

Comments on the ETAAC Pre-Draft

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The opportunity to read the entire pre-draft of the Economic and Technology Advancement Advisory Committee (ETAAC) report was very illuminating. This report will offer a great deal to help California rise to the challenge of fighting global warming while maintaining economic growth and preparing the state's citizens and industries to thrive in the future. Some sections are particularly well written, such as the Electricity Sector section (pp. 91-108). To enhance the value of the report and make it more likely to be persuasive and influential, some aspects could be highlighted further, some issues explained and clarified. Towards this end, we present a few general comments immediately below, and then offer some page-specific comments as well. We look forward to our discussion at UC Merced on this pre-draft.

General comments

Economics: The powerful central concepts of economics are not reflected on sufficiently well and thus the report ends up being somewhat too technology-focused. A more effective report would contain a better balance of the two. There seem to be many ideas in the report that are not actually sector-specific and therefore may be more general and more important. The crucial role that will be played by greenhouse gas (GHG) regulations in placing an effective price on GHG emissions (through a combination of regulatory and incentive-based approaches) in stimulating innovation is not acknowledged in the report. This suggests some restructuring.

Perhaps the most important economic issue for ETAAC is the need for innovation-inducing policies in addition to policies that will reduce GHG emissions. The general reason is that the real world economy has many market failures so a "first best" solution that assumes perfect markets, perfect information, no transaction costs, no other externalities etc. is inadequate by itself. Identifying these market failures and the ways to overcome them would be an important addition to the report. Key market failures include research and development spillovers, learning by doing spillovers, risk aversion, differences between private and social discount rates (e.g. myopia), and market power. A discussion of these issues should be added to the report.

New section on General Recommendations: The total of the report is greater than the sum of the parts, but there is no place for this greater total to be described. There are several recommendations in the different sector-specific sections that transcend that specific section and are less effective than they could be because they are associated with that single section. This

would also provide a better balance between economic-focused and technology-focused approaches. A new section should be added after the Introduction, entitled something like “General Recommendations,” or “Cross-cutting Recommendations.” Below, we list the sections from the pre-draft that we feel should be included in such a section.

New section: Cross-Cutting Recommendations

The Carbon Trust (p. 11)

Support Public Health and Other Policy Objectives (p. 35)

Policies Should Be Technology Neutral (p. 36)

Consider Long-Term And Short-Term Goals (p. 36)

Improved Analytical Basis for Planning (p. 76)

Adaptation to Climate Change (p. 77)

Carbon credit and valuation for early action (p. 93)

Support Critical Innovations (p. 97)

Etc.

In addition, some of the text of the various sections might move to the Introduction, such as the “General Principles” and “General Policy Recommendations” in the Transportation section (pp. 35-40). (Full disclosure: Farrell helped write these sections.) Similarly, some of the material in the Introduction to the Industrial section (pp. 76-77) should be moved up to a more general discussion.

Review of the Market Advisory Committee Report. This review is very illuminating and should be included in the ETAAC report. Many elements of it may be appropriate for the new section on General Recommendations.

Executive Summary. The most important pages of any report is the Executive Summary, because it is the most-read part of any report. The Committee should draft an Executive Summary as soon as possible for discussion at the next in-person meeting.

Carbon Market Regulator. The potential to create a “carbon market regulator” is a complex, important issue and requires careful consideration and analysis. The members of ETAAC (ourselves included) do not have the necessary expertise to comment authoritatively on this topic and should not make a strong recommendation. Analysis by public policy and macro-economic experts is required before reliable advice on this critical topic can be offered.

Research & Development Priority List: There are various recommendations of increased R&D in specific areas. These could be consolidated and perhaps even prioritized in a single table in the new section on cross-cutting recommendations. We provide below a summary of such recommendations. This section might discuss more clearly where there is relevant private or federal R&D funding, what gaps exist, and perhaps how these gaps might be filled.

R&D Priority List

Highest

- a. Technologies and policies to enable safe, effective carbon capture and geological storage
- b. Improved electric storage for both grid storage and vehicles.
- c. Potential roles and responsibilities for a carbon market regulator
- d. Carbon capture and storage (geological, terrestrial, and biological)
- e. Etc.

Also important

- a. Technologies to improve traffic flow
- b. Etc.

Acknowledge the need for continued scientific research: In some areas, better understanding of fundamental scientific issues is needed, in adaptation, for instance. It is probably beyond the scope of ETAAC to evaluate this issue in detail, but it is probably important to acknowledge the need for such efforts in order to encourage scientific funding agencies to consider such needs.

Climate Change Technology Advancement Review: Perhaps it would be useful for ETAAC to continue as an occasional technology review panel to provide updates to the Legislature and Governor. A regular schedule would be best to enable some sort of planning. Perhaps a bi-annual report designed to be available on the first day of each new legislative session might make sense, or a once-every-four year effort that would be due on the Governor's Inaugural day. This review should not be undertaken with a bias towards accelerating or slowing the state's progress on climate change policy, but should take a balanced approach. In order to do an adequate job on adaptation, this review will need to cover progress in climate science

Context and rationale: The ETAAC report would be much stronger if the context for the sort of innovation-stimulating and economy-enhancing steps recommended in the report was provided and a strong argument for the need for such steps were made. Part of this idea is to explain why the regulatory framework that emerges from the implementation of AB32 is unlikely to be

socially optimal. That is, why are simple policy prescriptions such as “getting the price right” or “capping all emissions” not sufficient? There are some pieces of this in the existing text, such on near the bottom of page 12 where the principal/agent problem in rental property is described.

Also, there is a lot of discussion in the report about a cap, uncapped sectors, auction revenues, etc. that imply some sort of context. Rather than vague implications, a clear discussion of what some of the main features and options for the regulatory context of our recommendations would be helpful. This need not be a long section, but seems critical to me.

Multiple goals and tradeoffs: In various parts of the report, different opinions about the relative priorities for multiple goals are offered, and different views about potential tradeoffs are expressed. This is an important issue that deserves more clear discussion among ETAAC members. Our view is that we must be clear about this and that we should *reject* choices that compromise the objectives of AB32 – to fight global warming – in order to achieve other public policy objectives. At the same time, of course the state should *reject* choices that would violate other statutes or seriously frustrate other public policy goals. That is, we should recommend that the state seek to create and support opportunities to achieve additional goals beyond steps that will directly or indirectly lower the effects of global warming on the state. (Indirect steps would include efforts to stimulate innovation that will enable cost-effective GHG emission reductions in the future.) But we should recommend *against* choices that divert resources away from this goal and against GHG control policies or projects that worsen water pollution or other public policy goals.

For instance, imagine a competitive grants program with two projects. They both have the same price, but the first lowers GHGs slightly more than the second, while the second yields small air pollution benefits. They differ in no other way. In our view, the first project should be chosen based on a simple rule that AB32 requires greater GHG emission reductions be chosen. (Of course, if the two choices offered the same GHG emission reductions, the second project should be chosen because of the air pollution co-benefit.) Any other rule would begin to require highly subjective judgments about the tradeoffs between GHG emission reductions versus air pollution improvements. Now imagine a third project that is identical to the first two, except that it has even more GHG emission reductions but worsens air pollution. This third project should be rejected.

This approach is consistent with the text of AB32, which instructs (in section 38570) that that creases in toxic air contaminants or criteria air pollutants due to a market-based compliance mechanism should be prevented, but that emissions should otherwise only be “considered”. More generally, section 38592 (b) states that, “Nothing in this division shall relieve any person, entity, or public agency of compliance with other applicable federal, state, or local laws or regulations, including state air and water quality requirements, and other requirements for protecting public health or the environment.”

Of course, the real world is not quite this simple. Government decisions must be guided by political compromise as well as strict rationality. In addition, in some cases there may be GHG-reduction choices that *worsen* air pollution or otherwise significantly frustrate public policy objectives. (See page 111 on methane digesters for an apparent suggestion that air pollution regulations be eased for methane digesters in order to enable GHG emission

reductions.) Therefore, there may be a need for tradeoffs among multiple goals. It would be foolish to pretend that such tradeoffs would not occur – if ETAAC would like to allow such tradeoffs, it should offer explicit guidance about how to do so. For instance, ETAAC might recommend a minimum cost-effectiveness for co-benefits that would be considered acceptable tradeoffs.

If ETAAC recommends that tradeoffs among different public policy objectives be allowed for GHG policy, then it should also recommend a balanced, reciprocal policy—for instance, air pollution regulations and decisions must include GHG emission reductions in the decision process, just as GHG policy decisions would have to account for air pollution. Otherwise, an unbalanced and biased set of regulatory decisions would result. And if ETAAC recommends that such tradeoffs be made for air pollution, then *all* public policy objectives should be included as well, including but not limited to: water pollution, biodiversity, environmental justice, early childhood nutrition, literacy, smoking cessation, traffic safety, and so forth. And, similarly, policies to achieve these public policy goals should be made with tradeoffs in terms of GHG emission reductions in mind. Otherwise, there will be a bias against climate change goals policy as less important than these other goals, which is not true.

It is important to not over-state co-benefits by ignoring the regulatory and economic context of the co-benefits. In particular, pollutants that are controlled with a cap-and-trade system (such as in California's RELCAIM or the federal Acid Rain programs) emissions are determined by the number of available allowances. If some sources reduce emissions as a co-benefit to a GHG emission reduction, this makes more emission allowances available for other sources. Of course, if the emission allowances associated with the change were also retired, the co-benefit would be retained. However, because emission allowances have monetary values, such an approach would *not* be free and an implicit, inescapable tradeoff would be made.

Macro-economic effects of energy efficiency: Because California is a net energy importer, efforts to reduce energy consumption through energy efficiency have additional macro-economic benefits that are often ignored.¹ This benefit occurs because reductions in export spending permits increases in savings, investment, and in-state spending, all of which tend to accelerate the state's economic growth. Such effects should be at least acknowledged by ETAAC, and preferably considered in policy recommendations.

¹ Roland-Holst, D. (2006) "Economic Growth and Greenhouse Gas Mitigation in California." Berkeley: University of California. calclimate.berkeley.edu/Growth_Strategies_Full_Report.pdf