

## Minnesota Actions that Help Mitigate Climate Change

### Climate Change

**Global Climate Change and Greenhouse Gas Emissions Goal:** The Minnesota legislature passed a greenhouse gas emissions reduction goal during the 2007 session that intends to reduce statewide greenhouse gas emissions across all sectors producing those emissions to a level at least 15 percent below 2005 levels by 2015, to a level at least 30 percent below 2005 levels by 2025, and to a level at least 80 percent below 2005 levels by 2050. This statute also requires various state departments to produce a climate change action plan by February 1, 2008 that will recommend an integrated set of reduction options and strategies for achieving the goals. See Article 5:

<http://www.house.leg.state.mn.us/hrd/as/85/as136.html>

**Terrestrial Carbon Sequestration Inventory and Assessment:** The Minnesota Legislature passed legislation during the 2007 session to fund an assessment of the potential capacity for carbon sequestration in Minnesota's terrestrial systems and quantify the ability of various land use practices to sequester carbon. See Section 35 at <http://www.revisor.leg.state.mn.us/bin/bldbill.php?bill=S2096.3.html&session=Is85>

**Geologic Carbon Sequestration Assessment:** The Minnesota Legislature recently passed legislation during the 2007 session requiring a study to assess the potential capacity for geologic carbon sequestration in the Midcontinent Rift system and identify the most promising formations and geographic areas for physical analysis of carbon sequestration potential. See section 36 at:

<http://www.revisor.leg.state.mn.us/bin/bldbill.php?bill=S2096.3.html&session=Is85>

### Renewable Fuels

**Ethanol:** Minnesota established an ethanol production incentive to provide payment to producers to help develop a new market for Minnesota's agricultural products. On the market side, Minnesota requires that all gasoline sold in the state be blended with a 10% ethanol mix. In addition, Minnesota began efforts in 1997 to develop a network of fueling stations for flex fuel vehicles that could run on an 85% ethanol blend. Today Minnesota has over three hundred E85 fueling stations around the state that together sold a total of \$18,160,000 gallons of E85 blended gasoline during 2006.

<http://www.pca.state.mn.us/programs/ethanol.html>; <http://www.pca.state.mn.us/programs/ethanol.html#links>

**Biodiesel:** According to the U.S. Department of Energy, biodiesel has the most favorable energy balance of any transportation fuel. For every unit of energy needed to produce a gallon of biodiesel, 3.2 units of energy are gained. As of September 29, 2005, Minnesota requires nearly all diesel fuel sold in the state to contain at least a 2 percent biodiesel blend. It is estimated that the 2% fuels use requirement for Minnesota will replace 16 million gallons of diesel fuel. Minn. Stat. § 239.77;

<http://www.pca.state.mn.us/air/cleanfuels.htm>; <http://www.mda.state.mn.us/renewable/biodiesel/default.htm>

**Use of Renewable Fuels by State Agencies:** All state departments are directed to take all actions to strengthen the infrastructure for increasing the availability and usage of E85 and biodiesel fuel throughout the state. All state employees utilizing vehicles from the state's fleet are required to use E85 fuel when operating flexible-fuel vehicles. Exec. Order 06-03 (Mar. 10, 2006)

**Purchase of Fuels and Vehicles by State Agencies:** State agencies are required to purchase cleaner fuels for use in State vehicles. Agencies are also required to purchase a motor vehicle that is capable of being powered by cleaner fuels, electricity or by a combination of electricity and liquid fuel, if such a motor vehicle is reasonably available at similar costs. Minnesota Statutes, Section 16C.135 & 137; Exec. Order 04-10 (Sept. 27, 2004).

### Renewable Electricity

**MN Renewable Energy Standard:** The Minnesota legislature overwhelmingly passed a bill on February 2007 requiring the state's utilities to generate at least 25 percent of their electricity from renewables by 2025. Under the new law, Minnesota will add between 5,000 to 6,000 MW of new renewable energy. The law also establishes a renewable energy trading program for utilities by 2008. This legislation is expected

to reduce carbon dioxide emissions by about 16 percent over what they would otherwise have been.

<http://www.revisor.leg.state.mn.us/bin/bldbill.php?bill=S0004.1.html&session=ls85>

<http://www.state.mn.us/portal/mn/jsp/content.do?id=-536882793&contentid=536913503&contenttype=EDITORIAL&programid=536912010&agency=Commerce>

**Wind Energy:** One of the pivotal events for renewable energy development in Minnesota was a State legislative mandate that required Xcel Energy to procure 425 megawatts of electric energy by December 31, 2002. Today Minnesota ranks among the top in wind energy production with 895 MW of installed capacity and more wind development on the horizon. <http://www.state.mn.us/portal/mn/jsp/content.do?subchannel=-536881511&programid=536902421&sc3=null&sc2=null&id=-536881350&agency=Commerce>

or go to: <http://www.deed.state.mn.us/facts/PDFs/windenergy.pdf>

or go to: <http://www.windustry.com> and search on Minnesota.

**Community-Based Renewable Energy Development Tariff:** Minnesota established a tariff to optimize local, regional, and state benefits from wind energy development and to facilitate widespread development of community-based wind energy projects throughout Minnesota. This year the MN legislature expanded the C-Bed tariff to include other renewable energy projects. (For more information see Article 4 of MN Senate File 145: <http://www.revisor.leg.state.mn.us/bin/bldbill.php?bill=S0145.2.html&session=ls85> and see: <http://www.c-bed.org/minnesota.html>)

**Solar or Wind Easements:** Any property owner may grant a solar or wind easement in the same manner and with the same effect as a conveyance of an interest in real property. No duly recorded easement shall be unenforceable on account of lack of privity of estate or privity of contract; such easements shall run with the land or lands benefited and burdened and shall constitute a perpetual easement.

Solar: [http://www.state.mn.us/mn/externalDocs/Commerce/Consumer\\_Guide\\_to\\_Solar\\_Systems\\_123002022801\\_pvguide3.pdf](http://www.state.mn.us/mn/externalDocs/Commerce/Consumer_Guide_to_Solar_Systems_123002022801_pvguide3.pdf)

Wind: [http://www.state.mn.us/mn/externalDocs/Commerce/Harvesting\\_the\\_Wind\\_110702042324\\_RENUWIND.PDF](http://www.state.mn.us/mn/externalDocs/Commerce/Harvesting_the_Wind_110702042324_RENUWIND.PDF)

**Renewable Energy Production Incentive:** Minnesota offers incentive payments for qualified on-farm biogas recovery, hydropower and wind energy for electric generation.

<http://www.state.mn.us/portal/mn/jsp/content.do?contentid=536885915&contenttype=EDITORIAL&agency=Commerce>

**Green Power Pricing Options:** All utilities offer consumers an option to buy "green" electricity at a premium rate every year. Minnesota ranks first in customer participation among leading utility Green-Power programs in the nation. Green power is a marketing term for electricity that is generated from environmentally preferable renewable energy sources, such as solar, wind, geothermal, biomass, biogas, and low-impact hydro that customers can choose to buy.

<http://www.pca.state.mn.us/oea/energy/greenpower.cfm>; <http://www.pca.state.mn.us/oea/energy/greenpower.cfm#resources>

**Biomass for Electricity:** District Energy St. Paul operates a new combined heat and power plant that uses clean waste wood to generate steam heat and electricity for downtown St Paul, reducing its dependence on coal by 80%. In addition, the Hibbing and Virginia Public Utilities created an energy authority, Laurentian Energy, to re-power their coal-fired district heating boilers in Hibbing and Virginia that produce steam and electricity. Laurentian Energy produces 35 megawatts of power fueled by renewable biomass and closed-loop hybrid poplars. The MPCA is working with an energy intensive industry in St. Paul, Rock-Tenn, and District Energy St. Paul to build a power plant relying upon renewable energy. Rock-Tenn processes half of all recycled paper in the state. Refuse-derived-fuel is being explored as a fuel source.

NREL study on MN Biomass Energy Potential: <http://www.pca.state.mn.us/oea/p2/forum/MNbiomass-NREL.pdf>

**Waste-to-Energy Program:** waste to energy produces clean, reliable, renewable power, and is a vital part of the energy infrastructure in those Minnesota communities where such facilities are located. Currently, nine waste-to-energy facilities in Minnesota process 3,800 tons of MSW per day for industrial heat and electrical generation. The total energy reclaimed since 1982, when these facilities first began to come on-line, is the equivalent of 12 million tons of coal. Currently, these facilities produce approximately 100,000 megawatts of electrical energy, or enough energy to power 110,000 homes. The MPCA has a strategic objective to increase the state's waste-to-energy capacity by 60% by 2011. In 2005, Minnesota waste-to-energy reduced carbon dioxide and methane gases by an amount equivalent to taking 90,000 cars off the road. <http://www.pca.state.mn.us/publications/reports/lrw-sw-1sy06.pdf>

**Open Landfill Gas-To-Energy:** There are twenty-one open mixed municipal landfills in Minnesota. The majority of these facilities are owned and operated by county governments. Two of these facilities (Waste Management's Elk River Facility, and BFI's Pine Bend Facility) currently generate electricity derived from

the collection and combustion of the methane gas generated as a result of waste decomposition. Methane is a potent greenhouse gas. A third facility, Three Rivers Landfill in Kanabec County, will be capturing methane for the production of energy in the near future. Lyon County is currently assessing the potential of a landfill gas-to-energy project at their county owned facility. The MPCA has been proactive with landfill owners and operators in promoting and encouraging the capture and utilization of this valuable resource. <http://www.epa.gov/lmop/index.htm>; <http://www.pca.state.mn.us/cleanup/closedlandfills.html>

## Energy Efficiency and Conservation

**Minnesota's Public Utilities' Energy Conservation Investment Program (CIP):** Minnesota's public utilities are required to invest in energy conservation improvements. Gas service utilities must invest 0.5 percent of gross operating revenues from service provided in the state annually and most electric utilities are required to spend .5 percent of gross operating revenues from service provided in the state.

Minn. Stat. § 216B.241 <http://www.state.mn.us/portal/mn/jsp/content.do?subchannel=-536881736&sc2=-536881993&id=-536881351&agency=Commerce>

**Saving Energy, Saving Sales Tax:** Minnesota removed the sales tax from the most energy-efficient appliances and from EPA Energy Star compact fluorescent light bulbs. See MS [Chapter 377, Article 3](#) Laws 2002 and <http://www.state.mn.us/portal/mn/jsp/content.do?id=-536881350&subchannel=-536881511&sc2=-536892313&sc3=null&contentid=536912098&contenttype=EDITORIAL&programid=536912110&agency=Commerce> <http://www.energytaxincentives.org>

**Residential Building Code:** In 2000, Minnesota put into effect one of the most stringent residential building codes in the country. The building code combines tight thermal envelope requirements, best construction practices and new ventilation requirements to achieve energy efficient homes.

<http://www.doli.state.mn.us/buildingcodes.html>

**Commercial Building Code:** Minnesota is poised to implement one of the most stringent commercial building codes in the country this year. It will combine best construction practices with acceptance testing to assure that systems are working properly. Minnesota new commercial building code will achieve a 30% better energy performance over a typical commercial building. <http://www.doli.state.mn.us/buildingcodes.html>

**Idle Reduction Program.** The MPCA, in cooperation with the U.S. EPA, offers loans to help small trucking companies pay for idle reduction devices such as auxiliary power units. This equipment can reduce fuel consumption by 75 percent, which conserves resources, helps achieve energy independence, and reduces the emissions that contribute to soot and smog. During 2006, 30 loans were issued ranging from \$7,500 to a maximum of \$50,000. [http://www.pca.state.mn.us/programs/sbomb\\_loan.html](http://www.pca.state.mn.us/programs/sbomb_loan.html)

**Sustainable Affordable Housing:** State funded new construction affordable housing multifamily developments will incorporate mandatory green criteria. Minnesota Housing encourages sustainable, healthy housing that optimizes the use of cost effective durable building materials and systems and that minimizes the consumption of natural resources both during construction or rehabilitation and in the long term maintenance and operation. Minnesota Housing encourages optimizing the use of renewable resources and energy, minimizing damages and impact to the environment, and maximizing the use of natural amenities such as (solar, wind, climate, and orientation) of the development site. The Minnesota Overlay to the Green Communities Criteria includes an integrated design process, smart location and neighborhood fabric, site improvements, water conservation, energy efficiency, use of materials beneficial to the environment, a healthy living environment, and operations and maintenance guides.

<http://www.greenhousing.umn.edu/decisionmakers.html>

**Green Building Program:** The Green Building program at the MPCA focuses on making the built environment as environmentally, socially, and economically sustainable as possible. With the help of a 2006 MPCA environmental assistance grant, the agency has been actively involved in the development of emerging green remodeling guidelines along with members of the National Association of the Remodeling Industry-Minnesota Chapter, the Remodelers' Council of the Twin Cities (a council of the Builders Association of the Twin Cities), and the Green Institute. These guidelines (due to be published in 2007) will provide the remodeling community with a "roadmap" for achieving energy- and water-efficient,

healthy, comfortable, environmentally friendly and affordable home improvements.

<http://www.pca.state.mn.us/oea/greenbuilding/index.cfm>; <http://www.usgbcmn.org/>

**Environmental Assistance Program and Small Business Revolving Loan Program:** MPCA's Environmental Assistance Grant and Loan Program and the Small Business Revolving Loan Program: offer financial assistance on a yearly basis to promote more sustainable practices that prevent pollution and conserve resources.

Grants: <http://www.pca.state.mn.us/grants/eagrants.html>

Small Business Loans: [http://www.pca.state.mn.us/programs/sbomb\\_loan.html](http://www.pca.state.mn.us/programs/sbomb_loan.html)

**Employee Discount Transit Passes:** Metro Transit offers passes for regular route bus service for sale to employers at a 30% special discount rate for their employees to promote mass transit and reduce both congestion and emissions in the Metro area.

<http://www.metrotransit.org/groupDiscProg/metroPass.asp>

**Sustainable Building Guidelines for New State Buildings:** State buildings (and building developed using State bonds) must adhere to the State's sustainable design guidelines. These guidelines ensure that all new state buildings initially exceed existing energy code by at least 30 percent. The guidelines focus on achieving the lowest possible lifetime cost for new buildings and encourage continual energy conservation improvements as well as use of renewable energy systems. <http://www.msbg.umn.edu/>

**Energy Conservation Investment Loan:** The State provides low interest loans to municipalities for energy conservation investments in public buildings. Expansion of this program and provision to make it more accessible are currently being considered by the Minnesota legislature. Minnesota Statutes Section 216C.37.

**Reduce Energy Use by 10% in State Owned Buildings:** All state agencies will take measures including, but not limited to the measures set forth in this order, to reduce energy usage in state owned buildings by 10% over the next calendar year. [Exec. Order 05-16](#).

**State Agency Purchase of Recycled Materials:** Procurement process within State will take the recycled content and recyclability of commodities to be purchased into consideration in bid specifications.

<http://www.mmd.admin.state.mn.us/envir.htm>.

**Sustainable Forest Certification:** 4.84 million acres of state-administered forestlands have been verified as sustainable managed and Minnesota has established a strategic vision and action plan to increase the number of acres of family forest land with Forest Stewardship Management Plans from 1.3 million today to 2.3 million by 2015. <http://www.dnr.state.mn.us/forestry/certification/index.html>

**Wetland Conservation Program:** In 1991 the Minnesota established one of the most sweeping wetlands protection laws in the country, the Wetland Conservation Act with a goal of no-net-loss of wetlands. Wetland Conservation Act requires anyone proposing to drain, fill, or excavate a wetland first to try to avoid disturbing the wetland; second, to try to minimize any impact on the wetland; and, finally, to replace any lost wetland acres, functions, and values. [http://www.dnr.state.mn.us/ecological\\_services/wetlands/index.html](http://www.dnr.state.mn.us/ecological_services/wetlands/index.html)

**Conservation Land Development:** Minnesota has invested significantly in preservation and restoration of significant conservation lands -including forests, prairies, and wetlands. The Minnesota DNR owns and manages over 1.1 million acres of public conservation lands in addition to the state forestland. In addition, the State of Minnesota holds long term conservation easements on nearly 200,000 acres of privately owned lands. Restoration and management strategies for these lands focus on restoring diverse native plant communities, which are shown to be very productive in the sequestration of carbon.

<http://www.mda.state.mn.us/protecting/conservation/programsoptions.htm>

**Reinvigorate Recycling Campaign:** The Minnesota Pollution Control Agency (MPCA) is undertaking a campaign to "reinvigorate recycling". The state has one of the nation's highest recycling rates, but the MPCA intends to increase that rate. Even a slight increase in the rate has a significant impact on reducing greenhouse gas emissions. <http://www.pca.state.mn.us/publications/reports/lrw-sw-1sy06.pdf>

**Minnesota Technical Assistance Program:** As part of its technical assistance efforts, the MPCA has funded the Minnesota Technical Assistance Program (MnTAP) for more than 20 years. MnTAP, located on the University of Minnesota's Twin Cities' campus, focuses on pollution prevention assistance to manufacturing and service industries. Engineering staff with many years of technical and financial expertise, working alongside student interns, provide telephone and on-site assistance across a wide

array of facilities. These industry specialists help identify efficiency gains for manufacturing processes and material/chemical substitutions that result in less risk. A related effort, the Retired Engineers Technical Assistance Program, involves retired engineers who work through ReTAP to perform audits of businesses and industries to identify environmental improvement opportunities. Energy efficiency has been a major focus of their efforts in recent months. <http://mntap.umn.edu/industries.htm>

**Increase Compost Program:** Minnesota PCA promotes increased composting of yard waste and source separated organics. By applying it to soils, the compost sequesters carbon by utilizing the short term carbon cycle. In 2005, about 19,000 tons of compost was created and used as soil amendment. That is only capturing about 1% of the organic materials in the solid waste stream. A more aggressive effort could capture 5-10% of the organics in the solid waste stream. This does not include any industrial waste such as vegetable processing wastes, bio-solids, manure composting or digestion. There is a large potential here that is as yet untapped. MPCA is working to increase the amount of composted material. <http://www.reduce.org/compost/index.html>

## Energy Infrastructure

**Distributed Energy Generation projects:** Any municipality or rural electric association may use five percent of the total amount to be spent on energy conservation improvements to construct an electric generating facility that uses renewable energy sources or to install small distributed generation facilities. <http://www.state.mn.us/portal/mn/jsp/search.do?action=searchresult&oq=wind%2Bsystem%2Beasement&agency=Commerce&qp=url%3Aagency%3DCommerce%2Curl%3AexternalDocs%2FCommerce&qt=distributed+generation&rq=0&Submit.x=11&Submit.y=6>

**Metro Emissions Reduction Project** –Xcel Energy is in the process of replacing three coal-fired power plants in Minnesota with cleaner solutions like new natural gas-fired plants or retrofitted technology. These projects will cut about one million tons of carbon dioxide pollution every year. [http://www.xcelenergy.com/XLWEB/CDA/0,3080,1-1-1\\_11824\\_22655-877-0\\_0\\_0-0,00.html](http://www.xcelenergy.com/XLWEB/CDA/0,3080,1-1-1_11824_22655-877-0_0_0-0,00.html); <http://www.pca.state.mn.us/hot/xcel.html>

**Clean Coal for Base Load Electricity:** The proposed Mesabi Energy Project that is being planned in the Arrowhead region of Minnesota would be the largest power plant in the U.S. to use integrated gasification combined cycle (IGCC) technologies to convert coal to electricity. IGCC technologies have the potential to sharply reduce harmful power plant emissions, such as sulfur dioxide, mercury, and carbon dioxide, which are leading contributors to global climate change. <http://www.exceliorenergy.com/>

**Electric Transmission and Reliability Planning:** Minnesota is assuring that adequate interconnected transmission systems are planned, designed, and constructed such that the network can be operated to supply projected customer demands and projected firm (non-recallable reserved) transmission services, at all demand levels over the range of forecast system demands. Minnesota will also assure that its transmission systems are capable of accommodating planned bulk electric equipment outages and continue to operate within specified thermal, voltage, and stability limits. <http://www.energyfacilities.puc.state.mn.us/resource.html?id=16143>

**Coordination of Energy Facility Siting and Regulatory Review:** Minnesota is combining a number of important energy related functions including its reliability administration, energy siting and energy rate regulation under one department, the Department of Commerce to assure that the state's energy planning functions are integrated and coordinated so they can serve the best interests of citizens. See Section 20 of following link: <http://www.revisor.leg.state.mn.us/bin/bldbill.php?bill=H0436.0.html&session=Is85>