

Evaluation of
Climate Action Team Report to the Governor and Legislature

by

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I have been asked by the Sacramento Regional Research Institute (SRRI) to review the *Climate Action Team Report* (CATR) and to: (1) identify issues with the report, (2) identify problems with the analysis, and (3) examine assumptions driving results. SRRI is particularly interested in my opinion on the economic assessment contained in Chapter 8 of this report. After looking over the report, I feel I cannot adequately comment on the contents of the economic assessment without discussing the concerns I have with the entire report.

After reading the *CATR*, my overriding concern is what exactly it set out to accomplish. In particular, was it meant to contain a benefit-cost assessment of Executive Order S-3-05 which calls for a reduction in future Greenhouse Gases emitted in California? Or does it assume that a full benefit-cost assessment of EOS-3-05 is not necessary and what are needed instead are cost-effectiveness assessments of the strategies underway/proposed to meet it and an impact study of the effect of EOS-3-05 on the California economy?

This report does not contain an adequate cost-benefit assessment of EOS-3-05 and instead substitutes in Chapter 2 a very “loose” description of the costs that Californians can expect to endure if nothing is done about global climate change. As a policy analyst I am not

comfortable with this because it reads like advocacy for the executive order. If the report accepts Governor Schwarzenegger's statements ("I say the debate is over. We know the science. We see the threat, and we know the time for action is now.") then it should clearly state such and set out to measure the most cost effective ways of achieving the Governor's goals and the impact these goals will have on the California economy.

If a goal of the *CATR* is in part to convince Californians that green house gases in California needs to be reduced – and the debate is not over just because the Governor says it is – then I would strongly prefer that EOS-3-05 be subject to a full, economic-based, benefit-cost assessment of its desirability to Californians. Such an assessment should follow common, well established practices in this area and state who has “standing” in the study, what is the “baseline” that the policy’s incremental benefits and costs will be calculated from, and “discount” future benefits and costs appropriately to ones experienced in the present. Since Californians will overwhelmingly be bearing the costs of EOS-3-05, it is my opinion that they should be given standing in such a study and only their benefits and costs counted. If there are benefits of reducing green house gases generated in the State that go to people and businesses who live outside California (as there very likely is), these need to be totaled in a separate accounting and also described. Thus, even if the cost of the Executive Order exceeds the benefit to Californians, residents can evaluate whether the additional benefit to the rest of the world justify their undertaking actions to reduce state generated greenhouse gases.

Though for political reasons I fully understood why the just described cost-benefit may not want to be done. The discipline of policy assessment also accepts cost-effectiveness analysis as an alternative to benefit-cost assessment. A cost-effective analysis assumes that there are more than economic efficiency (benefits>costs) reasons for pursuing a policy. These reasons can

include doing what is “fair”, “equitable,” and just the plain “right” thing to do. In the case of EOS-3-05, the CATR often cites the environmental leadership role that the state and its residents have previously desired to take in the United States. Thus a greenhouse gas reduction policy does not need to pass a benefit-cost assessment to determine, given that it is going to be done, what is the most cost effective way of doing it. The current cost-effective analyses in this report are largely preliminary and deserve further refinement before they can be suited for making policy recommendations. Some recommendations on how to do this are offered below.

Finally, it is reasonable and desirable to try and measure the economic impact in California jobs and income of implementing EOS-3-05. It appears that the Climate Action Team has chosen an appropriate model to do this, but I must raise some concerns over the specific methodology used. Specifically, there needs to be a clearer baseline established (and described in the report) of what the California economy is expected to look like in all years from the present to 2020 if the Executive Order never existed. Using these baseline assumptions, the model is then run for each year and predicted baseline values (as if the implantation of EOS-3-05 never occurred) of income and employment derived for each year. In doing this, the modelers need to be more explicit regarding their assumptions about what is going to be done in each year between now and 2020 to get to emission levels that are at 1990 levels. (I do not think it is even reasonable to consider projecting this to 2050, as the Executive Order dictates, and thus agree with the current assessment to only 2020.) Some things that need to be known for each year is the amount of taxes, fees, and user charges imposed upon the California private economy to implement the specific policies and how each sector in the simulated economy is expected to be affected by the specific regulations, taxes, and subsidies being imposed. These estimates should be done using a range of possible values and not just the single “best” estimates currently used. I

call for this year-by-year economic impact measurement because I fear that the costs of implementing EOS-3-05 will be much greater in the near future, while the benefits of doing it will occur in the more distant future. The current method is likely biased because it only looks at only two future years (2010 and 2020) and finds that income and employment is slightly higher in these years. But I expect that the dollar flow out of the private sector to implement this policy and the regulatory burden on the private sector is more likely to occur in the years immediately following its implantation, while the benefits will not have fully kicked in until these later years.

Understanding these three primary concerns, in the remainder of this evaluation I will point out some particular issues (both positive and negative) in the order that they arise in the report. These are noted by the page number of the *Climate Action Team Report* (http://www.climatechange.ca.gov/climate_action_team/reports/2005-12-08) and the final draft of “Chapter 8: Economic Assessment”

(http://www.climatechange.ca.gov/climate_action_team/reports/2006-01-12).

Climate Action Team Report

p. iii – Why not tax emissions of vehicles instead of taxing gallons of gas used?

pp. vi and vii, Tables ES-2 and ES-3– Need better documentation on where emission reductions listed came from. I would prefer a range of feasible reductions rather than just one value. What is meant by “potential” emission reduction? Is that at high or low end of feasible reduction?

p. ix – Only the possible “bads” of climate change listed here. Would not a fair summary also list possible “goods” (i.e., increased productivity of agriculture, lower heating bills in winter, etc.).

p. x – Some form of cap and trade option is also what most economists would suggest.

p. xi – Like the stated weakness of the cap and trade program, there needs to be more discussion of the desirability of California taking a policy course to reduce green house gases alone. What about the “free riding” that rest of U.S. can enjoy if CA reduces green house gases. Then other states do not need to, or need to reduce by as much and still enjoy the benefits of CA actions.

- p. 5 – I would like to see mention of what percentage of U.S. and world-generated green house gases comes from California.
- p. 8 – Compare Figure 2-3 to a similar figure generated for rest of U.S. and world. How is California different?
- p. 13 – What is the best current estimate regarding the likelihood that accelerated climate change could happen?
- p. 15 – The total potential emission reduction of 68 listed in Table 3.1 is different than supposed same figure of 67 given in Table ES-2 in Executive Summary.
- p. 16 – Here is the point in which to discuss whether this is a cost-benefit or a cost-effectiveness study. There is a general assumption in report that rest of U.S. and world will follow if California adopts. I would like to see a discussion of U.S. experience with Kyoto Accord and overwhelming rejection of it by President and Senate. Does this support that assumption?
- p. 21 – Do all Californians “experience the worst air quality in the nation” or is it in just certain urban areas in the state?
- p. 23 – What about the less natural gas and electricity needed by Californians in the winter months if warming occurs? This is never mentioned in report, though greater electricity required for cooling is continually mentioned.
- pp. 25 and 31– Can new reservoirs be built to store water that would collect it in the way that Sierra snow pack now does? Would these not also generate greater hydroelectric electricity for the state than currently produced? Would winter recreation in Sierra be replaced with other moderate climate forms of recreation and loss would not be full value of ski industry?
- p. 26 – Would not the critical chill hours be reduced under warming? How much are crop yields/changes built into the later economic impact model?
- p. 32 – Are there not any potential positives to list in Figure 4.8 that contains projected impacts of warming?
- p. 33 – But warming would entail less spent on a “cold emergency action plan”? There must be some cities in state that has such?
- p. 34 – Should \$24 million read \$24 billion?
- p. 35 – The greater reservoir capacity in California required by global warming could actually reduce flood risk (e.g. Auburn Dam).
- p. 36 – More realistic to talk of a range of millions tons CO₂ reduced by different emission strategies than just giving one point estimate. I would call for greater documentation on where these numbers came from. To complete the desired cost effective analysis of each of these

strategies researchers need to describe direct dollar costs of implementing them and perhaps even more importantly, the indirect costs imposed upon consumers and business by having to make the changes that they entail. This needs to be listed explicitly in a table. There is a real lack of these indirect costs in these reports. These include for consumers such things as buying a more fuel efficient car, moving closer to where they work, living in smaller homes, suffering through warmer interior temps in the summer and cooler temps in the winter, etc. For business it may be scrapping existing production equipment and/or structures, buying different vehicles, producing entirely new products, going out of business, etc.

p. 42 – Does Table 5-2 list all the possible strategies needed to achieve desired greenhouse gas reduction? Can some be pursued further to achieve greater reduction than listed? Where do these numbers explicitly come from? Again, better to use a range of possible reductions.

p. 45 – Need some description of the benefits that these policies could yield and not just the costs.

p. 58 – A crucial point is that if California chooses to reduce greenhouse gases through a form of taxes, fees, or regulation, it will drive some firms to produce products outside of California. I would like to see assumptions made in this regard for the economic impact study.

p. 66 – Can an “assessment of the relative likelihood of any of these three approaches being adopted nationally...” be drawn from the experience Presidential Candidate Al Gore had when he suggested similar measures. It should be at least talked about.

p. 67 – It would be better to auction off allowance distribution because revenue can be used to fund under greenhouse house gas mitigation activities.

p. 68 – Have the administration and enforcement costs of the cap and trade program been built into cost effective assessment of it and/or the economic impact study?

p. 75 – I disagree that public goods charges applied to all other energy sources in state has been relatively “benign”. It has raised the price that consumers pay for these energy sources and caused them to consume less electricity (resulting in a loss in consumer surplus). I also doubt that the 30% less per capita electricity consumed in California is due only to public goods charge. It is part due likely due to more moderate temperatures in state than rest of U.S.

p. 76 – An additional \$2.57 per gallon gas tax is very large. Is this politically acceptable? Why not think about an emissions tax that is based upon miles driven and the expected amount of greenhouse gases coming out of the cars that you own?

p. 77 – CAT is calling for an overall economic assessment here. Does this entail a full benefit-cost assessment or just affect on income and employment through CGE model?

p. 78 – Does environmental justice mean that all income groups suffer pollution equally, or do the poor suffer less of it? Need to know belief if going to work toward it.

p. 83 – Keep mentioning that households save \$1,000 per household annually through energy efficiency programs, but what costs do they bear to achieve these savings? A public goods tax on petroleum would be regressive (the poor would devote a greater percentage of their income to it). Thus how can it be consider “fair”?

Chapter 8 Economic Assessment

p. 1 - As discussed earlier, the economic impact should be assessed for each year. I would like to see more detail on the how the costs to consumers and business of implementing the executive order are accounted for in the model of the economy. Need to make cost side as explicit as the benefit side now is.

p. 3 – As shown in Figure 3, this model allows for the negative impacts of taxes and fees into the California economy. The report needs to make explicit the expected taxes and fees in each year to make sure they are appropriately accounted for in model. Also, how are the indirect costs to consumers and business of implementing greenhouse gas reduction built into model? Again, be explicit in explanation to reader.

p. 4 – Changes in behavior result in a loss in consumer welfare (or consumer surplus as defined by economists). How is this accounted for?

p. 5 – Hard to judge the validity of findings in Tables 5 and 6 without an accounting of what was changed to simulate a California economy under the Executive Order as compared to one without it. What are the costs of each program?

p. 6 May be a positive net impact in 2010 and 2020, but what about years leading up to 2010?

p. 8 – How are the net costs and net savings for strategies in Tables 5-1 and 5-2 calculated? Need a table listing exactly what they are if I am to evaluate whether they are appropriate or not.