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Re: Chevron U.S.A. Inc. Scoping Plan Economic
Modeling Comments

Mr. Kevin Kennedy
Chief, Program Evaluation Branch
Office of Climate Change
California Air Resources Board
Sacramento, CA 94516

Dear Mr. Kennedy:

Chevron U.S.A. Inc. ("Chevron") appreciates the opportunity to provide comments on the Air Resources Board's (ARB) proposed economic modeling of policy options for the AB 32 scoping plan. The following comments provide our thoughts on both the overall model design, evaluation criteria and comments on the specific scenarios proposed to be modeled. As CARB embarks on this important effort, it is important that ARB as well as stakeholders remain cognizant that economic models are necessarily abstractions of behaviors and influences, and as such can only give broad insights into actual behaviors in the future. Nevertheless, these insights give valuable policy guidance. ARB should also continue to take the time necessary to understand and ultimately incorporate the experiences of actual industrial and consumer behavior in any final decision making.

I. Overall Model Design

ARB must use care when integrating the information provided by E3 into the Energy 2020 model. In particular, ARB must ensure that the assumptions made in the modeling of California's utility sectoral analysis are appropriate for the broader sector analysis undertaken by ARB. If ARB does not account for and remove such assumptions, such data may disproportionately influence the outcome of the scenarios. For example, in the E3 modeling efforts as discussed at the January 29th workshop, utilities were assumed to only need to reduce emissions to 1990 levels. However, ARB has previously articulated that the 1990 baseline is a statewide emissions goal and that sectors should not expect that reductions will necessarily be made to that level.

Chevron would find it useful if ARB provided additional clarity on the following model design elements:

1. What discount rates will the study include for future savings?
2. What baseline will be used, particularly since the model assumes perfect foresight?
3. How the model will measure and account for uncertainty. We recommend that ARB consider using Monte Carlo analysis to better account for uncertainty[1].

In addition, it is important that ARB avoid underestimating the costs of the policy options, particularly the core measures that will be present in each case. Bottom up analyses such as the DOE assessment of the Kyoto Protocol[2], build an estimate of an individual policy's cost by piecing together the components of those costs, including any offsetting savings. Evaluations of such approaches demonstrate the substantial underestimation of the cost of climate policy, including the omission or incorrect valuation of components of these costs.[3]

There are other areas where the ARB modeling effort may underestimate costs of the program. ARB should clearly identify market failures, and use care to avoid corrective policy actions that outweigh any savings gained by addressing targeted market failures. It will also be important that ARB incorporate the costs of particular actions to reduce emissions while considering the effectiveness and cost of parallel policies that would be necessary to bring about such actions. For example, the interaction between CAFE and RFS standards and California's proposed standard under AB 1493 and the LCFS needs to be clearly modeled. Because CAFE standards are a national program based on average nationwide standards, sales of more fuel-efficient vehicles in California will offset the sales of more inefficient models outside of the state. This may lead to increased vehicle emissions outside of California relative to what those would have been absent the California program.

As ARB reviews the cap levels for the initial runs of the modeling, equity across sectors should be maintained for this statewide program. ARB should be transparent about the process it uses to establish the cap for each sector. In general, it is important to include emissions targets for the intermediate years before 2020 as part of the model. Also, it is critical that ARB not mix private cost savings with societal cost savings. They are not the same thing and can overestimate the cost savings to the state.

In all of the modeling, we believe we need to see, at a minimum, the following output:

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[1] See Judson Jaffe. 2004. The Value of Formal Quantitative Assessment of Uncertainty in Regulatory Analysis. AEI- Brookings Joint Center for Regulatory Studies. Related Publication 04-22, September 2004.

[2] Interlaboratory Working Group. Scenarios for a Clean Energy Future. Oak Ridge, Tennessee and Berkeley, California. Oak Ridge National Laboratory and Lawrence Berkeley National Laboratory. November 2000..

[3] Jacoby, Henry. "The Uses and Misuses of Technology Development as a Component of Climate Policy." In *Climate Change Policy: Practical Strategies to Promote Economic Growth and Environmental Quality*. Washington, DC: American Council for Capital Formation Center for Policy Research. May 1999.

Sutherland, Ronald. "'No Cost' Efforts to Reduce Carbon Emissions in the U.S.: An Economic Perspective." *Energy Journal* 21(3): 89 - 112. 2000.

Jaffe, Adam, Richard Newell, and Robert Stavins. "Energy-Efficient Technologies and Climate Change Policies: Issues and Evidence." In *Climate Change Economics and Policy: An RFF Anthology*, ed. Michael Toman. Washington, DC: Resources for the Future Press. 1999.

- Impact on fuel availability and reliability;
- Impact on leakage/impact on the competitive position of California facilities vis-à-vis their national and international competitors;
- Increase in operating/maintenance costs within California;
- Impact on capital availability for California businesses;
- Impact of timing, i.e., is it cheaper if you backload reduction requirements?

Without this basic information it is impossible to make intelligent choices between the various scenarios.

II. Evaluation Criteria

At the outset, it would be helpful if ARB develops and makes public a list of evaluation criteria that will be the basis for how scenarios are assessed and compared. These criteria should be reviewed for public comment to assure completeness.

The criteria should include, at a minimum:

- Impact on GHG reductions
- Economic impact on CA's overall economy
- Costs per ton of GHG reduction
- Adequacy, availability and reliability of energy supplies
- Impact on ability of California businesses to compete at a national and international level
- Ability to tie into future regional or federal program
- Likelihood of public acceptance
- Impediments to business implementation success (i.e., permitting, other hurdles, etc.)
- Encouragement of innovation

III. Scenario Design

Additional detail is needed to fully evaluate the proposed scenario design. In particular, ARB should provide insight into the emissions quantities that will be modeled for each of the core measures. We are concerned that existing assessments may underestimate the costs of emissions reduction efforts by overestimating the savings that some of those efforts yield through improved energy efficiency. We reference a recent paper that critiques three economic models of California climate change policy, which could help guide ARB to avoid similar estimation errors[4].

We are very concerned that the scenarios for preliminary modeling do not necessarily include critical program design elements of a cost effective cap and trade program. For example, by excluding offsets CARB could be unintentionally increasing the cost of the cap and trade scenarios. In a similar vein, a safety valve, banking of offsets, and a providing appropriate lead times for compliance can significantly lower the cost of implementation.

[4] Stavins, Robert N., Judson Jaffe and Todd Schatzki. "Too Good to be True? An Examination of Three Economic Assessments of California Climate Change Policy". AEI- Brookings Joint Center for Regulatory Studies. Related Publication 07-01. January 2007.

There are a number of important issues if auctioning of emission allowances is going to be included. While staff explained at the February 6th Workshop, that 'full auctioning' may not be applicable until 2020, it is important that the various levels of auctioning – including 0% -- be included in the analysis. These should all be subject to the same evaluation criteria as the general scenarios.

Finally, with an auctioning program under consideration, ARB needs to simultaneously examine various approaches to revenue recycling. Different mechanism can impart significant impacts to the economy. Specifically, methods that efficiently recycle the revenue to avoid negative Impacts on the economy need to be specifically included. These would include recycling to auction participants through such policy approaches as tax credits on employment taxes, innovation tax credits, reducing taxes on the dividends, etc.

IV. Conclusion

Designing and evaluating the various scenarios for implementing program for the implementation of AB32 is a very difficult undertaking. However, it can and must be done well. We applaud your efforts to ensure engagement of modeling experts and economists both in state and out of state to help shape the design, analysis and interpretation of the model and its results. A thorough analysis can minimize decreased economic growth, loss of jobs, increased costs and even unintended consequences such as increases in ghg emissions through leakage. Chevron, as a California Company, has a significant stake in having your program be successfully implemented.

We are more than willing to assist any way we can to assure the most implementation of AB 32 for California.

Sincerely,

Stephen D. Burns
via e-mail