

Phase II of Florida's Plan for Energy and Climate Change: Avoiding the Mistakes Made by Others

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Foreword

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The national debate on climate change has been marked by vehement disagreement between those who believe that global warming is a severe problem requiring urgent solutions and skeptics who argue that the scientific evidence on climate change remains inconclusive. Only the passage of time and the collection of additional data will settle the issue.

Meanwhile, Florida has joined the ranks of states exploring a state-level response. In 2007 Gov. Charlie Crist appointed a task force — the Governor's Action Team on Energy and Climate Change (GATECC) — to study the issue. In November 2007, the group published a report on Phase I of its work. That report focused on findings and recommendations related to reducing greenhouse gas emissions, which some scientists believe are causing— or exacerbating — global warming.

GATECC's report on Phase II is expected to

be published in October. In this study by Paul Bachman of the Beacon Hill Institute at Suffolk University, the author outlines serious methodological flaws evident in Phase I of the GATECC report and cautions against repeating those errors in the report on Phase II.

The major responsibility for those errors rests with an out-of-state organization — the Center for Climate Strategies (CCS) — that GATECC consulted for guidance. As the author demonstrates, CCS has used the same flawed analyses in other states.

Florida cannot afford to ignore the potential adverse impact of those errors because accurate assumptions and credible data are central to a fair evaluation of the costs and benefits of implementing recommendations for reducing greenhouse gases. Overstating the benefits and underestimating the costs is a formula for economic woes.

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Introduction

In July 2007, Florida Gov. Charlie Crist signed Executive Order number 07-128, which created the Florida Governor's Action Team on Energy and Climate Change (GATECC). Citing Florida's fast growing population and its third-place national ranking in total energy consumption, the Governor challenged the Action Team to "fully achieve or surpass Executive Order targets for statewide greenhouse gas reductions."¹ These targets, put forth in Executive Order number 07-127, aim to reduce greenhouse gases (GHG) to the 2000 levels by 2017, to the 1990 levels by 2025 and to 20 percent of the 1990 levels by 2050.

On November 1, 2007, the Action Team released its Phase I report, which outlines 35 findings and 30 recommendations that attempt to bring the state closer to its goal of reducing GHG emissions. The Phase I report provides the framework for the Action Team's final report. It is scheduled for release in October 2008 and is expected to focus "on mitigating impacts to society, public health, the economy, and the environment created by greenhouse gas emissions from new growth."²

GATECC has partnered with the Center for Climate Strategies (CCS) to develop recommendations to reduce greenhouse gases in Florida and to estimate the costs and benefits of their recommendations. CCS, created by an advocacy group called the Pennsylvania Environmental Council (PEC), advises states about how they can reduce global warming through the reduction of greenhouse gas emissions within their borders. Despite its disposi-

tion, CCS presents itself as a technical advisory service organization that refrains from climate change advocacy. CCS is currently working in 16 states as a consultant to help state groups similar to the GATECC.³

The Beacon Hill Institute has reviewed the cost-benefit methodology employed by CCS in four other states (Arizona, North Carolina, Colorado and Minnesota) and found three serious problems:

1. CCS failed to quantify benefits in a way that they can be meaningfully compared to costs;
2. When estimating economic impacts, CCS often misinterpreted costs to be benefits; and
3. The estimates of costs left out important factors, causing CCS to understate the true costs of its recommendations.

Fortunately, Florida's policy makers can avoid these errors when formulating their recommendations and analysis for the GATECC final report. The final report should fully weigh *all* of the costs and benefits associated with the proposals to determine if the proposals provide a net cost or benefit to Florida's citizens.

In this brief document, we will discuss the methodological issues from past reports involving CCS. We will provide specific examples of errors made by CCS that understate the costs and overstate the benefits of the recommendations. Where possible, we link them to the general recommendations from the GATECC Phase I report.

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“...a study should be able to conclude whether a given policy change is expected to provide benefits in excess of its costs.”

Problem 1: CCS fails to qualify benefits in a way that can be meaningfully compared to costs.

A scientifically sound cost-benefit analysis should clearly spell out all of its assumptions, estimate the physical impacts that a particular policy change will have over time, and then estimate the present value, in dollars, of both the benefits and the costs of the physical impacts. On this basis, a study should be able to conclude whether a given policy change is expected to provide benefits in excess of its costs.

However, past CCS reports have failed to estimate the dollar value of the main intended benefit: reduced GHG emission. The authors are explicit about this:

Regarding GHG benefits, market prices (monetized benefits) are normally taken as good proxies of societal costs and benefits in standard analysis unless there are market imperfections or subsidies that create distortionary effects. Because accurate information on the dollar value of GHG reductions benefits is typically not available, physical benefits are used instead, measured as MMTCO_{2e}.⁴

However, without this information, the CCS reports are unable to conduct a cost-benefit analysis at all. The goal, reduced GHG emissions, is measured in purely physical terms instead of dollars, which precludes a comparison of the value of reduced GHG emissions to the costs associated with reducing the emissions.

Are the mitigation options desirable? For a cost-benefit analysis to provide any guidance in answering this question, a report would need to compare the dollar value of reduced GHG emissions to the cost it estimates. For example, the report from Minnesota estimates (incorrectly) the mitigation recommendations would cost \$726 million. Since they only quantify the physical benefits, we are left comparing

reduced metric tons of GHG to dollars — essentially comparing apples and oranges.

Estimating a dollar value of reduced GHG emissions would require a number of steps. First, a full accounting of both societal costs and benefits from higher emissions would have to be constructed. Then, the impact on these costs of the marginal changes in a state’s emissions would have to be estimated. Because GHG emissions — in Florida or any state — are so small relative to the rest of the world’s emissions, it is quite possible that any state-based policy would not have any discernable impact on global warming. The benefits as such cannot be assigned a dollar value.

The GATECC final report should produce this very basic step of a cost-benefit analysis and provide lawmakers and the citizens of Florida with an honest attempt to value, in dollar terms, the reduction in Florida’s GHG emissions. This will allow for a true comparison of the societal cost and benefits and avoid the incomplete analysis contained in previous reports.

Problem 2: When estimating economic impacts, CCS often misinterprets costs to be benefits.

The CCS reports routinely mistake costs for benefits. Jobs, in particular, are erroneously viewed as benefits throughout the reports. For example, when recommending research and development funding for technology to reduce carbon emissions, the Colorado report, for which CCS supplied facilitation and technical support, includes the creation of jobs as an additional benefit. The report estimates that doubling Colorado’s renewable energy standard “will create a net of 4,100 person-years of employment through 2020.”⁵ It similarly claims that a benefit of transit investment is the creation of jobs, “in the year following the investment 314 jobs are created for each \$10 million invested”⁶.

However, jobs themselves are *not* a benefit; if they were, workers would be paying their

employers for the privilege of working, rather than vice versa! It is the value created by performing those jobs that is the benefit, while doing the job is the cost an individual must pay to obtain a benefit.

Job creation is often viewed in political circles as a positive economic development. However, one must balance the value created by the new jobs against the value created by any jobs displaced by those jobs, under full-employment, or those jobs that are displaced as a result of the new policy. Otherwise, the state policymakers could simply employ millions of meter maids and congratulate themselves for all the jobs created.

Again, the GATECC final report should avoid counting jobs as a benefit in their analysis, as tempting as it may be.

Cautionary Notes for the Phase II Report: Examples of CCS Errors that Understate True Costs

The Governor’s Action Team supplied five policy categories when presenting its recommendations:

- 1) The power generation sector;
- 2) The transportation sector;
- 3) The government sector;
- 4) Organizing state government for Florida’s energy future; and
- 5) A blueprint for development of action.

As stated above, past state reports involving CCS fail to estimate the monetary value of benefits (reduced GHG emissions), but attempt to quantify the monetary costs of their policy recommendations. Several of the reports claim that there would actually be net savings, not net costs, if its recommendations were implemented.

This finding — that mitigating GHG emissions amounts to a free lunch — does

not hold up under scrutiny; it is an artifact of the CCS report’s unrealistic assumptions and incomplete listing of costs. This is a major red flag that should draw the GATECC’s scrutiny. If it were, in fact, true that these policies would bring net benefits, then logic would tell us that people would have taken these steps on their own, without government intervention.

Because this is not the case, some costs must not have been taken into account. The “net savings” result from CCS errors and understating the costs of specific recommendations. In this section we provide examples of these errors and organize them into the sectors outlined in the Florida Phase I report. They serve as cautionary notes so that the Governor’s Action Team can avoid these making them in their Final Report.

The Power Generation and Energy Sectors

The Phase 1 report makes recommendations for the power generation sector. These include objectives such as “further examination of the issue of statewide energy conservation and efficiency targets,” “further examination of all energy technologies with low carbon emissions,” and the adoption of policies and continued funding “which accelerates research, new job creation, development, and expansion of renewable resource electric production technologies.”⁷ Past state reports have claimed that savings from either demand side management or energy efficiency policies would pay for themselves.

Demand Side Management Programs for the Residential, Commercial, and Industrial Sectors and the Expansion of Energy Efficiency Funds

These two programs from the North Carolina Climate Action Plan Advisory Group (NC-CAPAG) report were analyzed together because they both have the same fundamental problem.⁸

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“The Minnesota Climate Mitigation Action Plan (MCMAP) estimates a whopping net cost savings of nearly \$1.9 billion by mandating greater energy efficiency of appliances.”

The Demand Side Management proposal would:

- place a 1.5 percent tax on utility revenues,
- fund programs that would make residential, commercial, and industrial buildings more energy efficient, and
- generate nearly \$1.9 billion dollars in new wealth for North Carolina by 2020.

The Expanded Energy Efficiency Funds proposal would:

- dedicate 1 percent of utility revenues to public benefits programs,
- which would make buildings more energy efficient, and
- is estimated to make North Carolina more than \$1.3 billion dollars wealthier by 2020.

It appears from Appendix E and Annex B of the North Carolina report that the entire gains from each of these programs would result from money saved from improved energy efficiency in buildings in excess of the cost of these programs. If there are large net gains to be had, surely consumers will implement the energy efficiency programs in their own self-interest, and there is no need for the public policy. On the other hand, if we observe that people are not demanding these products, then there is good reason to believe that NC-CAPAG’s estimates of the cost savings are simply wrong; indeed, the presumption here is that the policy imposes a net cost.

The most likely alternative is that the NC-CAPAG report is underestimating costs and overestimating savings. In fact, under “feasibility issues” for the Expanded Energy Efficiency Funds proposal, it notes, “Costs for this option are uncertain” (p. E15). If costs are understated, or the energy savings overstated, then consumers may not in fact implement all

of the changes suggested by the NC-CAPAG proposal. In this case implementing either of these proposals would have a net cost — not the enormous \$3.1 billion in net benefits that are estimated in the NC-CAPAG report.

Support Strong Federal Appliance Standards and Require High State Standards in the Absence of Federal Standards

The Minnesota Climate Mitigation Action Plan (MCMAP) estimates a whopping net cost savings of nearly \$1.9 billion by mandating greater energy efficiency of appliances. The entirety of the net savings stems from money saved from reduced energy consumption in excess of the greater cost of making more energy efficient appliances. This raises the same fundamental problem that arose with the demand side management proposal: If the private benefits are really so large, why are people not taking advantage of them already? Once again, either the program matters, in which case it imposes costs; or it is irrelevant because the changes would have been made anyway, in which case the policy generates no benefits. In either case, the \$1.9 billion in cost savings identified by the MCMAP report is too high.

Inverted Block Rates to Fund Energy Efficiency

Colorado’s Inverted Block Rate plan is constrained by its use of incorrect methodology; in fact, it should never have been recommended in a final proposal. For this reason the Colorado plan provides a point of departure that must be seriously considered when conducting Florida’s “rigorous analysis of the costs and benefits.”

The Inverted Block Rate policy would create tiered increasing surcharges for higher energy usage and devote those funds to the development of energy efficiency programs. The Colorado Action Panel (CAP) report estimates that the policy will create more than \$1.1 billion in net savings for the Colorado economy. The net savings originate from energy efficiency programs

(such as those programs described in Multi-Modal Transportation plan) funded with the revenue and reduced spending on energy resulting from the higher prices.

There are two major problems with the analysis of this policy. First, this policy encounters the same problem described in prior recommendations. If the efficiency programs provide net savings to the consumers implementing them, then there is no need to use tax revenue from this program to fund them. These programs would have been implemented voluntarily in order to enjoy the suggested net benefits.

Second, the CAP analysis fails to quantify the value of what would have been produced or consumed with the increased energy use that the rate surcharges are designed to discourage. The sacrificed value resulting from the rate surcharges constitutes a major cost that the CAP analysis completely ignores. This policy intentionally raises utility prices above the cost of service as noted in “barriers to consensus.”⁹ When energy use creates benefits in excess of its cost, the energy should be used. By intentionally increasing the prices, this policy drives a wedge between the true cost of the energy and the price the buyer has to pay, which leads to inefficient use (i.e. net costs).

To illustrate, if electricity can be produced for \$200 and a consumer values what that electricity will provide at \$250, there is a net gain of \$50 for the Colorado economy, if the person consumes the electricity. If this surcharge raises the price to \$260 while the cost remains at \$200, the person will choose not to consume it and Colorado will be \$50 poorer as a result. The CAP report completely ignores these losses and instead actually counts forgone energy consumption as a benefit! In this example, instead of a \$50 gain, they would incorrectly estimate a \$200 gain to the economy!

The CAP report essentially counts dollars not spent on a valuable service as a benefit. Pushing the model to its logical conclusion, Colorado could maximize the net benefits

from this policy by setting surcharges so high starting with the very first megawatt of electricity consumed to the effect that nobody purchases any electricity. Then Colorado could experience a net economic gain equal to the entire amount the citizens of the state currently spend on electricity. There are obvious costs to consuming zero amount of electricity, but the CAP model does not account for any of these costs. In analyzing this policy, CAP not only overestimated savings but they again estimated a cost as a benefit.

Transmission System Upgrading, Including Reducing Transmission Line and Distribution System Loss

In Minnesota, MCMAP recommends improving the transmission system to reduce barriers and bottlenecks and reducing leaks to result in greater throughput. The report estimates cost savings of \$92.2 million, if fully implemented.

The cost savings from implementing this policy would accrue to the utility companies. If there are net benefits in excess of costs, the utilities companies would adopt the recommended policies to maximize profits anyway, thus there should be no net savings from the program. However, if the MCMAP estimates are wrong, and if companies would not adopt the recommended policies, there would be net costs — not savings — and implementing this policy would make Minnesota poorer.

MCMAP explicitly recommends that the policy include provisions for “financial incentives” for smart energy technologies and allowing “financial recovery credit for related efficiency savings resulting in GHG reductions, even if it is not shown to be cost-effective from a consumer standpoint” (p. G-13). If financial incentives are necessary to get a firm to implement these technologies, then it demonstrates that the private cost exceeds the benefit so we should expect a net economic cost — not the \$92.2 million savings that MCMAP estimates.¹⁰

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The Transportation Sector

Multi-Modal Transportation and Promotion

This policy option is designed to induce passengers to choose transportation options that would emit less greenhouse gas. Implementation is to be achieved by a multi-modal program that would:

- Improve transit service (frequency, convenience, quality);
- Expand transit infrastructure (rail, bus, bus rapid transit);
- Focus new development on transit-served corridors;
- Expand transit marketing and promotion;
- Expand transportation system management and design; and
- Improve bike and pedestrian infrastructure.

To pay for these activities in North Carolina, NC-CAPAG recommends using 13 percent of the existing North Carolina Department of Transportation budget. The report claims that, if fully implemented, these measures would save the state a whopping \$1.3 billion by 2020.

In order to arrive at this astonishing and implausible result, the NC-CAPAG reports on a 1999 study that found, “for every \$10 million invested [in transit], over \$15 million is saved in transportation costs to both highway and transit users. These costs include operating costs, fuel costs, and congestion costs.”¹¹ From this, the NC-CAPAG report simply takes 13 percent of the North Carolina Department of Transportation budget — this share is worth \$325 million — multiplies by 1.5, and then subtracts the initial \$325 million to arrive at a figure of just over \$162 million per year in savings, or \$1.3 billion by 2020.

Even if we take the 50 percent return on investment as a given, there are a number

of problems with extrapolating that result to North Carolina. **The first problem is the scale.** Is it accurate to assume that the finding a 50 percent return on a \$10 million dollar investment can be extrapolated, implying that you can get a 50 percent return on a \$325 million dollar investment for each of the next 13 years? It is far more plausible that such investments will face diminishing marginal returns, which is why NC-CAPAG is unjustified in assuming a constant 50 percent return on investment.

The problem of scale leads to a **second problem, that of complementarity.** Absolutely no effort is made to analyze the existing infrastructure in North Carolina and how this increased investment would augment it. The 50 percent return is simply assumed. What if the state had already invested \$1 trillion dollars in multi-modal infrastructure? Would the increased infrastructure spending still result in a 50 percent return? What if North Carolina had no such infrastructure? The NC-CAPAG report simply does not address the question, assuming it away:

The cost-effectiveness of investments in transit and transit promotion will vary depending on how those investments are made... a given investment in transit and/or transit promotion may or not [sic] produce net benefits, so while this process needs to make general policy recommendations, it will remain the responsibility of the state and its constituents to maximize the cost-effectiveness of investments made. For the purposes of this analysis, we ask whether those types of investments are likely to produce net costs or net savings.

In other words, the report does not attempt to see if the returns it assumes from elsewhere could be achieved, given North Carolinas’ existing transit infrastructure.

To make matters worse, the NC-CAPAG report faces a third problem: **It does not correctly measure the opportunity cost** of diverting current North Carolina Depart-

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ment of Transportation (DOT) funds to the proposed activities. It is simply assumed that the costs are given by the dollar value of these funds. But these dollars would have gone to some other transportation project if they were not dedicated to this proposal, where they could presumably have generated a positive return. Thus, the true cost of funds used for the activities recommended by NC-CAPAG is the value of what the same investment could have produced elsewhere.

To illustrate, assume that there is a 50 percent rate of return on highway expansion. If North Carolina shifts \$325 million per year away from highway expansion spending to the multi-modal proposal suggested by NC-CAPAG, then the opportunity cost of the multi-modal program is not simply the \$325 million that was spent, but \$325 million plus the 50 percent return it would have generated if it were spent on highway expansion. Under these assumptions, the multi-modal policy proposal would generate zero net savings, not \$1.3 billion.

There is one other problem, of a more conceptual nature. If the projects proposed by the NC-CAPAG report are really expected to generate a 50 percent return — remarkable by any standard — why does the report recommend dedicating a mere 13 percent of the DOT budget to the multi-modal proposal? Why not dedicate the entire DOT budget to multi-modal projects? Applying the methodology used in the report, this would generate a net benefit of \$1.25 billion per year. A plausible answer is that the NC-CAPAG researchers do not themselves believe that they could achieve a 50 percent return on additional investment in their proposals. But then the case needs to be made that diminishing returns set in, quite dramatically, once one devotes more than \$325 million annually to these greenhouse gas mitigation activities. The NC-CAPAG report does not address this issue.

Surcharges to Raise Revenue

Another proposal in the NC-CAPAG report calls for the imposition of a \$7.25 per

vehicle surcharge on vehicles that have high emissions. As a result 5.1 million vehicles would have to pay this fee annually, creating a revenue stream of \$37 million. The report explicitly states: “It is not envisioned that the scale of the surcharge would affect the fleet mix; the goal of this policy is revenue-raising that is tied to emissions.” The report thereby admits that the policy itself will not work towards the stated goal of GHG reduction.”¹² The point of this policy is to create a revenue stream that can be invested in the aforementioned multi-modal transportation plan.

The actual public benefit, according to NC-CAPAG, is the rate of return from transportation investment, which could be assumed to be the astonishing return of 50 percent, according to their prior calculations. When looking deeper into the calculation, you see that the Action Plan Group actually expects to realize between \$222 million and \$860 in annual savings, or between a 600 percent and 2,300 percent rate of return! This benefit suffers from the same errors noted in the above discussion on transportation investment returns, as well as the additional problem of an internal inconsistency.

Anti-idling Ordinance

The Arizona plan calls for a reduction in vehicle idling through a state-wide anti-idling ordinance targeted at heavy duty vehicles and diesel engines and promoting the use of technologies such as automatic engine shutdown.¹³ CCS estimated that the net cost (in present value) of this program through 2020 would be negative \$258 million. In other words, by implementing this program, Arizona would be \$258 million richer.

Where would this savings come from? According to CCS, education of drivers would emphasize the benefits of reduced idling, which include “fuel savings, toxic emissions reductions, and GHG reduction.”¹⁴ We already know that CCS can not quantify the value of GHG reductions, and there is no indication that it can quantify the dollar value of toxic emissions reductions. So we are left to conclude that fuel savings, a private

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“How can CCS’s estimates be reliable if they ignore many of the very costs that their programs specifically intend to create?”

benefit that accrues to the individual from reduced idling, creates the full \$258 million in savings.

What about the costs of the program? CCS mentions, “idling technology loan grants,” “funding enforcement,” “distributing material,” “staff training,” “funds for pilot or demonstration projects,” “workshop/outreach programs,” “a system for tracking violations,” and more.¹⁵ Although these are all mentioned in how to administer the program, and are clearly costs, the report specifically states in the key assumptions section that, “Program administration costs, enforcement costs... have not been factored into the cost analysis.”¹⁶ How can CCS’s estimates be reliable if they ignore many of the very costs that their programs specifically intend to create?

What costs are included? Apparently only an assumed \$6,000 conversion cost of equipping vehicles with anti-idling technology. The benefit (negative cost) comes from the fuel savings that would be generated by reducing idling by 80 percent or 100 percent starting with the assumption that the current vehicles that would fall under the ordinance currently idle their engines an average of 6 hours per day, surely a high number. Crucially, CCS does not explain why owners currently allow their vehicles to idle so much when it is obvious that they have so much to gain! This implies there are benefits to idling that are unaccounted for in CCS’s analysis, hence leading them to understate the costs of their proposal.

Tailpipe GHG Standards

The Colorado, North Carolina, and Minnesota reports offer a recommendation in line with the California Clean Car standards. This would require emissions from all light-duty vehicles to be reduced by approximately 30 percent, which could be achieved by either mixing renewable gas into the fuel or increasing overall efficiency.

It is not clear that such a reduction in GHG emissions could be attributed to the measures proposed by the CAP report. After all, high oil prices, coupled with technological advances, are expected to improve the

fuel efficiency of vehicles anyway. Any efficiency gains should be measured relative to the relevant counterfactual — what would have happened in the future had no policy been implemented — and not to the current levels of fuel use. The CAP report does not construct any such counterfactual.

The NC-CAPAG report is anything but “conservative.” It cites three studies of the effects of tighter emission standards for new cars: One shows huge cost savings; the second assumes that it would cost \$1,000 to upgrade each vehicle, but there would be net savings; and the third estimates that the upgrade would cost \$3,000 per vehicle, resulting in a situation where “savings on fuel would offset less than half of that cost for consumers.”¹⁷ (Following these estimates, “in an effort to be conservative,” NC-CAPAG opts for the results of the second study, and so comes up with the figure of nearly \$1.2 billion in net savings!¹⁸ A true “conservative estimate” would have chosen the results of the third study, and would have shown substantial net costs for this proposal.

Although the NC-CAPAG report includes a heading “Additional Benefits and Costs,” not a single further cost is mentioned.¹⁹ Yet greater fuel efficiency has to come from somewhere. Presumably it would affect the characteristics of the vehicle (weight, shape, performance, etc). To the extent that these other characteristics are desired by consumers, imposing this program creates further costs, which should be listed and quantified.

Once again, if there are large net gains to be had, surely drivers will reduce their fuel use for their own self interest, and there is no need for the public policy. On the other hand, if we observe that people are not demanding these products, then there is good reason to believe that the estimates of the cost savings by the reports are simply wrong. Indeed, the presumption here is that the policy imposes a net cost. Additionally, no attempt is made to assign costs to changes in the car such as loss of performance, decreased aesthetics or higher investment costs.

Other Sectors

Agricultural Crop Management

Florida's large agriculture industry will bear some of the consequences generated by the GATECC recommendations. While the Phase I report did not address the agricultural sector specifically, the treatment of uncertainties in the Minnesota report provides a powerful cautionary tale for GATECC.

The MCMAP estimates that Minnesota can save \$577 million by improving crop management through soil carbon management programs involving no-till and strip-till practices and by improving nutrient management through an increase in the efficient application of fertilizer. However, there are several problems with such an analysis since they undermine their estimate of savings.

The first problem, common to most of the policies analyzed in this review, is related to financial incentives. Again, if the gains from such recommendations are to accrue to farmers, why aren't they engaging in the practices already? Having the government implement the recommendation offers no advantage to farmers. If farmers make these changes with financial incentives, i.e., subsidies or credits, then these are net costs and thus not savings at all.

Another problem with this estimate relates to the extremely speculative nature of the gains. The MCMAP admits the following:

- Research will be needed to help farmers effectively convert current farming practices.
- Research will be needed to speed the adoption of global positions system based technology.
- Research will be needed to determine the best management practices of animal and commercial based fertilizers.
- Incentives may be necessary for these desired farming practices, but the amount and type of incentives are not known at this time.²⁰

If all this research is necessary, how do they estimate the effects of the policy? Under the heading "Key Uncertainties," they essentially admit that their forecast is little more than a guess.²¹

- "Key uncertainties surround the potential GHG benefits associated with... conservation tillage practices."
- "The soil sequestration rates associated with land management practice... remain uncertain and studies highlight this uncertainty."
- "An additional uncertainty surrounds the current uptake of conservation tillage within Minnesota. While states elsewhere in the United States have been adopting no-till practices, the trend in Minnesota has been away from such practices because of Minnesota's climate." Yet they use a study of tillage systems in North Carolina to forecast their estimated cost savings per acre of \$2.75.²²
- "When measured by crop output per unit of fertilizer applied, the fertilizer efficiency goal under this policy may be difficult to achieve."
- "Uncertainty also surrounds the difference in yield as a consequence of implementing these policies. The effect of adopting alternative crop management practices on yields has not been factored in."

Given all of these uncertainties, one should doubt the economic cost savings estimated by MCMAP. In fact, the report acknowledges that "given the level, type, and importance of key assumptions and feasibility issues, the quantified impact is highly uncertain. Thus, these policy proposals need much more thorough analysis prior to their implementation."

Given this admission, it is rather astonishing that the CCS-sponsored facilitation resulted in unanimous group support and

"Under the heading 'Key Uncertainties,' they essentially admit that their forecast is little more than a guess."

“We found no sound scientific basis for CCS authors’ claims that their recommended programs have a net benefit.”

lists “Not applicable” under “Barriers to Consensus!”²³

The great degree of uncertainty surrounding this policy highlights an important shortcoming of MCMAP’s analysis. Nowhere do they make any attempt to quantitatively deal with uncertainty. They simply pick one set of assumptions and forecast \$577 million in savings. Given the uncertainty, a more responsible cost benefit study would have constructed multiple scenarios and attached a probability to each to estimate an expected value.

To illustrate: Assume a project has a net present value, if MCMAP’s assumptions are correct, of \$3 million and that there is a 60 percent chance the assumptions are correct. Further assume that there is a 40 percent chance that the payout will be negative \$8 million because the assumptions do not hold. MCMAP only uses their most likely forecast (\$3 million). However the correct approach would be to calculate the expected value which in this case would be negative \$1.4 million.

MCMAP makes no effort to construct scenarios that consider the likelihood of differing outcomes. In fact, even when multiple sources with conflicting estimates were available, such as the California Clean Car program, MCMAP only made use of their one favored estimate — essentially attaching a zero probability to forecasts from all other sources.

The failure to adjust for risk is not unique to this recommendation or this report. MCMAP and CCS fail to forecast multiple scenarios and then adjust for their probability when looking at numerous speculative policies. All of the proposals are speculative in nature, but the uncertainty never makes it into the any of the CCS-assisted reports. A more realistic approach to uncertainty would likely increase the net cost associated with the recommended mitigation options.

Conclusion

The CCS reports from Arizona, Colorado, North Carolina, and Minnesota provide insufficient guidance to policy makers regarding the desirability of policies aimed at reducing greenhouse gas emissions. Each report fails to perform the most basic task of any cost-benefit analysis — quantifying both the costs and benefits in monetary terms so that they can be directly compared. It also finds net economic savings from many policies intended to reduce greenhouse gases, even *without* counting the value of those reduced emissions.

In our peer reviews, we briefly examined the cost-benefit assumptions for one policy in each of the four main mitigation areas. In each case, we have found the analysis to be seriously flawed. We found no sound scientific basis for CCS authors’ claims that their recommended programs have a net benefit. The cost savings estimates are not just wildly optimistic; they are the product of a purely fictitious analysis.

In terms of guidance, these reports are worthless since they fail to measure to any standard of cost-benefit analysis. The authors fail to quantify the monetary benefits of reduced carbon emissions. Policymakers are left with no basis on which to judge the merits of the reports’ recommendations on the mitigation of emissions of greenhouse gases.

Addressing Florida’s response to GHG emissions and energy consumption should be based on a thorough cost-benefit analysis that avoids the methodological issues and errors that permeate previous attempts in other states. Only then can Floridians make an informed decision about what policies, if any, should be enacted to mitigate GHG emissions in a manner that respects the laws of economics.

Endnotes

- ¹ State of Florida Office of the Governor, Executive Order Number 07-128, (July 2007), www.fsec.ucf.edu/en/media/enews/2007/pdf/07-128-actionteam.pdf [accessed March 21, 2008].
- ² Press Release “Governor’s Action Team on Energy and Climate Change Begins Phase Two of Florida’s Action Plan” (February 1, 2008); www.dep.state.fl.us/secretary/news/2008/02/0201_01.htm [accessed March 21, 2008]
- ³ Climate Change Strategies, “What’s Happening: U.S. Climate Policy Action,” www.climatestrategies.us; [accessed 21 March 2008].
- ⁴ “Colorado Climate Project’s Climate Action Panel Cost-Benefit Analysis,” www.coloradoclimate.org/ewebeditpro/items/O14F13852.pdf [accessed March 21, 2008]. See D2.
- ⁵ Ibid. F40.
- ⁶ Ibid, G12.
- ⁷ Governor’s Action Team on Energy and Climate Change, “A Report to Governor Charlie Crist Phase 1 Report: Florida’s Energy and Climate Change Action Plan Pursuant to Executive Order 07-128,” (November 1, 2007)
- ⁸ North Carolina Climate Action Plan Advisory Group, “Recommended Mitigation Options for Controlling Greenhouse Gas Emissions,” Draft Final Report (October 2007).
- ⁹ Colorado Climate Project, See E26.
- ¹⁰ If financial incentives are offered, the funds still must come from somewhere. No attempt is made to account for the economic costs that arise from raising revenue to offer incentives. Moreover, State borrowing will crowd out some private borrowing and taxes distort behavior. Both result in some net economic costs that are left out of the MCMAP analysis.
- ¹¹ North Carolina-CAPAG, See E11.
- ¹² Ibid., Appendix G P.15
- ¹³ More information on their recommendation can be found at: www.azclimatechange.gov/download/O40F9298.pdf.
- ¹⁴ CCS also mentions reduced engine wear but later states that it does not factor in the value of that benefit.
- ¹⁵ Ibid, I13-14.
- ¹⁶ Ibid, I15.
- ¹⁷ North Carolina Climate Action Plan Advisory Group, G27.
- ¹⁸ Ibid, G28.
- ¹⁹ Ibid.
- ²⁰ Minnesota Climate Change Advisory Group. “Minnesota Climate Change Advisory Group Final Draft Report,” Appendix I (February 2008): www.mnclimatechange.us/MCCAG.cfm. [accessed March 21, 2008]. See page 6.
- ²¹ Ibid, Appendix I, 13-15.
- ²² Ibid.,Appendix I, 9. See footnote 11.
- ²³ Ibid, Appendix I,16.

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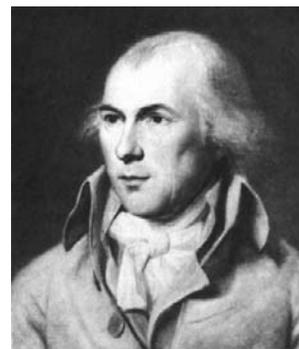
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