



Minnesota Pollution Control Agency

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December 16, 2013

Gina McCarthy, Administrator
U.S. Environmental Protection Agency
William Jefferson Clinton Building
1200 Pennsylvania Avenue Northwest
Mail Code: 1101A
Washington, DC 20460

RE: Clean Air Act 111(d) Rules for Existing Power Plants

Dear Administrator McCarthy:

I am pleased to offer the comments of the Minnesota Pollution Control Agency (MPCA) on this very important work of addressing greenhouse gas (GHG) emissions from existing power plants. As Governor Dayton said in his letter this past summer to President Obama supporting his Climate Action Plan, we believe it is necessary for the U.S. Environmental Protection Agency (EPA) to work with states to develop and implement a plan to address power plant emissions. Minnesota stands as a ready and willing partner.

Minnesota has reduced power plant GHG emissions, and will continue to do so.

Minnesota has accomplished significant reductions in GHG emissions. This work has been accomplished through a number of strategies, involving the state legislature, Minnesota's Department of Commerce, Public Utilities Commission, the MPCA, and mighty efforts by Minnesota's electricity producers. By 2010, statewide GHG emissions have declined by about 3 percent from 2005 emissions, the baseline year of Minnesota's statutory GHG reduction goals. Minnesota's policies and programs that have been in place over the last two decades have acted to reduce GHG emissions from the electricity generating sector. We describe the policies and programs, goals and implementation dates below.

Demand Side Management

Since 1982, Minnesota has administered a demand side management program called the Minnesota Conservation Improvement Program (CIP), which is administered by the Minnesota Department of Commerce. The demand-side management program was established by Minnesota statute and modified over time to establish investment requirements, energy savings goals, and CIP planning requirements. Minnesota's CIP program is a low cost energy resource in comparison to supply-side options.

With passage of Minnesota's Next Generation Energy Act in 2007, a 1.5 percent Energy Efficiency Resource Standard (EERS) for utility conservation improvement programs was established beginning in 2010, meaning that utilities were required to develop plans to achieve savings of 1.5 percent of average annual retail sales annually*. This standard remains one of the most aggressive standards in the country, especially considering that efficiency programs have been operating in Minnesota since the early 1980s.

* Minnesota statute also describes the conditions under which the Department of Commerce can adjust the savings rate to no less than 1.0 percent.

Minnesota utilities operate a wide array of residential, commercial, and industrial CIP programs targeted to both retrofits as well as new construction. CIP programs also help create and retain jobs in a variety of market sectors and customers spend less money on energy, freeing up dollars for other uses.

The establishment of the 1.5 percent EERS in CIP increased the need for accurate and verifiable savings. To this end, the Minnesota Department of Commerce undertook three major initiatives aimed at developing standard measurement and verification from CIP projects:

- Developed measurement and verification protocols for large commercial/industrial projects.
- Developed a technical reference manual providing standard algorithms and assumptions for calculating savings from a wide array of energy efficiency measures.
- Developed a cloud-based platform for CIP data collection and program operations.

Through this system, Minnesota utilities are provided with a pre-approved set of calculators called SmartMeasures™, reducing program costs by each utility not having to create and maintain a set of calculators to demonstrate achieved energy savings. The Department of Commerce collects the results of the CIP from 174 utilities in Minnesota using its Energy Savings Platform (ESP), a cloud based data collection program. ESP allows the state, utilities, trade partners, and stakeholders to collaborate on energy efficiency standards, programs and reporting. The Department of Commerce's evaluation costs are also reduced and results in higher confidence in the reported savings.

The MPCA continues to support the Department of Commerce in encouraging and expanding these programs, because the CIP demonstrates a very efficient, low cost method to reduce energy use and GHG emissions. In 2011, Minnesota's statewide electric CIP program resulted in an incremental reduction of nearly 880,000 tons per year of CO₂ emissions.

Repowering Projects in Minnesota

Minnesota enacted an emissions reduction statute in 2001 that allows special rate recovery consideration for air pollution control projects, with the goal being to improve the emissions profile of Minnesota's aging coal fired utility boilers. Authorized in 2002, and finished in 2009, Xcel Energy, the state's largest electric utility, completed a project called the "Metro Emissions Reduction Project". The project repowered a 520 megawatt (MW) coal-fired power plant, lowering its heat rate by 5 percent. The project also retired 642 MW of coal-fired electricity generation, replacing it with 956 MW of intermediate load natural gas combined cycle generation. This emission reduction statute encouraged early action by Minnesota's utilities to seek multi-pollutant emission reductions that also resulted in reduced reliance upon coal-fired generation and reductions in GHG emissions.

More changes in the fuel mix for Minnesota's electricity generation are in the works, with Minnesota Power announcing its Energy Forward plan to reduce their future supply mix to 33 percent from coal generation, down from 80 percent coal generation in 2013. Minnesota Power will repower about 175 MW of coal-fired electricity generation to natural gas by 2015.

Renewable Energy Objectives/Renewal Energy Standards

Minnesota has undertaken a number of legislative efforts over the past 20 years to expand the use of renewable energy generation and lessen the reliance on fossil fuel in meeting Minnesota's electricity demand. It began in 1994, as a part of legislation authorizing above-ground cask storage of nuclear waste. At that time, the Minnesota Legislature directed Xcel Energy to develop 425 MW of wind power capacity and 125 MW of biomass-fired capacity (referred to as "Prairie Island" in our figures to

distinguish renewable generation developed to meet this mandate). In subsequent Minnesota Public Utility Commission proceedings, Xcel Energy's wind mandate was raised to 825 MW.

In 2001, Minnesota established Renewable Energy Objectives which required electric utilities to "make a good faith effort" to obtain ten percent of their Minnesota retail energy sales from eligible energy sources by 2015, and to obtain 0.5 percent of their renewable energy from biomass technologies. In 2007, the Next Generation Energy Act established Minnesota's Renewable Energy Standards (RES) that mandates that electric utilities generate or procure a specified level of energy from renewable sources. The RES contains targets for 2012, 2016, 2020 and an ultimate target of 25 percent renewable energy generation by 2025. Xcel Energy received a separate RES schedule with an ultimate target of 30 percent renewable energy generation by 2025. Minnesota now has about 2,800 MW of renewable energy installed, and based on the utilities long-range resource plans, is on track to meet this renewable generation requirement by 2025.

Minnesota continues to expand its renewable energy goals. This past year, the Minnesota Legislature added a goal to the RES that 10 percent of retail electric sales will be generated from solar energy by 2030.

Next Generation Energy Act

The Next Generation Energy Act (NGEA), adopted in 2007, represents the most significant public policy action in Minnesota to reduce the state's GHG emissions. The NGEA has bolstered investments in renewable power, increased energy conservation and decreased Minnesota's contribution to climate change. As mentioned previously, the NGEA established Minnesota's RES requirements and changed the CIP program requirements. The cornerstone of the NGEA was establishment of state-level GHG emission reduction targets of 15 percent from 2005 levels by 2015, 30 percent from 2005 levels by 2025 and 80 percent by 2050. These emission reduction goals have driven significant attention to long-term planning for the GHG reductions in Minnesota's electric generation sector.

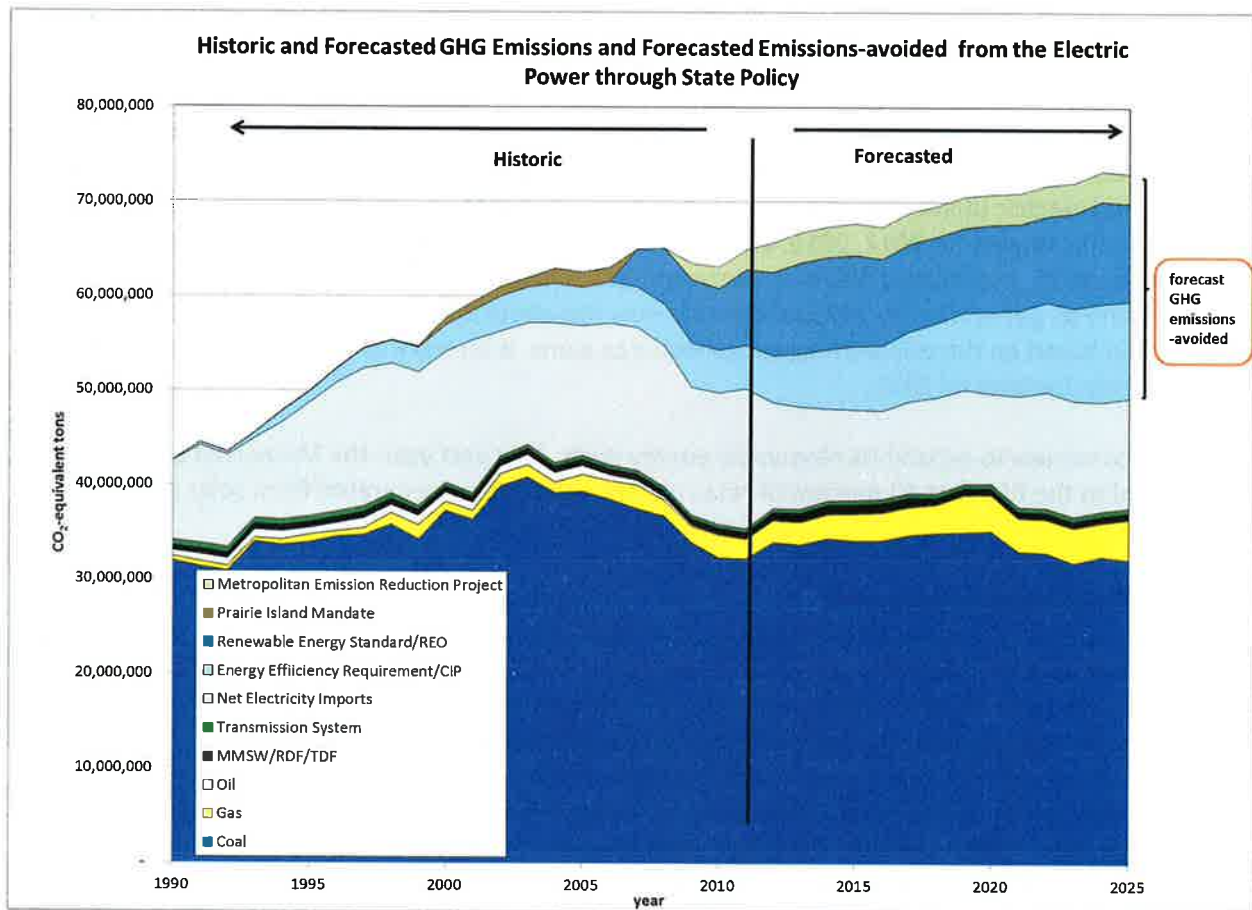
In 2008, the MPCA began to biennially track the state's progress in meeting these GHG reduction targets. In tracking the GHG emissions from the electric power sector, the NGEA required the MPCA to include emissions from in-state generation plus emissions from net imports, including those associated with transmission and distribution losses.

Total GHG Emissions Avoided

Without the policies and actions described above, annual GHG emissions from the Minnesota electric power sector would now total some 65 million tons. However, because of public and private actions in Minnesota, the MPCA estimates that in 2011, emissions of 14.7 million CO₂-equivalent tons from the electric power sector were avoided, primarily due to demand-side management, power plant repowering, and Minnesota's RES. The 14.7 million CO₂-equivalent tons avoided amount to an emission savings of 22 percent.

The MPCA has developed an electric power sector forecast out to 2025 that accounts for the emission-avoidance effects of Minnesota's policies. Based on this analysis, the MPCA estimates that current policies and programs, if continued at present levels, in 2025 will result in the avoidance of 23.8 million tons of GHG emissions, which would represent a 33 percent reduction in expected emissions. The MPCA apportions a reduction of 10.3 million CO₂-e tons to Minnesota's RES; a reduction of 10.3 million CO₂-equivalent tons to Minnesota's CIP program; and a reduction 3.2 million CO₂-e tons from repowering projects in Minnesota.

The figure below shows these various strategies and their associated reductions.



Considerations of a Performance Standard for State Plans

Given the significant impacts of climate change, Minnesota believes that U.S. Environmental Protection Agency's (EPA) performance standard for existing power plants must result in meaningful GHG reductions from electricity generation in all states.

Minnesota's reliance on a substantial amount of outstate generation to meet its electricity demand (roughly 27 percent) highlights the need for regional cooperation, as well as the need to rely on a range of strategies and programs. Minnesota supports EPA's efforts to allow for a mix of policies and programs as the "best system of emission reductions" in addressing GHG emissions. Our experience and analysis shows that state level actions can potentially achieve a 20-30 percent reduction in GHG emission through generating source improvements, renewable energy development and demand side management programs. Based on Minnesota's experience, these emission reductions can be accomplished over periods as short as 10 to 15 years.

Because of the reductions that have already been achieved in Minnesota as well as other states, with a considerable investment of time, capital and effort, it is vitally important that past actions be taken into account when establishing reduction goals or requirements. EPA's best system of emission reductions should provide a means of granting credit to early actions which resulted in GHG emission reductions from a state's electric generation profile.

Additionally, if EPA decides to credit emission-reductions from coal-to-natural gas conversions, EPA should take every action to control methane emissions from upstream natural gas production activities, including emissions during hydraulic fracturing production of natural gas.

State 111 (d) Plan Guidelines

Minnesota shares President Obama's commitment to reduce GHG emissions, as already demonstrated above in our detailing of current state programs and policies. Continued reductions will rely on successful implementation of a federal program for existing power plants to ensure GHG emission reductions nationwide. Recognizing that each state in effect is responsible for the implementation of a federal program, the MPCA believes that there are a number of aspects that are required for an effective, equitable national reduction program:

- It is important that EPA's 111(d) program should be flexible. It should allow plant retirements, refueling, renewable energy (including biomass) and energy efficiency to be used to demonstrate compliance. It is also important that in EPA's consideration of alternative energy sources, EPA should consider how to address state-to-state differences. The definition of a renewable energy source is likely to be different based on current state laws or rules.
- EPA must consider that giving states one year to develop State 111(d) plans, even under the simplest of scenarios, is not enough time for many states to make statutory changes or adopt administrative rules. If states want to take more innovative or multi-state approaches, even more time will be needed to negotiate the details and adopt the necessary changes. EPA should develop a 111(d) plan approval process that allows states and EPA to meet the one year deadline outlined in the President's plan, while still providing states the opportunity to take additional time to develop a more flexible, innovative and cost-effective approach to implementing the guidelines. To accomplish this approach, the following suggestions are provided:
 - Promulgate a "model rule" for states to use initially; it would be very useful in streamlining initial 111(d) plans if EPA were to develop a model rule for data collection and identify alternative emission control strategies that EPA considers sufficient for meeting the rule.
 - Identify preferred procedures for "parallel" processing of 111(d) plans prior to rule proposal. EPA has a means of conditionally approving SIPs called "parallel processing" allowing states to submit an early plan that has compliance schedules, demonstration of legal authorities, etc. followed by a final plan that contains emission limits, enforcement mechanisms and other regulatory and legal requirements. Developing a similar process for 111(d) plans would aid in states being able to provide initial plans on time.
 - Identify preferred procedures related to emissions quantification and other accounting requirements that recognize existing data reporting mechanisms and procedures. This issue is critical to the overall success of any program, and will take some time for states to develop, particularly if other states are like Minnesota where state agencies other than the designated Clean Air Act agencies are collecting energy generation information that would be relied on to demonstrate GHG reductions. This would aid states in developing initial programs within the first year, and potentially avoid duplication of effort for both states and utilities. As mentioned above, Minnesota would rely on energy information that the Minnesota Legislature has already determined is the responsibility of an agency other than the MPCA to collect and verify (e.g. Minnesota's SmartMeasures™ mentioned above). Having to seek legislative action to redirect this

work would be make implementation of a 111(d) rule in Minnesota in a reasonable timeframe very challenging.

- Provide as much guidance as necessary to allow for plan revisions, especially as technologies for carbon capture improve or costs change in response to market changes.
- The two-step approach is potentially applicable to the schedule for securing GHG reductions. EPA has already promulgated rules for emission guidelines stating that it will amend rules for existing sources should new information become available. EPA appears to have the authority to require reductions in the near term to reflect what states are currently demonstrating as achievable. These program requirements can then be followed by longer-term, deeper reductions that may be necessary to address the environmental impacts of climate change.
- EPA must also ensure that EPA's regional offices work in concert with one another, having similar training, guidance and approaches to approving state plans, since multi-state plans could cross EPA region boundaries. EPA must also ensure consistency in the review and approval of state plans across EPA regions to ensure that state plans are consistently and expeditiously approved.
- EPA's definition of best system of emission reductions should consider the impacts of such regulations on the transition of jobs from carbon-intensive energy sources to green energy sources.
- EPA should also consider the critical need for carbon emission regulations to protect citizens who may be disproportionately impacted by the effects of a changing climate and air pollution.

The MPCA looks forward to EPA promulgating the new source performance standards for new fossil-fuel power plants. It is critical that should the United States continue to invest in expanded coal or natural-gas electricity generation, the CO₂ emissions be rigorously controlled.

I understand that EPA has asked many interested and affected parties for their input, and that there are many complex legal, policy and technical issues. While recognizing all of these issues, EPA should strive to develop rules for both existing and new fossil-fuel electricity generation that minimizes compliance costs, maintains electricity reliability, and maximizes economic and environmental benefits.

Along with the concerned citizens of Minnesota, I support EPA's careful, important work in developing these GHG control standards. If there are any questions, please contact Assistant Commissioner David Thornton at 651-757-2018.

Sincerely,



John Linc Stine
Commissioner

JLS/AJ:ld

cc: Janet McCabe, Assistant Administrator (Acting), Office of Air and Radiation
Susan Hedman, Regional Director, EPA Region V
George Czerniak, Air and Radiation Director, EPA Region V

Minnesota Pollution Control Agency Comments to Administrator McCarthy

December 2013

Appendix

Table 1. Policies in Place in Minnesota that have reduced power sector GHG emissions

	target level	starting year	year of compliance or completion
Energy Efficiency (Minn. Stat. 216B.241)			
Conservation Improvement Program	Energy savings goal: 1.5% average of 3 prior years' retail sales, 2010 onward 1.5 to 2.0% of gross operating expenses committed to electric demand-side management programs, 1994-2009	2010	Various
Coal-to-NGCC repowering (Minn. Stat. 216B.1692)			
Metropolitan Emission Reduction Project (MERP)	convert 642 MW coal to NGCC (956 MW); repower 528 MW coal	2002	2009
Renewable Energy Development (Minn. Stat. 216B.1691)			
Renewable Energy Standard (RES)	1% of retail sales 2005-2009 10% of retail sales 2010 1% of retail sales 2011	REO: 2005; RES: 2007	Various
Prairie Island Mandate	825 MW wind, 125 MW biomass	1995	biomass: 2007 wind: 2008
Green Pricing	voluntary program	1998	None
Biodiesel Mandate	0.5% 2005, 2% 2006-2008, 4% 2009, 5% 2010-2011 in electric utility-owned engines and turbines	2005	Various
Solar Generation	10 percent of retail sales	2030	

Table 2. MWH of Electricity-Saved through the CIP or Generated with Renewable Energy Sources from Minnesota Policies and Programs

	2000	2005	2010	2011	cumulative, 1990-2011
Energy Efficiency	2,782,220	4,351,286	5,337,063	5,305,347	63,548,565
Renewable Energy					
Prairie Island Mandate(a)	719,769	1,690,061	-	-	8,722,810
Renewable Energy Standard (b)	-	-	7,606,126	9,138,452	34,743,571
Biodiesel Mandate	-	4,159	7,580	7,055	90,522
Green Power Pricing	-	-	65,270	73,809	291,224

(a) State statute allows renewable electricity generation to be counted under its renewable energy standard. After 2006, renewable generation stemming from the Prairie Island mandate is counted under the RES.

(b) Includes generation at all renewable energy facilities within Minnesota that can generate Renewable Energy Credits (RECs) for use in meeting the State's RES requirements.

Table 3. Principal Data Sources Used in Minnesota to Evaluate Emissions-Avoided Effects of Historic and Current Day Policies and Actions

Data Source	Years of Availability
Facility emissions	
MPCA GHG emission inventory	1990-2011
MPCA consolidated emission inventory	2010-2012
US EPA CAMD database	1996-2012
EPA MRR data	2010-2011
Facility and Unit Level Net Generation	
EIA Form 923, EIA Form 906, EIA Form-759	1990-2012
M-RETS	2008-2012
MN Department of Commerce Annual Electric Report	most years, 1990-2012
Independent Power Producer Sales to Grid	
FERC Form-1	1990-2012
DSM Energy Savings	
EIA Form-861	1990-2012
Green Pricing MWH-sales	
EIA Form-861	2007-2012
Renewable Energy Standard/Renewable Energy Credit retirements, sales, purchases, balances, and ownership	
M-RETS	2008-2012
Annual Compliance filings with Minnesota Public Utilities Commission	various, 2007-2012
Regional Marginal Emission Avoided factor	
M. Silar-Evans, <i>et al.</i> (2012)	2006-2011