



Policy Brief

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The Policy Gap:

Minnesota Energy Policy vs. Minnesota Climate Policy

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Executive Summary

Minnesota has adopted an aggressive state-level greenhouse gas (GHG) reduction goal but Minnesota's energy policy objectives, even if achieved, would simply slow the rate at which we are moving the the wrong direction. To significantly reduce greenhouse gas emissions Minnesota must reduce energy consumption.

If Minnesota electricity growth continues at its current rate, consumption would increase by almost 50 percent by 2025. Simply to prevent greenhouse gases from rising in the electricity sector would require a 48 percent renewable energy standard by 2025, double the existing standard.

However, if electricity demand growth were cut to zero, a 20% renewable goal by 2015 would stabilize greenhouse gas emission from this sector.

If state gasoline consumption increases at its current rate, even doubling the ethanol blend from 10% to 20% would only modestly reduce the growth. However, if vehicle miles per car were held constant and the state embraced plug-in hybrid electric vehicles - which effectively triple vehicle efficiency - greenhouse gas emissions in this sector could drop by 67% by 2025.

In the building sector, improving building efficiency will modestly reduce the rate of growth in energy demand. More effectively, the building code could be expanded to require any new building, or major renovation to an existing building, to offset any net additional greenhouse gas emissions resulting from the project. This would spur dramatic energy improvements both in new buildings and, with in-state offsets, existing buildings.

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by John Bailey, February 2006

Since 1974, the Institute for Local Self-Reliance (ILSR) has worked with citizen groups, governments and private businesses to develop practices that extract the maximum value from local resources.

A program of ILSR, the New Rules Project helps policy makers to develop rules as if community matters.

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INTRODUCTION

In 2007, the Minnesota legislature adopted a greenhouse gas reduction objective similar to that recommended by the Nobel Peace Prize winning Intergovernmental Panel on Climate Change (IPCC): a reduction of statewide greenhouse gas (GHG) emissions to 15 percent below 2005 levels by 2015, with cumulative reductions of 30 percent by 2025 and 80 percent by the year 2050.

During the 2006 and 2007 sessions, the legislature enacted several other energy and climate change-related goals, along with two mandates: a doubling of the percentage of ethanol required in a gallon of gasoline sold in Minnesota;¹ and a 25 percent renewable electricity standard by 2025.

As this report details, if all these goals and mandates were achieved, Minnesota would likely still increase its statewide greenhouse gas (GHG) emissions. The difference between what is and what needs to be to fulfill the greenhouse gas reduction objective is what we call the policy gap.²

Reducing greenhouse gas emissions will require more dramatic changes. Minnesota can't get from here to there unless we stabilize our absolute energy consumption in addition to promoting renewable energy.

Minnesota's Greenhouse Gas Objective

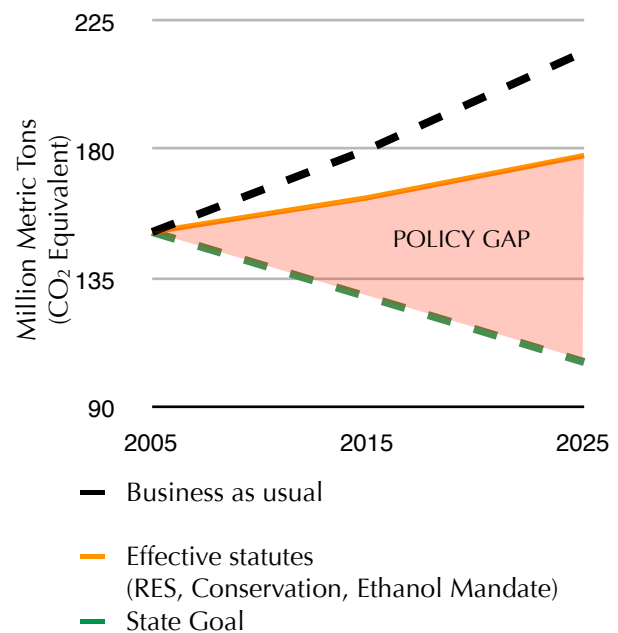
Reduce 2005 emission levels by:

15% in 2015

30% in 2025

80% in 2050

Current Minnesota Energy Policies Will Not Achieve Minnesota Greenhouse Gas Objective



¹ Minnesota Statutes 2006, §239.731, Subd. 1a. <http://tinyurl.com/332cuv>. "This subdivision expires on December 31, 2010, if by that date...federal approval has not been granted for the use of E20 as gasoline."

² This report looks out only to 2025, in large measure because the existing laws, except for the greenhouse gas emission reduction goal, only go out to 2015 or 2025.

MINNESOTA'S ENERGY GOALS AND MANDATES

The Mandates

1. The new Renewable Energy Standard (RES) requires all Minnesota electric utilities to provide 25% or more of their energy from renewable sources by 2025.³ Xcel Energy must meet a 30% RES by 2020. The mandate requires that interim benchmarks be met.

2. The ethanol mandate doubles the minimum volume of ethanol in Minnesota's gasoline to 20% by August 30, 2013, but only if the EPA approves a waiver by the end of 2010.

The GHG Objective: An Absolute Reduction

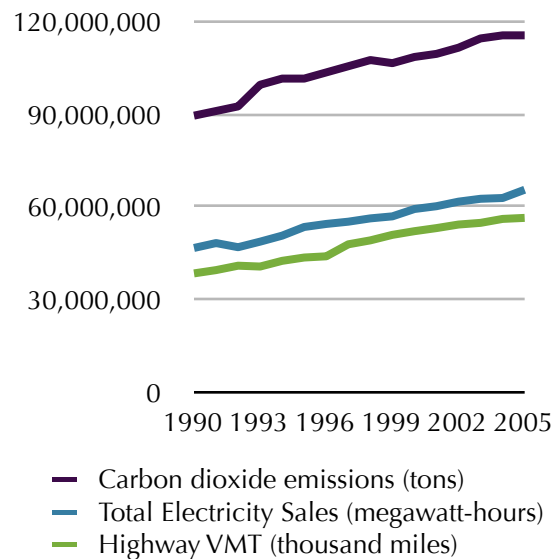
This law establishes objectives for an absolute reduction in statewide greenhouse gas emissions, from a 2005 baseline, by 15% by 2015, 30% by 2025 and 80% by 2050.⁴

The Minor Goals: Relative Reductions⁵

The following two goals require relative reductions in energy consumption-- reductions that will cut anticipated growth-- not reductions to absolute consumption.

1. A 15% reduction in fossil fuel consumption per capita across all sectors by 2015.⁶ The statute calls for this goal to be met with "increased reliance on energy efficiency and renewable energy alternatives." The law is extremely vague on how this will be measured. Will it be 15% less than 2005? Or 15% less than the projected use in 2015? Will fossil fuel intensity be held constant thereafter or resume increasing? We assume the reduction is relative.

Minnesota Electric Consumption, Driving Mileage and CO₂ Emissions Are Increasing



Sources: Minnesota Pollution Control Agency, the Energy Information Administration, USDOT and MNDOT.

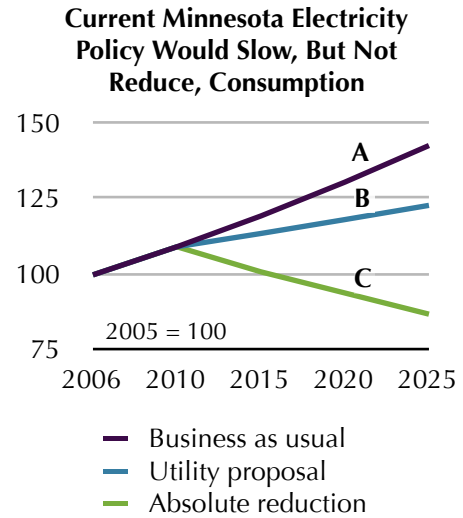
³ Minnesota Session Laws 2007, Chapter 3, Section 1. <http://tinyurl.com/2ghym7>.

⁴ Minnesota Session Laws 2007 Chapter 136, Article 5, Sec. 2. <http://tinyurl.com/2d4czg>.

⁵ The 2007 legislature passed a third goal: 25% of total statewide energy should be generated by renewables in 2025. Minnesota Session Laws 2007 Chapter 136, Article 1, Sec. 2, Subd. 2. <http://tinyurl.com/22gwzr>. Minnesota currently supplies 6% of its electricity with renewables and around 2% of its total energy with renewables. We have chosen not to look at the impact of achieving the 25x25 goal because there are no state policies regarding renewable heating. The RES, combined with the achievement of the energy conservation goals, plus a 20 percent ethanol blend, would result in lifting renewables only to about 4 percent of our total energy supply for all sectors.

⁶ Minnesota Session Laws 2007 Chapter 136, Article 1, Sec. 2, Subd. 2. <http://tinyurl.com/ywl56w>.

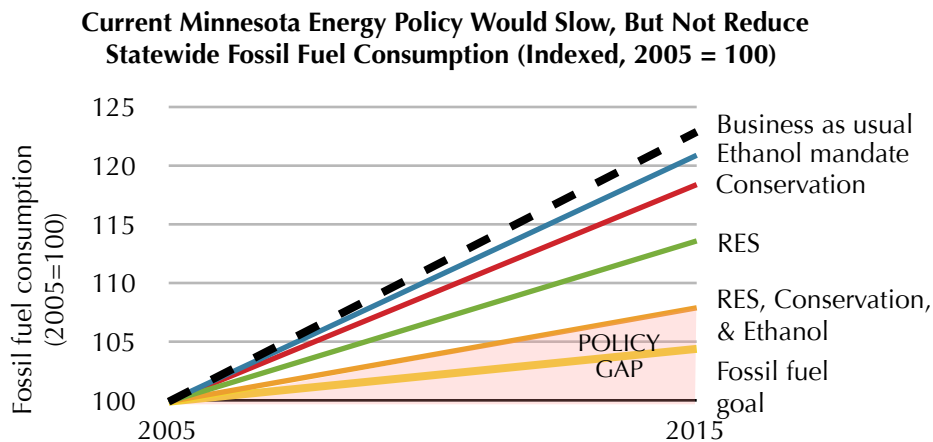
2. A 1.5% annual energy savings for gas and electric utilities beginning in 2010.⁷ This is another relative goal. The adjacent chart illustrates its potential meaning. Line A represents the business-as-usual scenario, a continuation of Minnesota’s statewide average of around 2% per year growth in electricity sales. Line B assumes that electric utilities reduce their growth rates by 1.0 percentage points.⁸ Line C shows the reduction resulting from an annual 1.5 percent absolute savings below 2010 levels.



THE COMBINED IMPACT OF MINNESOTA’S GOALS AND MANDATES

Impact on Fossil Fuel Consumption

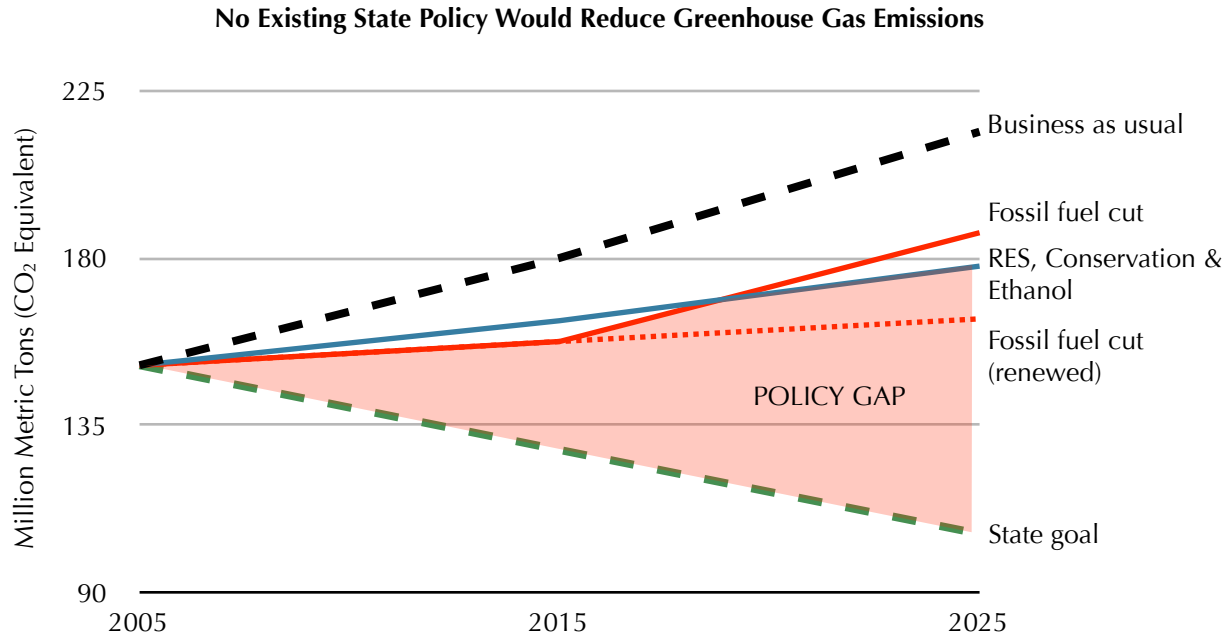
If consumption and population increase in the future as they have in the past, Minnesota’s per capita fossil fuel consumption would rise by around 11% from 2005 to 2015, resulting in a total absolute increase of 21%. The RES mandate would reduce consumption by 8% and conservation would reduce it by another 4%. The ethanol mandate would reduce fossil fuel consumption by around 1.5%. If all three policies are implemented successfully, fossil fuel consumption will still increase by 8%.⁹



⁷ “Each individual utility and association shall have an annual energy-savings goal equivalent to 1.5 percent of gross annual retail energy sales unless modified by the commissioner under paragraph (d). The savings goals must be calculated based on the most recent three-year weather normalized average.” Minnesota Session Laws 2007, §136, Article 2, Section 4. <http://tinyurl.com/37493c>.

⁸ Utilities argue that their electricity growth forecasts already include an implied 0.5% conservation rate.

⁹ In this chart and all following, the RES+Conservation scenario takes into account the reduced need for renewables if conservation is implemented.



Impact on GHG Emissions

The RES reduces the growth rate of greenhouse gas emissions slightly, as will reducing the growth rate of electricity and natural gas consumption. Combining the two policies achieves a 9 percent reduction in 2015 and a 17 percent reduction in 2025 below expected levels. This is still an increase above 2005 GHG emission levels; 8 percent in 2015 and 18 percent in 2025.¹⁰

Successful implementation of the per capita reduction in fossil fuels goal would result in stabilizing absolute greenhouse gas emissions until 2015, although they increase again as both population and vehicle miles traveled increase (assuming vehicle fuel efficiency remains the same). If the per capita reduction were renewed and successfully achieved in the 2015-2025 period, then GHG emissions could be kept nearly even with 2005 levels. No policy achieves actual reductions in GHG emissions relative to 2005.

POLICY GAPS IN MEETING GHG EMISSION TARGETS

Transportation

The transportation sector is responsible for one-quarter of statewide GHG emissions. Vehicle miles traveled have increased by 1.5% per year from 2000-2005. GHG emissions from transportation have increased by 1% per year, and are projected to continue increasing at that rate. Without a meaningful renewable energy and conservation goal for transportation fuel, the state’s GHG goal will remain elusive.

¹⁰ Carbon dioxide equivalent emissions estimates provided by MPCA and Center for Climate Strategies. “Conservation” assumes a 1.0 percentage point reduction in the electricity sales growth rate. The fossil fuel cut assumes a 15% relative reduction in 2005 fossil fuel use per capita (BAU * 0.85).

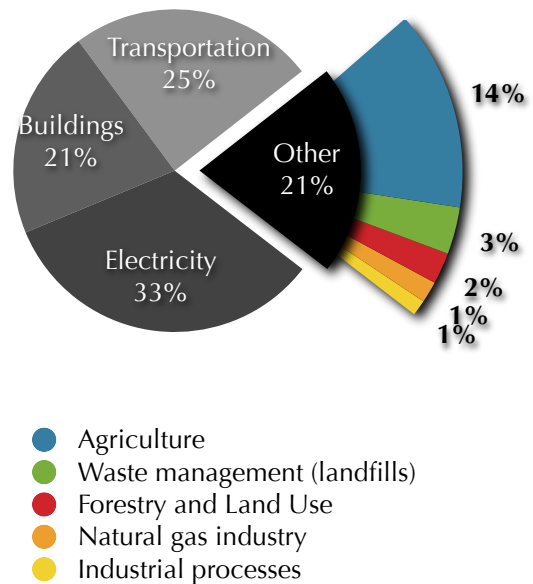
Heating

Heating buildings in Minnesota accounts for 21% of the state's GHG emissions and emissions in this sector are increasing at 1.5% per year (16% by 2015). Without policies addressing more than natural gas use in this sector, the state cannot meet its GHG reduction goals.

Other Greenhouse Gas Emitters

In addition to policy gaps in the transportation and building sectors, approximately 20% of Minnesota's emissions come from other sectors including agriculture and waste management.¹¹ Like other sectors, emissions from agriculture (primarily methane) have been increasing.

The Policy Gap Includes the "Other 21%" of GHG Emissions



WHAT WOULD IT TAKE TO MEET MINNESOTA'S GREENHOUSE GAS REDUCTION GOALS?

Existing policies will not be enough for Minnesota to meet its GHG reduction goals. A broad-based and more radical strategy is needed. Such a strategy should be informed by one truth. We cannot achieve our greenhouse gas emissions goals if we do not curb our growth in energy consumption.

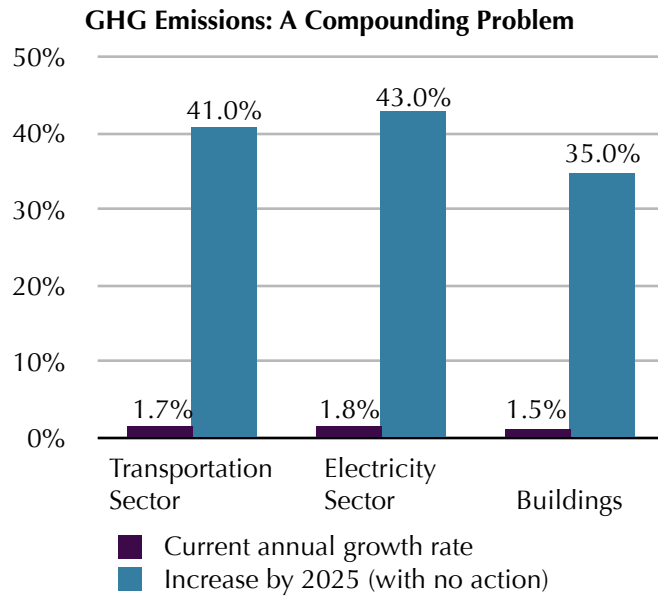
Any improvements in efficiency or renewable energy continue to be overwhelmed by increased consumption. In the last 25 years, for example, the United States has dramatically reduced the amount of energy it takes to add another dollar to our Gross Domestic Product by 40 percent. But during the same period overall energy consumption increased by 30 percent.¹² If Minnesota electricity growth continued at 1.8% per year, total electricity consumption would increase by almost 50 percent by 2025, an absolute amount far greater than the increase in renewable energy mandated during the 2007 legislative session. If that growth occurred, simply preventing greenhouse gases from rising in the electricity sector would require a 48 percent renewable energy standard by 2025.

On the other hand, if electricity demand growth were cut to zero, then a 20% renewable goal by 2015 (up slightly from the existing 15% requirement) would stabilize greenhouse gas emission from this sector.

¹¹ Carbon dioxide equivalent emissions estimates provided by MPCA and Center for Climate Strategies.

¹² International Energy Intensity-1980-2005; International Primary Energy Consumption-1980-2005. (Energy Information Administration, August 2005).

If state gasoline consumption continues to increase at its current rate of 1.6 percent per year, total consumption by 2025 would increase by 1.3 billion gallons in the state, an increase over 2005 consumption levels by about 35%. Even doubling the ethanol blend from 10% to 20% would only reduce the increase in gasoline consumption to 22%. On the other hand, if vehicle miles per driver were held constant and the state embraced a transportation strategy supporting plug-in hybrid electric vehicles - which effectively triple vehicle efficiency - it could reduce greenhouse gas emissions in this sector by 67% by 2025.



In the building sector, the present rate of development means that by 2025, 23% of building space will have been constructed after 2005. By 2050 that rises to 59%.¹³ Improving building efficiency will reduce the rate of growth in energy demand. More effectively, the building code could be expanded to require any new building, or major renovation to an existing building, to offset any net additional greenhouse gas emissions resulting from the project. These offsets must be within the state and would likely be efficiency and renewable energy improvements to other buildings. This would spur dramatic energy improvements both in new buildings and, with the in-state offsets, existing buildings.

CONCLUSION

Minnesota has embraced a bold and ambitious greenhouse gas reduction goal. But its current energy strategy would only reduce the rate of growth of fossil fuel consumption and greenhouse gas emissions, rather than achieve the goal's 80 percent reduction. Minnesota needs to become a leader not only in the goals it sets, but in the rules it develops to channel entrepreneurial energy and scientific genius and investment capital toward meeting those goals.

¹³ 2007 Buildings Energy Data Book. (US DOE: Energy Efficiency and Renewable Energy, September 2007). Accessed 10/26/07 at <http://tinyurl.com/27psya>.