper industry, the capital costs for boiler conversions alone might be expected to approach \$2 billion. The capital costs for related facility changes and pollution controls are unknown, but could approach \$1 to \$2 billion, based on anecdotal evidence. This would bring total capital costs into the \$3-4 billion range, subject to other caveats noted below. Operation costs could increase or decrease, depending on site-specific conditions. (There were 83 pulp and paper industry boilers listed in the 2005 DNR AEI. Assume 15 boiler replacements at \$33 million each and 45 boiler rebuilds at \$23 million each. Total pulp and paper costs would exceed \$1.5 billion. Extrapolate to all industry and costs could be expected to approach \$2 billion. Costs are in 2001 dollars, so actual costs would be higher. Costs are for a model boiler based on steam demand. The model boiler is toward the small end of the boiler size spectrum, so costs must be scaled (most likely up) to account for actual steam demand.)

Mandate that all coal-fired boilers switch to natural gas

- The following is a very rough, ballpark estimate of the general magnitude of emission reduction that might be expected with 100% implementation of this mandate. Based on a rough estimate in the pulp and paper industry, the maximum statewide reduction might be in the vicinity of 18% from 2005 levels, or approximately 1.8 million tons. (Approximately 55%, or about 3.8 million tons, of pulp and paper CO₂ emissions in 2005 associated with coal combustion. Assume natural gas emissions are 59% of coal emissions, adjusted for efficiency. Paper industry maximum potential reduction of approximately 1.6 million tons. Extrapolate to all industry, but assume few coal-fired boilers outside of pulp and paper, resulting in approximately 1.8 million ton maximum reduction potential. This would need to be adjusted for life-cycle emissions (e.g., if CHP units lose efficiency, then purchased power may increase.)
- The following are very rough, ballpark estimates of the general magnitude of costs that might be expected with 100% implementation of this mandate. Capital costs are unknown, but would be substantial. Energy operation costs could be expected to increase by a factor of

about 3.5, based on the average annual price differential between coal and natural gas in 2005 as reported in Wisconsin Energy Statistics 2006. More specifically, according to Wisconsin Energy Statistics 2006:

- Industry used 47.2 TBtu of energy from coal
- The price premium for natural gas is \$6.86/MBtu (\$9.41 - \$2.55)
- The total cost of switching from coal to gas would be \$323,792,000
- The paper industry accounts for 93.5% of industry coal purchases
- \$302,745,520 of the total cost would be born by the paper industry
- This does not include consideration of a boiler efficiency penalty of 2-4% for switching to gas

13. Related Policies:

- Advanced Biomass and Biofuel Commercialization and Utilization
- Co-Generation Incentives and/or Mandates for Construction, Upgrades and Replacement
- Non-regulated Fuels Efficiency and Conservation
- Enhanced Conservation and Energy Efficiency Program
- General Incentives for Industrial Energy Conservation and Efficiency
- Waste Materials Recovery and Disposal – Wood Waste

Wisconsin Task Force on Global Warming Policy Template

1. **Work Group:** Industry
2. **Policy Name:** Incentives for Industrial Boiler Efficiency Improvements (Boiler Efficiency Improvements)
3. **Policy Type:** Regulatory and financial incentives
4. **Affected Sectors, Sub-Sectors and/or Entities:** Industrial facilities
5. **Estimated Greenhouse Gas Emissions Reduction Impact:** Evaluation of six boiler efficiency options covering a range of fuels and boiler types showed potential CO₂ emission reductions of between 6,000 and 25,000 metric tons per year for a model facility. Actual reductions may be higher or lower, but would probably be lower because most boilers are smaller than assumed in the model facility. The estimated universe of industrial boilers in Wisconsin is approximately 3,000. Due to the facility-specific nature of the boiler efficiency options, it is not possible to accurately predict potential statewide CO₂ emission reductions. However making some assumptions allows for a very rough estimate. These assumptions include: (1) 20% program utilization (600 boilers) and (2) average reduction of 15,000 metric tons of CO₂ per year per facility. The result is a very rough statewide emission reduction estimate of 9 million metric tons of CO₂ annually.
6. **Estimated Costs:** Evaluation of six boiler efficiency improvement options showed:
 - A. Capital costs are variable because they are dependent on site-specific conditions, which are variable.
 - B. Operational cost savings range between \$205,000 and \$845,000 annually for a model facility. Actual cost savings could be higher or lower.
 - C. Regulatory compliance costs could range from insignificant for small boilers at minor sources to significant for boilers at major sources regulated by the Prevention of Significant Deterioration / New Source Review program.

Funding Sources: Financial incentives should be provided through the Focus on Energy Program¹

7. Specific Description of Policy Proposal:

¹ This template assumes that both the Enhanced Conservation and Energy Efficiency Program template and the Non-regulated Fuels Efficiency and Conservation template are implemented as recommended by the Conservation and Energy Efficiency work group. These two templates would help provide for: (1) an adequately funded Focus on Energy program dealing with boilers utilizing regulated fuels (e.g. natural gas) for projects such as efficiency improvements or fuel switching; and (2) an adequately funded non-regulated fuel (e.g. propane, coal) program (presumably an additional part of Focus on Energy, and as such sharing the name) dealing with boilers utilizing these fuels.

A. Regulatory Incentives. To the extent allowed under federal regulations, permit streamlining incentives (e.g. expedited permit approvals) should be provided to offset the regulatory barriers that could be associated with boiler efficiency projects.

B. Financial Incentives. Annual funding of \$5 million for grants and loans should be provided through the Focus on Energy Program. Funding purposes should include technical assistance, equipment purchases and installation costs. Alternatively, a larger one-time revolving low-interest loan program could be established.

8. **Timetables, Duration and Stringency Option:** Regulatory incentives could take several years to put in place, depending on the need to modify rules and statutes, and to address any legal challenges to regulatory incentives. The duration is dependent on future federal regulatory actions, but should be permanent, if possible. Financial incentives, if provided through the Focus on Energy Program, could be accomplished within a year.
9. **Explanation of Rough Estimate of GHG Reductions:** Estimates are based on analysis of several boiler efficiency improvement options which included: (1) preheating demineralized water with secondary heat before steam heating; (2) installation of a steam accumulator to facilitate efficient control of steam header pressure; (3) installation of an ash reinjection system in a hog fuel boiler; (4) installation of a bark press or dryer to increase utilization of biofuels; (5) installation of additional heat recovery systems to lower losses with flue gases; and (6) implementation of an energy management system. This information came from “Technologies for Reducing Carbon Dioxide Emissions: A Resource Manual for Pulp, Paper, and Wood Products Manufacturers,” December 2001, NCASI and EKONO, Inc. The estimate in section 6 of statewide boiler base came from Department of Commerce records.
10. **Rough Estimate of Costs for Selected Years:** Annual funding of \$5 million for grants and loans
11. **Barriers to Implementation:**
 - Potential limitations on regulatory incentives for major sources due to federal pre-emption
 - State government costs for incentives
 - Availability of engineering contractors and equipment suppliers if initiative is expanded to a larger scale
12. **Other Factors:** Focus on Energy should examine whether a single project should be eligible for funding from multiple programs, specifically, the Boiler Fuel Switching and Boiler Efficiency Improvement programs.
13. **Related Policies:**
 - Industrial Boiler Fuel Switching
 - Non-Regulated Fuels Efficiency and Conservation
 - Enhanced Conservation and Energy Efficiency Program
 - General Incentives for Industrial Energy Conservation and Efficiency
 - Co-Generation Incentives and/or Mandates for Construction, Upgrades and Replacement

Wisconsin Task Force on Global Warming Policy Template

1. **Work Group:** Industry
2. **Policy Name:** Training for Green Jobs
3. **Policy Type:** Enabling policy
4. **Affected Sectors, Sub-Sectors and/or Entities:** Industry, labor, educational institutions and state agencies
5. **Estimated Greenhouse Gas Emissions Reduction Impact:** This is an enabling policy to help transition the state's economy from carbon-based to carbon-constrained. It does not result in any direct greenhouse gas (GHG) emission reductions.
6. **Estimated Costs:** To be determined

Funding Sources: Reallocation of funds for work force training and possible funding through the Governor's Clean Energy Wisconsin Plan's proposed Business and Job Development initiatives. These include the Wisconsin Energy Independence Fund, the Emerging Industry Skills Partnerships, and Technical College Grants.

7. **Specific Description of Policy Proposal:** The thrust of this policy proposal is to coordinate workforce development for the emerging green jobs sector. This proposal complements the initiatives put forth in the Governor's Plan for Energy Independence, Clean Energy Wisconsin.

A. Direct the Secretary of the Department of Workforce Development (DWD) to convene a group to assess future training needs for the emerging green jobs sector and to report back to the Governor by January 2009.

- The group should include members from employers, technical colleges, University of Wisconsin-Extension, DWD Job Centers, unions and other representatives
- The group should assess what "green collar" jobs exist and are emerging, the skills and training needed to secure or advance into these jobs, the readiness of the labor force to fill these jobs (are there labor shortages, who is looking for work and what skills do they have and need).
- The report should identify where changes are needed and make recommendations for public and private sector changes in structures and/or allocation of funds to meet those training needs.

B. Direct the Secretary of the DWD to assess the proposed Federal Green Jobs Act, or other such legislation, to determine whether the Wisconsin Congressional delegation should be asked to support the bill. If legislation is enacted, efforts should be made to access funds for green job training.

C. Request the Secretary of the Department of Commerce to expand the focus of the existing Customized Labor Training Program to expend at least 10% of its funds for “green collar” training and for support of converting manufacturing operations to the production of renewable and efficiency components.

8. Timetables, Duration and Stringency Option:

- By September 2008, the Customized Labor Training Program should be expending at least the 10% targeted amount on green collar training and job development.
- By January 2009, the report on Green Job Training Programs should be submitted to the Governor.

9. Explanation of Rough Estimate of GHG Reductions: This is an enabling policy and does not result in any direct GHG emission reductions.

10. Rough Estimate of Costs for Selected Years: To be determined

11. Barriers to Implementation: The major barriers in workforce development involve the level of organization, facilitation and ongoing support that is required for a successful program. Defining job types and career ladders can be difficult; however, convening groups under an appointee will help ensure accountability.

12. Other Factors: The transition from a carbon-based to a carbon-constrained economy is likely to create dislocations. By anticipating some of these dislocations and being proactive, Wisconsin may emerge as an economic leader.

13. Related Policies:

- Comprehensive Initiative to Support Voluntary Long Term Greenhouse Gas Emissions Reductions
- Enhanced Conservation and Energy Efficiency Program
- Enhanced Renewable Portfolio Standard