

# Wisconsin Task Force on Global Warming Policy Template

1. **Work Group:** Technical Advisory Group and Task Force Co-Chairs
2. **Policy Name:** Ensuring On-going GHG Emission Reduction Effectiveness
3. **Policy Type:** Data collection and analysis, policy evaluation and tracking progress
4. **Affected Sectors, Sub-Sectors and/or Entities:** State government
5. **Estimated Greenhouse Gas Emissions Reduction Impact:** NA
6. **Estimated Costs:** To be determined

**Funding Sources:** State budget

7. **Specific Description of Policy Proposal:** It is recommended that a formal mechanism be established (1) to continuously gather data and monitor progress toward reaching the state's emission reduction goals, (2) to evaluate the effectiveness, cost impacts and benefits of existing policies and to review and evaluate potential new policies to reduce or sequester GHG emissions in order to meet the state's goals, and (3) to provide clear, understandable, credible and easily accessible information to the public and policy makers about emissions and the state's progress in reaching its goals.

Responsibility for these tasks should be assigned to a single agency, either a new or an existing agency, that is granted the appropriate authority to obtain specific data in a timely manner from other state agencies and has dedicated staff and adequate funding to support its work on a permanent basis. The agency should be assigned the responsibility of gathering and reporting the data on a regular and timely basis (possibly annual or biennial) so that the public and decision-makers can easily track progress toward the state emission reduction goal. In addition, the agency should be assigned the responsibility of evaluating the effectiveness of existing policies and of evaluating potential new policies on an established schedule. For example, the Task Force recommends that the effectiveness of voluntary measures in the industry, agriculture and forestry sectors be evaluated in 2012. This evaluation would be a logical task to assign to this agency to lead. The agency should also regularly re-evaluate the state's emission reduction goals based on current science, technology and progress. Regular reports on progress should be issued to government officials and the general public.

A. Data Collection Recommendations. During the process of developing input for modeling current greenhouse gas (GHG) emissions, the Technical Advisory Group (TAG) found that some areas had very robust data while others had little credible data. Based on this experience, the TAG strongly recommended that areas with robust data be maintained and those with data gaps be strengthened. Specific recommendations are:

1. Continue to maintain the Wisconsin Energy Statistics Report. The data in this report proved to be invaluable, and the ability to download parts of the report directly from the internet was a helpful feature.

2. Land use data. Implement the attached recommendation from the Agriculture and Forestry Work Group (Appendix 1). A central source for data regarding land use does not exist, or, if it does, it is not available in a manner that facilitates analysis useful in the process of evaluating sinks and sources of carbon emissions. This data needs to be collected at a frequency that allows for effective tracking of land use changes. Land use changes have a significant impact on many of the policies recommended by the Task Force.

3. Stationary Source emissions data. Implement the attached recommendation to augment the reporting of GHG emissions from stationary sources to include the emissions from small and medium sources and to include methane and nitrous oxide emissions from combustion sources (Appendix 2). Make the data available to the public at a level of detail (such as 4 digit NAICS) so that the data is useful to facilities, industry sectors and the general public for comparing relative performance. This recommendation grew out of a policy template prepared by the Industry Work Group.

4. Mobile Source emissions data. Collect data on mobile sources per the recommendation of the Transportation Work Group in their policy template: *“Reform Transportation Planning and Funding to Reduce VMT.”*

*“The appropriate state agencies should calculate appropriate GHG emissions from transportation sources annually. The inventory should discuss the potential impacts of reduction policies (e.g. vehicle efficiency, carbon content of fuels) to assess the effectiveness of these policies and report on progress toward the desired emission reduction targets.”*

5. End use data. Opportunities to collect additional data regarding end use should be considered by the PSC. It may be appropriate to utilize the Act 141 EE docket as a forum for this discussion.

B. Evaluation Recommendations. The TAG recommended that a consistent process and framework for monitoring and evaluating the effectiveness of the package of emission reduction policies be established. This recommendation should include an assessment of an appropriate modeling capability to support the analysis and responsibility for maintaining and updating the model. The TAG found that having a cadre of area-specific expertise to delve into the quality of the data, the modeling assumptions and evaluation of model outputs is essential.

C. Public Information. The data that is collected should be made easily and readily accessible to the public, for example, by having it available on the internet. The ability to download parts of the Wisconsin Energy Statistics report directly from the internet was

extremely helpful in developing the modeling framework used to evaluate emission reduction policies for the Task Force.

- 8. Timetables, Duration and Stringency of the Option:** The agency responsible for these tasks should be identified and funded as soon as possible so that the systems can be put in place in a timely manner, missing data can start to be collected and a formal mechanism established to start monitoring and tracking progress. The initial development of the program, including identification of data sources, selection of appropriate models, and program definition will take approximately one year. The first complete statewide assessment should be made available within two years. This will be a continuing effort.
- 9. Explanation of Rough Estimate of GHG Reductions:** NA
- 10. Rough Estimate of Costs for Selected Years:** Cost estimates have not been developed
- 11. Barriers to Implementation:** Many of these functions are scattered across multiple agencies. Other functions are not being performed now. In any event, there is currently no cohesive, organized or systematic mechanism to pull the data collection and analysis, policy evaluation, and tracking related to climate change together in a manner that can inform the government and the general public about progress made toward achieving the emission reduction targets.  
  
One of the major challenges will be to assign the lead responsibility to a single agency that would work with other agencies. The person or agency charged with this responsibility must have the appropriate authority to request specific data in a timely manner from other department of the government. Finally, this effort must be adequately funded
- 12. Other Factors:**
- 13. Related Policies:** This policy recommendation is an integral piece of the entire policy package recommended by the Task Force.

## Appendix 1: Land-based Carbon Accounting System

**Recommendation:** Assign and fund a state agency(ies) or university department the responsibility for developing and managing an on-going and complete land-based carbon accounting system to estimate and track net carbon emissions (sinks and sources) due to land cover and changes in land use or management.

**Background:** The Task Force identified significant gaps in land cover and land use data. This made it difficult to estimate the magnitude of GHG sources and sinks from current land use, to identify patterns and trends in land use change and to assess the impacts of changes to carbon sinks due to changes in the use or management of lands. A major problem is that there is no systematic and continuing effort to collect statewide land use data in Wisconsin

The Agriculture/Forestry Work Group coordinated with the Technical Advisory Group to describe these data gaps and to recommend the development of a long-term complete land-based carbon accounting system to address this issue.

**Description:** The development of a comprehensive land-based GHG accounting system requires detailed information and analysis to accurately depict the carbon stocks on the landscape and how these stocks change with changes in land use and management. Emissions from stationary sources such as power plants can be readily calculated and measured. However, emissions and removals from land use dynamics, land use change and changes in land management require a multi-faceted approach to accurately track them. An important aspect of the system will be the ability to present the current status of GHG inventories, monitor changes in response to policies or practices, and make projections into the future.

### System Requirements:

- The program should produce statistically valid time series data, at intervals of not less than every two years, which can be used to estimate the net carbon emissions due to land cover throughout the state.
- The data should be provided for the smallest land areas practical, no larger than a county basis, and should be derived both from satellite observations and field sampling.
- The program should stay informed of the scientific literature on land use and carbon emissions in order to obtain the most relevant and valid data sets possible. However, where possible, data should be valid over time to allow long term trend analysis.
- Although the program should focus on carbon emissions, the state should authorize the program to produce and track additional land use data on topics such as forest cover, agricultural land use, urbanization, etc.

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dynamics, land use change and changes in land management require a multi-faceted approach to accurately track them.

Developing a baseline is an important first step in this effort. This baseline should be an appropriate reference year conducive to policy decisions. The assessment of current emissions and removals of GHGs and carbon stores and changes should then be made annually or biannually and compared to both the baseline and the previous years.

To build this system, multiple data sources are needed. Table 1 summarizes the various information components of a land-based accounting system, examples of specific types of information, and the source and availability.

Further discussions about the design and implementation of a GHG accounting system will need to assess the ability of the state to conduct measurements of GHG emissions and removals as compared to modeling of these flows with verification. The resources needed to develop and implement a system have not yet been estimated.

**Table 1 - Information Components of a Land-Based GHG Accounting System**

Information Components	Examples
Land Use and Cover Change	<ul style="list-style-type: none"> <li>• Satellite imagery such as Landsat images collected on an annual basis</li> <li>• GIS analysis to detect changes in cover and use</li> </ul>
Agriculture	<ul style="list-style-type: none"> <li>• Crop or pasture type</li> <li>• Estimates of biomass accumulation</li> <li>• Estimates and measurements of appropriate carbon pools</li> <li>• Estimates of rate of carbon loss due to changes in use or management</li> <li>• Tillage practices</li> <li>• Life-cycle carbon analysis of agricultural products</li> </ul>
Forestry	<ul style="list-style-type: none"> <li>• Forest type and management</li> <li>• Estimates of biomass carbon accumulation and decomposition rates</li> <li>• Estimates and measurements of appropriate carbon pools</li> <li>• Estimates of rate of carbon loss due to changes in use or management</li> <li>• Carbon content of forest products and rate of retirement or disposal</li> <li>• Life cycle analysis of forest products</li> </ul>

<b>Information Components</b>	<b>Examples</b>
Grasslands and Wetlands	<ul style="list-style-type: none"><li>• Estimates and measurements of appropriate carbon pools</li><li>• Estimates of rate of carbon loss due to changes in use or management</li><li>• Estimates of biomass carbon accumulation and decomposition rates</li></ul>
Urban and Suburban areas	<ul style="list-style-type: none"><li>• Estimates and measurements of the carbon sequestration rates for the urban forest</li><li>• Estimates of the energy use impacts of the urban forest</li><li>• Carbon emission and sequestration rates of public open space</li><li>• Estimates of rate of carbon loss due to changes in use or management</li></ul>

## Appendix 2: Air Emissions Inventory Reporting

**Recommendation:** Amend NR 438, Wis. Adm. Code, to (1) lower the carbon dioxide (CO<sub>2</sub>) emissions reporting threshold for all stationary sources from 100,000 tons/year to 10,000 tons/year and (2) add the reporting of methane and nitrous oxide emissions from stationary combustion sources that report CO<sub>2</sub> emissions.

**Background:** The Wisconsin Air Emissions Inventory (ARS- Annual Reporting System) program, outlined in Ch. NR 438, Wis. Adm. Code, requires facilities to report their annual air emissions and sets reporting thresholds for different pollutants. Currently the reporting threshold for CO<sub>2</sub> is 100,000 tons/year. This provides CO<sub>2</sub> emissions data from utilities and very large industrial combustion sources, but leaves a substantial information gap for emissions from medium and small sources. Macro-level emission estimates for these sources are possible through the use of “top down” inventories (such as the WRI inventory), but these techniques have limitations. Methane is not currently included in ch. NR 438, however it is one of the primary anthropogenic GHGs and thus should be included in an effort to construct an inventory of these emissions. Nitrous oxide is currently included in NR 438, with a reporting threshold of 6,000 lbs. Under this proposal, all nitrous oxide emissions related to combustion would be reported concurrently with the methane and CO<sub>2</sub> emissions.

The lowering of the CO<sub>2</sub> reporting threshold was proposed by the Industry Work Group. It grew out of frustration at the lack of emissions data from all but the largest industrial sources, and the difficulty in developing policy recommendations for emission reductions in the absence of this information. With their proposal the Industry Work Group sought to close this important information gap while minimizing the reporting burden on industry and small businesses. The Work Group’s intent was to provide a reliable macro-measure of statewide industry GHG emissions, as well as a facility-specific micro-measure baseline (for covered facilities) to enable the tracking of progress in reducing GHG emissions. In addition, the Work Group felt that a reporting system would encourage voluntary reductions by companies by serving as a feedback loop that would make them aware of their facility emissions and emission trends.

As requested by the Task Force Co-Chairs, the Technical Advisory Group (TAG) is considering a number of proposals to address overall statewide data and information needs to better inform future climate change policy decisions. The Industry Work Group proposal was included in this process; the TAG supported their proposal and decided to add the methane and nitrous oxide emissions reporting requirement to the recommendation.

**Description:** This recommendation would amend an existing regulation. It proposes to adjust the current CO<sub>2</sub> emissions threshold and require the reporting of combustion-related methane and nitrous oxide emissions from these sources. This recommendation would result in a more robust greenhouse gas (GHG) emissions reporting system. This in turn would lead to a more comprehensive, empirical statewide GHG emissions inventory for stationary sources. It would not change the reporting methods or emission estimation methodology.

**Who would be affected and how:** In developing this proposal, the Industry Work Group performed an analysis to assess the impacts on industry. The analysis assumed natural gas as the fuel source, a CO<sub>2</sub> reporting threshold of 10,000 tons/year and no change in other emission reporting requirements. The analysis concluded that a source that emits 10,000 ton/year CO<sub>2</sub> from fuel combustion should already be reporting to the emissions inventory since their fuel combustion-related nitrogen oxides (NO<sub>x</sub>) emissions would exceed the reporting threshold of 5 tons/year of NO<sub>x</sub> emissions. Thus, lowering the CO<sub>2</sub> reporting threshold should not pull new sources into the reporting requirements. Furthermore, there are default emission factors for CO<sub>2</sub>, methane and nitrous oxide from stationary combustion based on the type and amount of fuel consumed. With fuel data already being reported to the emissions inventory, this proposal should place minimal additional reporting burden on facilities.

In addition, coal and oil fired sources would report their methane emissions, which they currently do not. These sources are not new to emission inventory reporting and there would be little additional impact to them from this requirement. In addition, CO<sub>2</sub> emissions would be reported from the use of limestone in emission control equipment and from the production of cement or lime.

This policy proposal will help fill the medium to small stationary source information gap and provide more information on large stationary sources. Using ARS data on reported fuel usage and calculating the CO<sub>2</sub> emissions, it is estimated that an additional 150-250 facilities would be required to report their emissions. This would yield an estimated 5-6% increase in reported facility level CO<sub>2</sub> emissions beyond what is currently reported to ARS. This more comprehensive emissions inventory would include data on the number of sources, industry type and size, location, annual emissions and emission trends. It should be noted that while this recommendation begins to address medium to smaller sources of CO<sub>2</sub> emissions, it doesn't address the very large number of diffuse, small sources – i.e., those with less than 10,000 tons of CO<sub>2</sub> emissions.

# Wisconsin Task Force on Global Warming Policy Template

1. **Submitted by:** Task Force Co-Chairs
2. **Policy Name:** Research and Development Funding (R&D)
3. **Policy Type:** Research and development
4. **Affected Sectors, Sub-Sectors and/or Entities:** Primarily utility and transportation sectors
5. **Estimated Greenhouse Gas Emissions Reduction Impact:** Does not result in direct reductions of greenhouse gas emissions (GHG).
6. **Estimated Costs:** To be determined

**Funding Sources:** Federal and state funds

7. **Specific Description of Policy Proposal:** There is a pressing need for additional research and development (R&D) on the federal and state levels to develop new technologies to reduce GHG emissions. This policy recommends that a variety of alternative technologies be explored and developed rather than trying to pick a future technology winner. This will provide options and flexibility for compliance with the challenging emission reduction targets at reasonable cost.

At the federal level, Wisconsin should aggressively advocate for a dramatic increase in federal R&D spending related to achieving substantial reductions in GHG emissions.

At the state level, the state should support significantly increased R&D funding for renewable and other low carbon technologies to enable Wisconsin to become a leader in these areas. In addition, the state should support R&D of carbon capture and storage technologies in order to achieve, if feasible, rapid development and deployment on a commercial basis of coal plants with this technology. This effort is needed to ensure that alternatives are available to meet future base load needs.

In addition, R&D funding should be provided to enhance Wisconsin's ability to adopt to climate change, including funding for the Wisconsin Initiative on Climate Change Impacts, a partnership between UW-Madison and the DNR.

The PSC should permit reasonable increased spending on GHG emission reduction-related R&D by utilities that will benefit Wisconsin, including conservation and efficiency technologies, to be recovered in rates.

8. **Timetables, Duration and Stringency Option:** This policy should begin immediately and continue indefinitely.

- 9. Explanation of Rough Estimate of GHG Reductions:** There are no direct emission reductions through this policy.
- 10. Rough Estimate of Costs for Selected Years:** To be determined
- 11. Barriers to Implementation:** Securing and allocating the additional funding at both the federal and state levels.
- 12. Other Factors:**
- 13. Related Policies:** A variety of utility and transportation policies, including but not limited to those dealing with conservation and efficiency, renewable energy, bio-fuels and biomass, carbon capture and sequestration, and Great Lakes wind.

## Wisconsin Task Force on Global Warming Policy Template

- 1. Work Group:** Conservation and Energy Efficiency, Transportation, and Industry
- 2. Policy Name:** Comprehensive initiative to support voluntary long term greenhouse gas (GHG) emissions reductions (Comprehensive initiative)
- 3. Policy Type:** Cross-sector, comprehensive marketing, education, technical assistance and funding to facilitate GHG emission reductions, behavioral change and sustainable practices by individuals, local governments, communities, farms and small and medium-sized businesses.
- 4. Affected Sectors, Sub-sectors and/or Entities:** All
- 5. Estimated Greenhouse Gas Emissions Reduction Impact:** Significant potential reduction of CO<sub>2</sub> emissions, but difficult to quantify.
- 6. Estimated Costs:** Recommended funding between \$20 and \$30 million per year beginning in 2009. This funding includes meeting required staffing and other administrative costs for the Initiative.

**Funding Sources:** State government and private donors (including individuals, businesses and major foundations). Source of state funds has not been identified. If a multi-sector cap-and-trade program, and/or a carbon tax is in place in the future, funding may be supplemented by a portion of cap-and-trade auction revenues, if any, and/or carbon tax revenues.

- 7. Specific Description of Policy Proposal:** Establish The Wisconsin Voluntary Greenhouse Gas Reduction Initiative as a public/private partnership created under the auspices of the Office of Energy Independence to make Wisconsin a national leader in achieving voluntary GHG emissions reductions by individuals, local governments, community-wide programs, farms and businesses. The Initiative also would support related workforce and business development programs.

The Initiative would be housed in a new, non-profit entity eligible for tax exempt donations. State funding would be held in a trust so that those funds are legally available only for the intended purposes. Investment of the funds would be done with the guidance of the State Investment Board. The Initiative would be managed by an executive director and governed by a Board of Directors, consisting of individuals appointed by the Governor from state government, the University system, local government, private business and not-for-profit organizations. The budget and programs of the Initiative would be approved by its Board and the state's involvement would be coordinated by the Office of Energy Independence. The Board would be responsible for providing for stakeholder input for, and oversight of, each of the four programs of the Initiative described below so that the Initiative's activities meet the needs of the program's targeted sectors.

This policy complements other cross sector enabling policies that recommend (i) a substantial increase in funding for research and development of commercially viable low carbon technologies, and (ii) programs to develop Wisconsin's significant bio-energy and terrestrial sequestration potential.

The Initiative would coordinate with, and support, a wide variety of private and public efforts consistent with its mission in order to leverage the resources of those efforts to meet the Initiative's goals and avoid duplication of programs.

**Description of the Program.**

Large sources of GHG emissions are relatively easy to identify and specific control strategies can then be implemented. The smaller sources of emissions – such as individuals, small and medium-sized businesses, farms and local government operations – are significant in the aggregate, but identifying control strategies is difficult. Much of the state's success in reducing GHG emissions reductions will depend upon the wide variety of choices that the smaller sources make, including individuals in the aggregate. In order to maximize GHG emission reductions, Wisconsin must use a wide variety of strategies to drive significant behavioral and operational changes, including education, public sector leadership and an on-going state-wide behavioral change marketing campaign. At the same time, the state must make available the tools, expertise and services necessary for smaller sources to understand and reduce their GHG emissions.

Care will need to be taken not to duplicate the extensive energy efficiency and conservation programs of Focus on Energy. The Initiative's mission would be broader (cross-sector and multi-strategy) than the mission of Focus. It would supplement Focus by promoting greater knowledge and use of Focus programs, as well as addressing and supporting GHG reduction behaviors other than energy conservation and efficiency. In order to build on the strong foundation already created by Focus on Energy, the initial phase of the behavioral marketing campaign program described below should, in tandem with Focus, address energy consumption behaviors, with transportation and other areas added as the campaign matures.

**Four Program Areas.**

The Initiative would be concerned with four primary programs:

A. **Marketing to Change Behavior.** The Initiative would be responsible for developing, funding and implementing a comprehensive, multi-year, state-wide marketing campaign aimed at all sectors to induce changes in behavior that will substantially reduce GHG emissions over the long term. The campaign would target those behaviors that have significant reduction potential and the greatest likelihood of success in terms of achieving behavioral change. This will require carefully planned and well-researched efforts to identify barriers to change and the motivators necessary to induce change in each targeted audience.

The Initiative, working with other groups including the State Department of Public Instruction, the UW Stevens Point environmental education program and Focus on Energy, also would be responsible for fostering the development and implementation of energy

efficiency, conservation and sustainability curriculums at all levels of the state's educational system.

**B. Support for Community-wide Sustainability and Energy Independence Programs.** There is tremendous interest in developing and implementing comprehensive, community-wide energy independence and sustainability programs to address climate change and lower governmental costs for the long-term. There also is a pressing need to provide assistance to these communities so that this interest can be translated into successful, permanent programs.

Sustainable community development not only focuses on local government practices and decisions, but seeks also to influence the behaviors and choices of community residents, organizations and businesses. The Initiative would provide a variety of resources to community-wide energy independence and sustainability programs, including materials, training, technical support, services, recognition and grants. The objectives would be (i) to reduce costs for municipalities through energy efficiency, development of local renewable resources, use of sustainable operational practices and implementation of decision-making driven by the goal of reducing GHG emissions and (ii) to provide public leadership, inspiring individual and business behavioral changes throughout the community. Recognizing that the state's communities differ significantly depending on size and location, this task must involve cooperative planning with participating communities to identify those GHG reduction practices and strategies most likely to be successful.

**C. Support Business GHG Reduction Initiatives.** The Initiative would provide a variety of services, including education, training, technical support, evaluations, recognition programs and funding to Wisconsin businesses (including farms) to assist them in determining, tracking and decreasing their GHG emissions. The objective would be to assist businesses to become more efficient, offsetting costs of reducing their emissions and increasing competitiveness. The Initiative would implement policies to identify, incent, recognize, reward and promote voluntary emission reductions by the state's businesses and related sustainability practices and behaviors in a variety of ways. The primary focus of this program would be on small and medium-sized businesses.

**D. Support for Development of Wisconsin Business Opportunities Tied to GHG Reductions.** The Initiative would assist in design, implementation and coordination of programs (1) to provide workforce development and training for job opportunities related to GHG reductions strategies; and (2) to assist existing Wisconsin businesses expand, and attract new businesses and jobs to Wisconsin, to provide products and services, including carbon offsets, that support emission reduction strategies and business sustainability practices and operations.

- 8. Timetables, Duration and Stringency Option:** Beginning January 1, 2009 and ongoing
- 9. Explanation of Rough Estimate of GHG Reductions:** Difficult to quantify, but potentially significant
- 10. Rough Estimate of Costs for Selected Years:** Recommended funding of between \$20 and \$30 million per year from a variety of sources beginning in 2009, including money for

staffing and other administrative costs for the Initiative. This funding would be divided equitably between the four programs of the Initiative by its Board in a manner designed to enable each program to achieve its objectives as set by the Board, and consistent with donor funding requirements. If a multi-sector cap-and-trade program and/or a carbon tax is in place in the future, additional funding may come from a portion of cap-and-trade auction revenues, if any, and/or carbon tax revenues.

**11. Barriers to Implementation:** Funding, including access to the state's General Fund, and competition in the future for funds from any cap-and-trade auction revenues and/or carbon tax revenues.

**12. Other Factors:** The policy proposal will need to be implemented in coordination with other related state initiatives that are underway or planned. It proposes actions and strategies necessary to maximize the effectiveness of many other Task Force policy recommendations. Early facilitation of voluntary emission reductions across sectors is essential to enhance Wisconsin's economic competitiveness and energy independence in a future that will be carbon-constrained.

**13. Related Policies:**

- Speed of Travel Reductions
- Electric, Hybrid and Plug-in Hybrid Electric Vehicle Incentives
- Enhanced Recycling Programs
- Enhanced Conservation and Energy Efficiency Program