

POLICY MEMO

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How Reasonable are the Recommendations of Minnesota's Climate Change Advisory Group?

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Executive Summary

The report of the Minnesota Climate Change Advisory Group (MCCAG) recommends a wide range of policies to achieve the goals set out in the Next Generation Energy Act of 2007. Even the most cursory examination of the report reveals glaring weaknesses. The report overstates the costs of CO₂ emissions, overstates the benefits of reduction measures, understates the costs and difficulties of remediation measures, and calls for actions that are directly at odds with Minnesota's recently adopted transportation policies.

- **The MCCAG report is based upon gross exaggerations of the social costs of carbon emissions. They recommend a carbon trading scheme that values carbon dioxide emissions at \$48/ton, which is four times the \$12/ton the UN Intergovernmental Panel on Climate Change states is the peer-reviewed estimate.** The cost of carbon dioxide emissions for Minnesotans would thus be four times the UN estimated social cost, 30% higher than European costs, and as much as 40 times as high as costs in the Northeast United States, which has a similar carbon trading scheme.
- The MCCAG and the Next Generation Energy Act of 2007 both set goals that are impossible to meet in the times frames set. According to the MCCAG **Minnesota's greenhouse gas emissions are rising at twice the national rate, yet they expect to reverse this trend and achieve a 15% reduction in just seven years.** Doing so would require dramatic changes that would be impossible to accomplish on a short time frame without severe economic consequences.
- The MCCAG recommends drastic changes in land use in very short time frames. These changes run counter to current market trends, and there is little to no empirical support that they can be achieved. **In particular the report recommends doubling the amount of new housing development required in the urbanized area and choking off suburban development.** A large fraction of the committee's greenhouse gas reduction is based upon achieving this goal, yet there is no evidence that the housing market will support mass migration back to the cities.
- One of the primary policy goals of the MCCAG report is to drastically alter the transportation market, shifting citizens from automobiles to transit in large numbers. Their method of achieving that goal to increase both the cost and inconvenience of driving. Consequently **they suggest a dramatic reduction of investment in roads** (contrary to the policy adopted by the Legislature to increase taxes and spending for roads and bridges) **and to shift the resources**

to transit development. Further, they argue that one of the best ways to reduce greenhouse gas emissions is to “increase the cost of driving.”

These policies run counter to Minnesota’s recently updated policy goals.

- The MCCAG report recommends sweeping changes to agricultural practices to reduce greenhouse gas emissions from agriculture, **but the report admits that there is little current research to indicate the best methods for doing so or that the reductions can or will actually happen.** Calling for further research while booking the greenhouse gas reductions is pure fantasy.
- The MCCAG report calls for a massive increase in the use of biofuels, but completely sidesteps the feasibility or total benefits of making such a massive shift in fuel use. The report states **“The economical and technical feasibility of replacing conventional energy with renewable energy was not considered as a part of this analysis; it was assumed that sufficient supply was available to meet the demand set by the policy. The cost and GHG impact of replacing plant nutrients lost to harvested cellulosic materials were also not considered.”** The report also completely sidesteps the question of whether biofuels create a “carbon debt” that in the medium-term would increase greenhouse gas emissions.

In short, the MCCAG report does not provide a reasonable path to addressing the potential costs of climate change. Rather it is based upon unrealistic assumptions about the actual costs of carbon dioxide emissions, the time frame in which massive social changes can take place, and what the political and economic market will bear.

How Reasonable are the Recommendations of Minnesota's Climate Change Advisory Group?

The final report of the Minnesota Climate Change Advisory Group (MCCAG) is the result of months of work and hundreds of hours of discussion. It includes hundreds of pages of statistics, recommendations, and difficult to follow discussions on a wide range of policy options that Minnesota could or possibly should adopt in order to combat climate change. The latest draft report was released March 19 at the MCCAG website and can be found at <http://www.mnclimatechange.us/MCCAG.cfm>.

Adoption (or not) of the various recommendations of the Report will have dramatic impact on the day-to-day lives of Minnesotans. The cost of energy, land use patterns and the cost of housing, the types of vehicles available to the Minnesota market, economic growth, and a host of other variables that ultimately determine the quality of life in our state will all be altered by these policy decisions.

How should a reasonably informed citizen judge the quality of the report and its recommendations? Barring duplicating the work and discussions of the Advisory group, is there any way to reasonably judge their work product?

TOUCHSTONES

One method we could use to assess the reliability of the report would be to examine each policy recommendation in light of its assumptions, costs and associated benefits. As a practical matter, this would require duplicating the efforts of MCCAG and Climate Change Strategies. We have chosen to forego this approach.

Instead, we have elected to examine a few "touchstone" policy recommendations and evaluate their credibility as a proxy for the report as a whole. In order to do this and get reliable results, it is vital that these recommendations be significant to the overall strategy that is being proposed by MCCAG, not simply peripheral (such as increasing bicycle use, which contributes little to the overall greenhouse gas reductions proposed).

We have chosen to examine more closely the Advisory Group's recommendation regarding the following areas:

- Overall goals
- The proposed carbon trading scheme
- Proposed land use changes
- Transportation and fuel consumption changes
- Agricultural practices changes

The reliability of the recommendations in each of these areas is crucial to the credibility and reliability of the report as a whole. If the assumptions, analysis, or recommendations in these areas are not reliable or realistic, then the report as a whole ought to be seen as seriously or even fatally flawed.

AMBITIOUS GOALS

According to the MCCAG report, Minnesota’s greenhouse gas emissions have been growing at more than twice the national average¹. In light of this, the goals embodied in the Next Generation Energy Act of 2007 and the MCCAG report are extraordinarily ambitious. Minnesota consumers and businesses are expected to reduce greenhouse gas emissions 15% by 2015, 30% by 2025, and 80% by 2050, using 2005 as the baseline year.

To put these numbers in perspective, one of the “greenest” states in the nation, California, increased its greenhouse gas emissions from electricity production by 12.4% in 2007, despite having only two coal-fired power plants supplying electricity to the State. Greenhouse gas emissions from power production increased by 3% nationwide in one year.

Figure EX-1. Gross GHG emissions by sector, 1990–2020: historical and projected (consumption-based approach) business as usual / base case

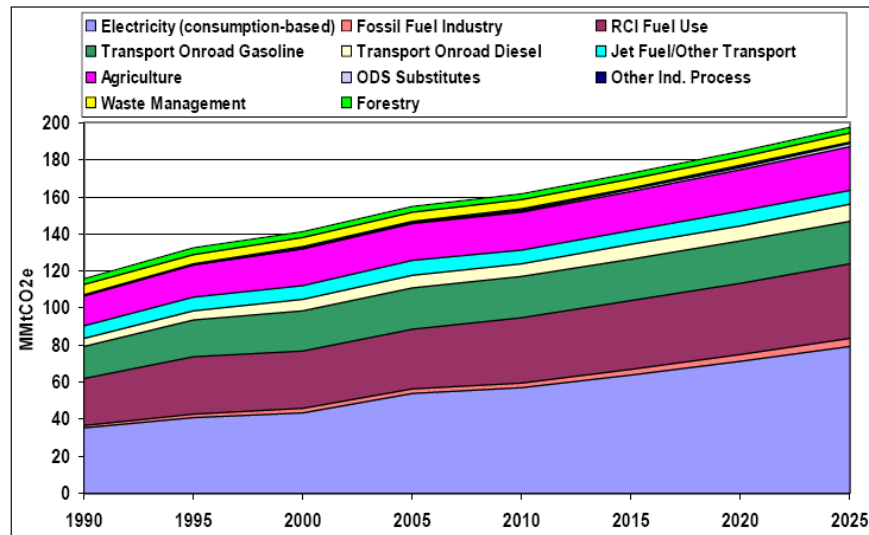


Figure 1 Projected Minnesota Greenhouse Gas Emissions²

¹ Minnesota Climate Change Advisory Group Report (Draft 3-1-08), p. EX-1

² Minnesota Climate Change Advisory Group Report (Draft 3-1-08), p. EX-1

Meeting just the 2015 target of a 15% reduction in greenhouse gas emissions would require a reversal in Minnesota’s emissions trend and then a dramatic reduction that would be almost impossible to accomplish in as little as 7 years.

The European Union embarked upon an effort to reduce greenhouse gas emissions the late 1990s, but so far has not come even close to meeting its goal of reducing emissions a modest 8% by 2012. It seems unlikely that Minnesota can accomplish twice the (unmet) reduction in about ½ the time, as is required by the 2007 law. There is simply no precedent for achieving such large decreases in greenhouse gas emissions without substantial economic dislocation.

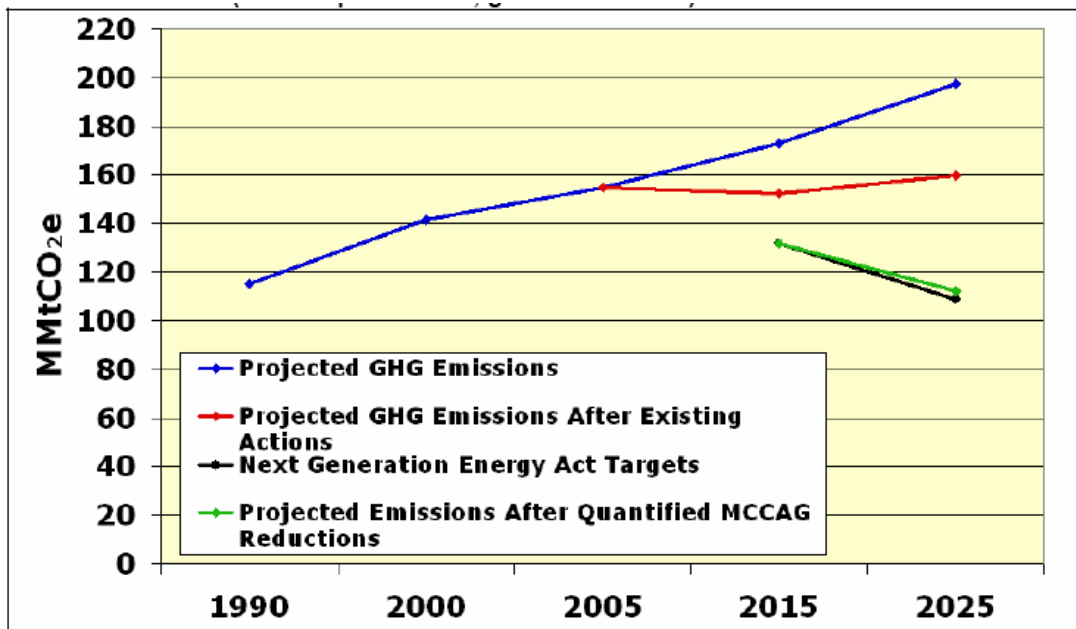


Figure 2 There is an almost 100% difference between projected greenhouse gas emissions and the 2025 targets³

Conclusion: It will be impossible to meet the 15% reduction by 2015 without draconian laws that enforce a reduction in automobile use, electricity consumption, and industrial production. Even if Minnesota converted 100% of its electricity production to nuclear power (which emits no greenhouse gases), it would take years to get the plants online. Increases in biofuel consumption will have minimal impact (and by some accounts negative impact) on emissions, and it will take years or decades to get sufficient wind power online (and wind will never supply base load power requirements) to make a significant dent in electric generation greenhouse emissions. The only way to significant cut greenhouse gas emissions significantly in the short-term is to significantly reduce energy consumption.

³ Minnesota Climate Change Advisory Group Report (Draft 3-1-08), p. EX-6

CARBON TRADING

One of the more controversial proposals in the MCCAG report is to adopt a carbon trading scheme similar to the European Union trading regime, or the one that is developing in the Northeast United States (the Regional Greenhouse Gas Initiative or RGGI).

The MCCAG proposes selling carbon emissions at the rate of **\$45-\$48/ton of CO₂⁴** in order to encourage the reduced emissions. How does this compare to the European and RGGI emissions trading schemes?

On the European Climate Exchange, permits to emit carbon are selling at about \$35/ton⁵, making the proposed price in Minnesota almost 30% higher. Carbon on the Chicago Climate Exchange sells at about \$5/ton. While trading has not begun for the RGGI, the minimum price per ton has been set at \$1.86/ton⁶, making Minnesota's price per ton as much as 24 times as high as the New England area.

Carbon "offset" credits are also available in the \$5/ton to \$10/ton range.

According to the Intergovernmental Panel on Climate Change Summary for Policymakers, the average of peer reviewed studies which assume anthropogenic sources for climate change place the actual social cost of carbon dioxide emissions at approximately \$12/ton, or one-fourth the proposed price of CO₂ emissions for Minnesota.

Conclusion: the MCCAG's report recommending a price of \$45-\$48/ton is dramatically out of line with world markets. If indeed such a recommendation were put in place, Minnesota would stand as an economic desert island. The cost of doing business in Minnesota would be dramatically higher than almost anywhere in the world, forcing businesses to leave our state. Worse yet, the proposed price of carbon dioxide emissions exceeds the IPCC's own assessment of the actual social cost of carbon by 400%, meaning that Minnesotans will not only be exporting economic development to other regions, but they will also be paying four times the actual social costs of their emissions.

PROPOSED LAND USE CHANGES:

One of the most significant policy changes proposed by the MCCAG is a radical restructuring of land use and transportation policies. Despite the fact that the current land use and transit policies pursued by the Metropolitan Council are already

⁴ Minnesota Climate Change Advisory Group Report (Appendix K, K-10)

⁵ European Climate Exchange (http://www.europeanclimateexchange.com/default_flash.asp)

⁶ Regional Greenhouse Gas Initiative proposed auction rules (http://www.rggi.org/docs/20080317auction_design.pdf)

controversial, the MCCAG recommends doubling the existing requirement of new housing to be built in the already developed areas of the Twin Cities Metropolitan region. The current Metropolitan Council plan requires that about 30% of new housing built be in already developed areas; MCCAG recommends that 60% be the new target.

The MCCAG establishes radical goals in restructuring land use as part of its overall strategy to reduce the number of vehicle miles traveled in automobiles by over 10 billion miles a year by 2025⁷. To put this number in perspective, VMT have increased 15 billion miles a year over a similar time period in the past. Meeting this standard would require actually reversing an unbroken trend in the increase in the number of vehicles on the road and an increase in the number of miles driven.

Accomplishing this goal would require a dramatic change in where people live, where they work, how they get to work, and even how they pay for driving automobiles. There is no evidence that such a change can take place in the time frame envisioned and without substantial coercive measures.

Conclusion: It would be nearly impossible to implement the land use changes envisioned by the MCCAG without dramatic coercive measures. Doubling the targets for increased dense development runs counter to market trends and would be politically infeasible. In addition, substantial reductions of vehicle miles traveled are historically unprecedented, and run counter to current Minnesota transportation policy as implemented in the 2008 Transportation Bill. Even the Metropolitan Council's 2030 Plan assumes a large increase in vehicle miles traveled. The number of vehicle miles traveled has gone in only one direction, and reversing that trend requires implausible assumptions.

TRANSPORTATION AND FUEL USE

The transportation and land use policies proposed by the MCCAG are inextricably intertwined. Just as the land use proposals set unrealistic goals regarding changes in living, working, and commuting patterns, the transportation and fuel use proposals rest upon unrealistic assumptions regarding changes that can be made to consumers' driving and commuting habits.

One of the most significant proposals in the transportation arena is one of the easiest to overlook. Benignly labeled the "Fix it First" Transportation Investment Policy, the MCCAG recommends a sweeping change in transportation investments directly at odds with the logic behind the Transportation bill passed in the 2008 legislative session. In particular, the MCCAG advocates that the state "**significantly reduce investment in new roads and roadway expansion that accommodates and encourages both low-density development and more and longer vehicle trips.**"⁸ Such a recommendation

⁷ Minnesota Climate Change Advisory Group Report (Appendix H, H-4)

⁸ Minnesota Climate Change Advisory Group Report (Appendix H, H-49)

necessarily requires an dramatic increase in congestion and in fact requires a large “congestion tax” to accomplish a decline in the number of vehicle miles driven. Given that the 2008 Transportation Bill was designed to reduce the “congestion tax,” it is implausible that the Legislature would reverse course in the space of a year or less.

The MCCAG envisions a significant and rapid shift in both where people live and work, and how they travel. They recommend restricting the supply of roads and shifting resources to building new transit, and shaping the market by restricting development outside the urban core. The MCCAG recommends an additional \$3 billion in transit investments by 2020, arguing that these investments will all pay for themselves in lower infrastructure costs. There is little evidence for this assertion, as increased demand for infrastructure in cities will require substantial upgrades.

Perhaps most telling among the recommendations by the MCCAG is their open acknowledgement that **one of the best ways to reduce greenhouse gas emissions is to “increase the cost of driving” through a variety of mechanisms.**⁹ While such an approach may appeal to those with a one-dimensional focus on reducing greenhouse gas emissions, it completely ignores the significant displacement this will cause for average Minnesotans. It is certainly not a policy that would be popular with most Minnesotans.

The MCCAG also recommends adopting California Clean Car Standards, which according to their strongest proponents, will add \$1000 to the price of a new car, and according to their critics may add as much as \$3000. Given the fact that Minnesota’s fleet of vehicles is more heavily weighted toward light trucks than automobiles, meeting these standards is likely to be more difficult here than in California.¹⁰

Another recommendation that appears to depart significantly from reality is the proposal to once again reduce the speed limit to 55mph. This recommendation is startling for a number of reasons, not least of which is its widespread unpopularity with drivers. Drivers have shown a strong resistance to reduced speed limits, and have shown a strong desire for faster not slower driving conditions.

Conclusion: The transportation and land use proposals in the MCCAG report are highly unrealistic. They assume that massive and unprecedented changes in living, working, and driving patterns will be adopted quickly, cheaply, and with little or no political resistance. A massive redirection of our transportation resources from roads to transit, a seamless transition of our fuel mixtures, an adoption of costly new fuel efficiency standards, and a reduction in our speed limits are all unlikely to be adopted without a political firestorm.

AGRICULTURAL PRODUCTION CHANGES

⁹ Minnesota Climate Change Advisory Group Report (Appendix H, H-27-8)

¹⁰ Minnesota Climate Change Advisory Group Report (Appendix H, H-45)

The MCCAG report is hardly realistic in its discussion of transportation and land use, but may be even further from reality in its proposals regarding agriculture reforms.

The report envisages dramatic changes in agricultural production methods, large increases in the use of biomass for power generation and fuels production (despite the fact that cellulosic ethanol is not yet a viable fuel), and opening up of Conservation Reserve Program (CRP) lands for fuels production. All this is supposed to be accomplished while maintaining soil quality.

The changes envisioned by the MCCAG report are largely based upon hope, not reality. As the report acknowledges, “research will be needed” on virtually all recommended changes to agricultural practices in order to achieve the desired results.¹¹

Simply wishing or hoping for a desired result will not accomplish that result. It is likely that accomplishing some or all of the goals presented would require massive capital investments by producers, which in turn may require substantial subsidies on the part of government. Further, much of the required reduction in emissions is to be accomplished in 7 years, despite the fact that “research will be needed” in order to discover how to achieve those reductions.

The MCCAG also completely ignores the recent research that suggests the massive use of biomass as fuel or fuel stock actually creates a massive “carbon debt”¹² as new land is brought into production. Far from reducing carbon emissions, biofuels actually increase carbon emissions in the near and medium-term as carbon stored in land is released.

The MCCAG proposes that by 2025, 35% of the gasoline used by Minnesotans be displaced by biofuels, which is a 40% increase over the current law. Of that ethanol produced, the MCCAG further assumes that 80% of the heat energy used in its production will come from biomass by 2015, and 80% of the total energy consumed in the production will be derived from biomass by 2025. Given that almost none of the current energy consumed is derived from biomass, it is wildly optimistic to project such a dramatic retooling of the ethanol plants in such a short period of time.

The MCCAG and other proponents of biofuels also completely ignore the dramatic price increases in agricultural products that have been spurred by the rapid increase in biofuel production. Corn, wheat, soybean, animal feed, and other agricultural products have all spiked in price. It is not at all clear that if and when cellulosic ethanol gains market share, that these other price increases will subside. Food is being used as fuel, and agricultural land is being diverted to the production of biofuels. The economic and

¹¹ Minnesota Climate Change Advisory Group Report (Appendix I, I-6)

¹² Land Clearing and the Biofuel Carbon Debt, <http://www.sciencemag.org/cgi/content/abstract/1152747v1>

moral impacts of increased food prices have been completely ignored in the MCCAG analysis.

To understand just how unrealistic the assumptions in the MCCAG report are, consider what the report says about their method: **“The economical and technical feasibility of replacing conventional energy with renewable energy was not considered as a part of this analysis; it was assumed that sufficient supply was available to meet the demand set by the policy. The cost and GHG impact of replacing plant nutrients lost to harvested cellulosic materials were also not considered.”**¹³

In other words, the MCCAG was unsure that the goals could be accomplished, that their economic costs would not bankrupt the state, and that achieving their goals would actually do anything about reducing greenhouse gas emissions.

Conclusion: The MCCAG recommendations are built upon multiple layers of assumptions for which there is little or no available evidence. It recommends massive changes in practice on very short timeframes, assumes major technological advances that have yet to occur, and simply ignores key issues such as long-term degradation of agricultural lands. Further, the evidence that the hoped-for decline in greenhouse gas emissions from their policy recommendations is not actually examined.

OVERALL CONCLUSION:

The MCCAG report is based on unreliable assumptions, wild conjectures about what is and is not technically feasible, ignores basic questions such as how much biomass is available for fuel use or what the effects of using food for fuel will have on food prices, and ignores political considerations about how much government interference citizens will tolerate in their decisions regarding where to live and work.

Further, the MCCAG simply assumes rapid changes in people’s driving and energy consumption habits for which there is almost no precedent. The level of government intervention in citizen’s lives is reminiscent of placing the country on a wartime footing. Massive reallocations of resources are being called for, as are behavioral changes for average citizens that are unlikely to be met.

The cost/benefit calculations presented resemble “back of the envelope” rather than rigorous analyses, and given the scope of policy changes are hardly worth considering. When substantial costs are involved, remarkably similar benefits magically appear (such as \$3 billion in transit investments magically creating \$3 billion in infrastructure cost reductions).

¹³ Minnesota Climate Change Advisory Group Report (Appendix I, I-42)

There is no systematic attempt to quantify the benefits of greenhouse gas reductions themselves. In fact, the pricing of Carbon Dioxide emissions far exceeds the UN Intergovernmental Panel on Climate Change's peer reviewed estimate by a factor of four. Reducing greenhouse gases appears to be an absolute benefit, regardless of the cost. This leads to a "kitchen sink" approach to greenhouse gas reductions that ignores the true costs and benefits to the citizens of Minnesota.

The MCCAG also ignores the fact that absent an international agreement regarding the reduction in greenhouse gas emissions, Minnesota's efforts will provide literally no benefit to the State or the climate. China's greenhouse gas emissions are increasing at a rate of about 9% a year, more than wiping out any possible benefit from the massive investments required to reduce Minnesota's substantially smaller greenhouse footprint.