Western States Petroleum Association
Credible Solutions • Responsive Service • Since 1907

Catherine Reheis-Boyd
President

February 29, 2016
Ms. Rajinder Sahota
California Air Resources Board
1001 I Street
Sacramento, CA 95814

Re: WSPA comments on ARB's January 15, 2016 Workshop Presentations on Economic Impact Analysis and related Issues for the 2016 Scoping Plan Update.

Dear Ms. Sahota:

The Western States Petroleum Association (WSPA), representing 25 companies that explore for, develop, refine, market and transport petroleum and petroleum products, appreciates this opportunity to comment on the Air Resources Board's concepts for economic impact analysis of post-2020 climate policies under consideration in the 2016 Scoping Plan Update. While we appreciate ARB's acknowledgment of the need to consider economic impacts in the Scoping Plan Update, its proposed approach to use economic and technical assumptions from E3 PATHWAYS[1] in the REMI macroeconomic model appears designed to validate pre-conceived policy objectives and compliance pathways developed in preliminary stages to evaluate the potential for a 2030 goal. While it is understandable that ARB perform that type of analysis as an initial step, it is not appropriate as the basis for policy and economic evaluation of concrete actions to reach a goal of this magnitude. This approach is incapable of informing a cost-effective course for post-2020 greenhouse gas (GHG) emission reductions which AB 32 requires[2], and which is necessary to ensure that both the emission reductions and the associated economic impacts are sustainable over the long term.

WSPA recommends in the following comments that ARB reconsider its proposed approach to the economic analysis and to the overall development of the Scoping Plan Update. The Update should follow from careful and thorough consideration of a reasonable range of policy options that reflect economic and societal realities. A hastily developed proposal to make transformational changes in a non-transparent fashion threatens the credibility of the program. While the Governor called for "radical de-carbonization" of the global economy in his 2016 State of the State address, the inevitable high costs associated with policies that disregard the most cost-effective alternatives will further discourage other jurisdictions from following California's lead and further disadvantage our economy without meaningful environmental results. Moreover, as discussed below, the U.S. Supreme Court's decision on February 9, 2016 to stay implementation of USEPA's Clean Power Plan (CPP) removes the time constraint cited by ARB as the primary reason for accelerating the Scoping Plan Update schedule. Thus there is no justification, and considerably greater risk, in staying the current course.

[1] California PATHWAYS GHG Scenario Results, Energy + Environmental Economics, April 6, 2015 (https://ethree.com/documents/E3_Project_Overview_20150406.pdf).
[2] Health and Safety Code section 38560: "The state board shall adopt rules and regulations in an open public process to achieve the maximum technologically feasible and cost-effective greenhouse gas emission reductions from sources or categories of sources, subject to the criteria and schedules set forth in this part."

Maximum Technologically Feasible and Cost-Effective Reductions

A key requirement of AB 32 is that GHG reduction measures must be both technologically feasible and cost-effective[2]. The proposed economic modeling approach fails to satisfy these statutory requirements because it relies principally on the PATHWAYS model developed by Energy and Environmental Economics (E3) which makes overly broad, unrealistic assumptions regarding the feasibility and market penetration of certain technologies and does not evaluate the relative cost-effectiveness of alternative measures. E3's authors have clearly stated that their report and model do not consider cost-effectiveness.

ARB also proposes to use the macro-economic model (REMI) which, like PATHWAYS, is not a cost-optimization model. Used in combination, these models will lead to pre-selected, technology-forcing sector-based rules. This process will arbitrarily pick technology winners and losers for the next several decades, which in turn could unfairly and unintentionally stunt development and deployment of competing technologies that could be more cost-effective and more acceptable to consumers than those currently visible and apparently preferred by ARB and validated by E3.

By contrast, the market created by a well-designed Cap and Trade program is a far more objective driver and differentiator of cost-effective GHG emission reduction technologies. While the results of the PATHWAYS model may not be intended as the actual regulatory approach to achieve post-2020 emission reductions, ARB's reliance on PATHWAYS to inform future climate policy creates regulatory and market signals that will affect the research, development, and deployment decisions of innovators and businesses. As such, we recommend that the post-2020 measures and economic assumptions identified in the PATHWAYS model be removed from ARB's approach to its economic analysis of the 2030 Target Scoping Plan and instead placed in a separate white paper.

Since the projected reductions needed to achieve the Brown Administration's aspirational 2030 goal (set only by Executive Order and not legislation) are more aggressive than the rate of reductions required under AB 32, and California is still largely on its own in regulating GHG emissions, cost-effectiveness considerations are of paramount importance in defining California's post-2020 climate programs. ARB should focus on achieving the "biggest bang for the buck" and carefully study and consider only the most cost-effective of proposed public and private investments under AB 32. E3 publicly acknowledged during the January 15 workshop that the PATHWAYS model, even when coupled with REMI, is NOT a cost optimization model. Yet cost-optimization analysis is critical to defining pathways that can achieve the most cost-effective emission reductions, as required by AB 32. This fundamental deficiency in the proposed economic analysis must be addressed to satisfy ARB's statutory mandate. Moreover, it can only be addressed by expanding the scope of modeling tools and inputs ARB considers in the economic analysis for the Scoping Plan Update.

As WSPA indicated in our October 19, 2015 comments on ARB's concepts for the 2016 Scoping Plan Update, the PATHWAYS model by itself does not rely on demonstrated commercially scalable, viable technologies. Individually and collectively, the scenarios identified in the E3 study rely on highly improbable assumptions, including but not limited to:

- **Unprecedented Rate of ZEV Penetration.** E3 assumes that California's vehicle fleet will be transformed in only 15 years from just over 100,000 zero and near zero emission vehicles (ZEVs) today to as much as one hundred times that amount – 6-10 million ZEVs - in 2030. This rate of turnover to new technology is unprecedented for California vehicles, which have an average life span approaching 15 years. A major impediment to increasing the prevailing vehicle turnover rate is the purchase price of a new vehicle which, regardless of drive train technology, is much higher than most other consumer products. E3 also assumes that current technology limitations, such as EV battery life, charging time and range, and adequate fuel supply infrastructure will be resolved in time to facilitate this transformation. It also disregards the lack of alternative fuel supply infrastructure outside of California, which would greatly reduce interstate mobility.

The unrealistic assumption for fleet transformation to ZEVs underpins ARB's assumptions and findings of feasibility for many of the Scoping Plan Update components, including the 40% statewide GHG reduction by 2030, carbon intensity reductions of 10% or more from the Low Carbon Fuel Standard (LCFS), doubling the rate of Cap decline from 2020 to 2030, greatly expanded ZEV mandates, and a 50% reduction in petroleum use. WSPA is unclear as to how such policies can actually be achieved in practice given the PATHWAYS model's inability to predict, much less dictate, consumer behavior.

- **Low-Cost Carbon Neutral Power Available 24/7.** E3 assumes that 100% zero carbon renewable electricity will be dispatchable 24 hours a day in 2030 and will be cheaper than current electricity rates, despite the need for storage capacity and back-up power to balance renewable generation cycles with energy demand cycles. E3's assumptions about biogas supply, wind energy and carbon-neutral natural gas (which would necessitate unprecedented levels of carbon capture and storage) ignore practical realities such as political resistance to certain technologies (e.g., gasification, carbon dioxide storage), land acquisition, facility permitting and capital costs. These challenges exist for all renewable energy technologies and cannot be overcome simply through grant funding and CEQA streamlining.

- **Public Acceptance of Dramatic Lifestyle Changes.** E3 assumes that the general public will embrace the wholesale lifestyle changes necessary to meet the 2030 goal, such as migrating from suburbs to urban centers, adopting electrification technologies and tolerating less effective home heating and cooling, and will act immediately to implement these changes. These assumptions also ignore direct evidence that other energy sources are more efficient (and therefore lower emitting) in certain applications. For example, data from the U.S. Department of Energy shows that use of natural gas appliances in the home produces nearly 40 percent fewer greenhouse gas emissions than a home with all-electric appliances.[3]

Our fundamental concern is that the proposed modeling approach starts with predetermined GHG emission reductions and other "policy" targets and a predetermined set of pathways to achieve those targets. These features are expected to be clearly reflected in the modeled scenarios provided to E3 by ARB. There can be no assessment of the relative cost-effectiveness of the various pathways or the individual measures/controls each pathway entails. The proposed models do not project the development of markets, nor account for variability in market conditions (including fluctuations in the technology market and in the general economy) and how such conditions will affect the pace and scope of technological developments, associated costs, societal acceptance, and the California economy as a whole. ARB's view of markets seems to suggest that outcomes can be dictated by policy choices without regard to these unknowable circumstances. Absent this kind of feedback loop, the economic analysis becomes a results-oriented exercise that does not focus on what is possible or likely. Rather, it merely points to the sum total of measures that will be necessary to deliver the predetermined GHG reductions and other policy targets and attempts after the fact to calculate the potential cost associated with that approach.

WSPA also notes that, pursuant to Government Code section 11346.3, ARB is required in the course of proposing or amending a regulation to "assess the potential for adverse economic impact on California business enterprises and individuals, avoiding the imposition of unnecessary or unreasonable regulations or reporting, recordkeeping, or compliance requirements." Subsection (e) of this section specifically requires that "***the baseline for the regulatory analysis shall be the most cost-effective set of regulatory measures that are equally effective in achieving the purpose of the regulation in a manner that ensures full compliance with the authorizing statute*** or other law being implemented or made specific by the proposed regulation" (emphasis

[3] Data compiled by the American Gas Association based on the United States Department of Energy (DOE) Office of Energy Efficiency and Renewable Energy's Representative Average Unit Costs of Energy notice as published in the Federal Register on March 18, 2014. See: https://www.aga.org/news/news-releases/choosing-natural-gas-appliances-can-double-energy-savings#sthash.EupLJuFV.dpuf.

added). While the Scoping Plan Update is not itself an administrative regulation, it will serve as the foundation for amendments to existing AB 32 regulations and potentially for new regulations to implement various post-2020 Scoping Plan elements. Thus ARB should apply the same level of rigor and statutory standards to the economic impact analysis for the Scoping Plan Update. In other words, the reference (baseline) scenario for the Scoping Plan Update economic analysis should be the most cost-effective path to achieving the administration's proposed 2030 goal. That standard cannot be satisfied by a baseline scenario comprised of pre-ordained policy assumptions. Instead, ARB will need to explore and ultimately utilize other economic modeling tools that are capable of differentiating among various policy options to identify the most cost-effective set of policies to achieve the 2030 goal.

To the extent possible given the limitations of available models, cost-effectiveness should be: (1) an input considered in all modeling scenarios, (2) the primary consideration in a least one scenario and 3) an objective means by which to test the viability of alternative scenarios for purposes of informing future climate policy decisions.

Role of Economic Advisors and Stakeholders

As ARB provides the input data to E3 for modeling and then takes the modeling results to draw conclusions and determine policy outcomes, it must guard against the potential for an "Echo-Chamber Affect" where the results of the analysis are heavily influenced by ARB's selection of inputs. ARB's economic advisors and other third party experts should play a prominent role in selection of inputs and analytical tools to establish the credibility and objectivity of the process and the results. Absent meaningful third party input and validation, policy choices informed by the economic analysis will be vulnerable to future administrative and legal challenges. In addition, consistent with ARB's commitment during the January 15 workshop to engage stakeholders in the identification of model input scenarios, WSPA believes that it is absolutely necessary for ARB to conduct stakeholder working sessions before modeling is conducted in order to ensure transparency in the development of modeling input.

The selected group of economic advisors includes all academics and no stakeholder experts. As with model selection, ARB apparently made these decisions without stakeholder input. The lack of diversity of expertise on the panel and the manner in which these reviewers were selected will undermine the objectivity and relevance of the peer review. ARB did indicate during the workshop that "input may be sought for expertise in other areas". However, it is not clear if this input would include stakeholders with actual experience in sector-specific operations. WSPA requests additional information on how ARB intends to supplement the expertise on the core panel and the mechanism by which stakeholders can nominate individuals to serve as additional subject matter experts.

Process and Timing Concerns

It appears, based on ARB's loosely described schedule for the economic analysis and the Scoping Plan Update that the draft Update could be released for public review before the economic analysis process is complete. That sequence seems backward, and based on prior experience, ARB will be reluctant to modify its proposals in the Scoping Plan Update after it has staked out a policy position, regardless of what the economic analysis concludes. It also pre-empts opportunities for iterative filling of data gaps - incomplete inventories, updated market information and technology forecasts, etc. - that may impact critical cost-effectiveness determinations. The schedule and the sequence of deliverables should be adjusted to ensure that the economic analysis will actually inform policy choices in the proposed Scoping Plan Update.

The aggressive schedule also appears to be inconsistent with ARB's stated intent to accept stakeholder input on the modeling scenario development which is essential to the transparency and objectivity of the modeling exercise. Adequate time must be allowed for stakeholders to review, assess and comment on the proposed modeling scenarios and to suggest alternative scenarios as necessary. ARB should also allow adequate time to

meet with various stakeholders in working sessions to develop and finalize modeling scenarios. The current schedule does not appear to accommodate these key activities.

ARB has repeatedly indicated that the schedule for the economic analysis and the proposed timeframe for the Scoping Plan Update are driven by ARB's desire to meet USEPA's Clean Power Plan (CAA section 111(d)) initial submittal deadline (September 2016). While we appreciate ARB's desire to establish the sufficiency of California's Cap and Trade program for purposes of CPP compliance, the agency's unwillingness to exercise its right to a time extension under the federal regulations forces it to make monumental state-level climate policy decisions in an unreasonably short timeframe. Adhering to this schedule will inevitably forego opportunities for meaningful stakeholder input, compromise the level, quality and defensibility of supporting analyses and documentation, and lead to poorly informed policy decisions. Such procedural expediency also increases the likelihood of unintended outcomes that will undermine public and extra-jurisdictional confidence in California's climate programs and jeopardize the state's ability to achieve its long term climate goals.

Moreover, the U.S. Supreme Court on February 9, 2016 issued a ruling in North Dakota vs. EPA et. al. to stay implementation of the Clean Power Plan pending a decision by the U.S. Court of Appeals and final disposition of any appeal to the Supreme Court, The timeframe for final disposition of this case is expected to extend well beyond EPA's September 2016 submittal date. The Court's decision effectively removes the artificial time constraint cited by ARB as the basis for expediting both the Scoping Plan Update and amendments to the Cap and Trade regulation.

For all of these reasons, ARB should extend its initially proposed schedule for both the economic analysis and the Scoping Plan Update and announce that decision to the public as quickly as possible.

Additional Concerns with the E3 Presentation

Data from the E3 presentation (slide 44) assumes a substantial reduction in GHG emissions from California refineries. This assumption disregards export options and is not supported by recent data from the Energy Information Administration (http://www.eia.gov/dnav/pet/pet_move_exp_dc_r50-z00_mbblpd_a.htm). While E3 indicates that the emission reductions from the refining industry are due to demand reduction for the product that results from other policies, such as increased vehicle efficiency and LCFS, it is possible that refineries will continue to operate at or above current levels to serve a robust export market. Moreover, E3's projected levels of reductions from the refining sector represent a substantial portion of the sector's emissions and could be commensurate with refinery shutdowns, not just "turn downs". Similar emission reductions were associated with shutdowns in findings published by the Boston Consulting Group (BCG) in 2012[4] assessing the potential cost impacts of AB 32 through 2020. BCG found that this level of emissions reductions is equivalent to the loss of 5-7 California refineries.

E3 also showed a large emission reduction from biofuel production, presumably due to increased use of biofuels, which seems contrary to ARB's emphasis on electrification. ARB and E3 must clarify how these seemingly conflicting policy objectives – deep reductions in emissions from both increased use of biofuels and widespread electrification – can be reconciled such that the scenarios evaluated in the economic analysis are plausible and can inform post-2020 policy options.

If it is ARB's intent to rely on the shutdown of several refineries in-state to affect, in part, the emission goals of the Scoping Plan, WSPA requests that ARB address this explicitly in the Scoping Plan and provide an accounting of the jobs lost to the refining sector and all the support industries and businesses. WSPA also requests clarification as to whether the modeling approach considers the potential for double counting energy demand that may occur among sectors and subsectors. Finally, the E3 presentation provides general

[4] Understanding the Impact of AB 32, Boston Consulting Group, June 19, 2012; see:http://cafuelfacts.com/wp-content/uploads/2012/07/BCG_report.pdf.

information on average household monthly cost and natural gas cost. Such data need to be explicitly substantiated in terms of representativeness and relevance to the modeling.

Reporting Issues

It is essential that the ARB GHG emission inventory calculation and related compliance obligations conform to international GHG inventory accounting practices, even though the convention of assigning a zero value to the contribution of biofuels in the GHG emission inventory seems counterintuitive. ARB should explain further the need for the change to assess a positive emission value related to indirect land use change in the ARB GHG inventory and the impact it will have on achieving GHG emission reduction targets through the Scoping Plan and Mobile Source Strategy currently under development. In addition, ARB should also explain whether dual inventories will now be maintained (employing different calculation methodologies and utilized for different purposes) and clarify how confusion over their relative application can be avoided.

WSPA supports the concept suggested by ARB that the GHG inventory should report LCFS reductions separately for in-state generated LCFS reductions and out-of-state generated LCFS reductions. In this way, findings from reporting and modeling can be put in a proper perspective to allow a more detailed assessment of the contribution and impact of the LCFS Regulation to reaching the state's GHG reduction targets.

Conclusion

The economic impact analysis is critical to the Scoping Plan Update process and the ultimate success of California's post-2020 climate programs. ARB must reconfigure its current approach and timeline to ensure that various policy options can be objectively compared and that the results of this analysis can inform cost-effective policy choices which preserve the competitiveness of California's businesses and economy and satisfy statutory and regulatory requirements.

WSPA appreciates your consideration of our comments. If you have any questions, please contact me at this office or Tom Umenhofer of my staff at tom@wspa.org or at (805) 701-9142.

Sincerely,

cc: Richard Corey - ARB
Edie Chang – ARB
Michael Gibbs – ARB
Emily Wimberger - ARB