September 27, 2011

Mary Nichols and California Air Resources Board members
California Air Resources Board (CARB)
P.O. Box 2815
Sacramento, CA 95812

Re: Comments on Second Proposed (15-day) Revisions to AB 32 Cap-and-Trade Regulations – Industrial allocations, greenhouse gas (GHG) benchmarks and specific refinery benchmark

Dear Chair Nichols and CARB Board Members,

We, representatives of the undersigned groups and associations, submit the following comments on the revised Cap-and-Trade regulation under AB 32. Specifically we repeat our recommendations on the need for a re-assessment of the leakage analysis taking into account transportation costs and competitiveness of non-Californian products; and describe why the CARB proposal to use the Western States Petroleum Association (WSPA) grandfathering proposal in the first compliance period , and the Solomon based Carbon dioxide Weighted Tonne (CWT) in the second and third compliance periods merit reconsideration and revision. We are concerned that CARB prematurely chose to use the CWT prior to adequate public review and instead advocate that CARB defer this decision until further study and public review has been completed. We strongly support CARB's intention to conduct additional work in this area and look forward to reviewing the additional materials and analysis. We also repeat our serious concerns that these proposed free allocation mechanisms could result in subsidies for dirtier lower **quality crude feedstocks.** Incentivizing the use of dirtier fuels through increased free allocation of allowances adds to the public health damages caused by both greenhouse gases and criteria pollutants and would increase the costs of achieving the overall carbon reduction goals of AB 32.

Additionally, we are concerned with the over-use of leakage protections for some sectors. For instance, domestic producers of crude oil should not be considered at high risk of leakage, nor should more energy intensive methods of extraction receive more generous benchmarks. Changes in leakage assessment for certain other categories of products also lack explanation or supporting documentation. Finally, we are opposed to special treatment for three sectors that are given a minimal cap adjustment factor amounting to a 7.5 percent carbon reduction in 2020.

Reassessment of leakage risk

CARB is overestimating the likelihood of leakage risk, especially in the refining sector, and this is resulting in the subsidization (via free allocations) of carbon intensive industries. There are significant costs from the free allocation of valuable allowances since these public monies could instead be spent on lowering the costs of the cap-and-trade program. A reassessment of leakage risk must be undertaken to take into account transportation costs and the ability of non-Californian companies to compete with California producers. As the Economic and Allocation Advisory Committee (EAAC) report suggests leakage concerns are very unlikely to occur unless carbon prices reach over $50/ton. (EAAC report, March 2010, page 46, footnote 47) In addition, subsidies for carbon intensive products and processes are a barrier to cleaner alternatives. (ETAAC report, December 2010, p1-10)

> ***Recommendation:*** CARB should redo the leakage risk analysis to fully consider the cost differential between imports and California production, the barriers to entry such as

California specific requirements and transportation costs. This should be completed before the second compliance period.

Petroleum Refinery Sector Compliance period 1, 2013-2014

In the first compliance period CARB proposes to use a simple barrel output based metric to allocate allowances for the refining sector *overall*. Coupled with a cap adjustment factor of 2 percent, the benchmark is estimated to limit the total allocation to the refinery sector. We strongly support a benchmark that reduces emissions below baseline to provide some level of incentive for emission reductions at the start, and the proposed 10 percent below sector-wide emissions from 2008-2010 (adjusted in future years by the level of the cap decline) represents a modest minimum reduction. The chosen benchmark however is fairly weak being solely based on California refinery performance. According to U.S. Energy Information Administration data, shown in Figure 1 below, California refineries emit up to 35% more CO2 per barrel of oil refined than refineries in any other major U.S. refining region, (Karras, 2011)[1] and significantly more than EU refineries (ICCT, 2011).[2]

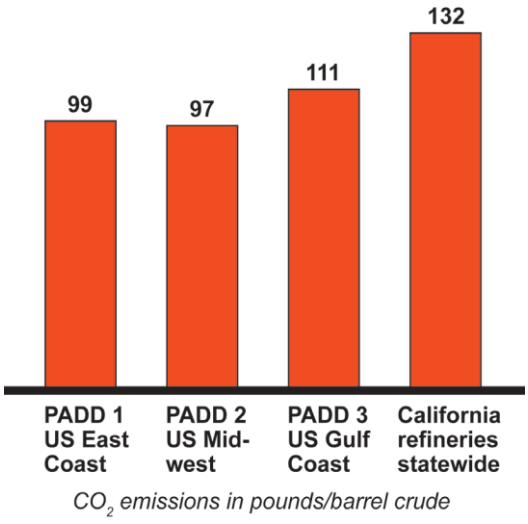


Figure 1.
Average refinery emissions intensity 2004–2008, California vs other major U.S. refining regions. Source: Karras, 2011

Although we support the overall allocation to reduce the refinery sector allowances in the first compliance period, we remain very concerned over the proposed "two-pronged" method for distributing allowances among refineries, with a simple barrel approach for small refineries and a new *non-output* based approach for large, complex refineries in the sector. The individual allocation methodology for large refineries is problematic as it relies on grandfathering. This grandfathering level of free allowances is adjusted upwards for future increases and downwards for emissions with a tweak based on the Solomon Energy Intensity Index with the result that good and poor performers get about the same proportion of their emissions as free allocations. This methodology for large, complex refiners was originally proposed by WSPA. The narrow range in the distribution of allowances dilutes incentives for carbon reductions and minimizes the returns from investing in carbon reduction technologies.

The impact of shifting the large refinery benchmark focus from carbon intensity of the final products to energy efficiency of the process rewards refineries that may utilize more modern equipment yet could have a much more carbon intensive overall process. Dampening the spread of refinery performance in the staff proposal compounds the potential resulting environmental and economic effects of this proposal. The net result is that overall GHG reductions in this sector are not sufficiently encouraged, missing an opportunity to encourage reductions in criteria and air toxic co-pollutants.

[1] 'Oil Refinery CO2 Performance Measurement', Greg Karras, Communities for a Better Environment (CBE). Report prepared for the Union of Concerned Scientists, September 2011

[2] EU refinery emissions are 0.0304-0.0306 metric tons per barrel throughput. 'Proposed Greenhouse Gas Cap and Trade Regulation', Alan Lloyd, ICCT, August 10, 2011.

Furthermore, as pointed out in earlier comments, the use of the Solomon EII index component of the grandfathering proposal is flawed since the rankings are based on energy rather than carbon efficiency. This can encourage use of high carbon feedstocks which would undermine the carbon reduction objectives of AB 32. In addition this index is an industry sponsored and funded benchmarking service which is proprietary. The black box rankings lack public accountability since they are both non-transparent and based on confidential information.

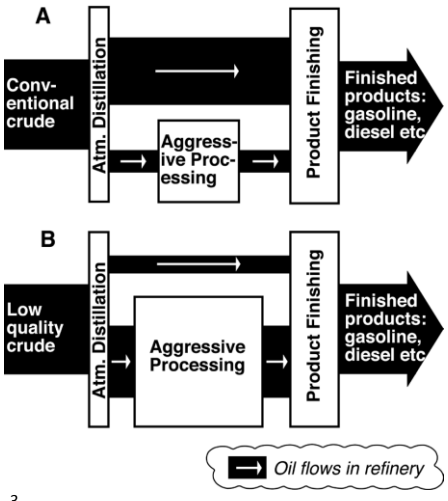
> ***Recommendation:*** Revert to the CARB original proposal for allowance allocation for all refineries instead of the two-pronged approach relying on primarily on grandfathering, updated for future emissions increases and decreases, as the large refinery GHG performance benchmark. Utilize a single benchmark which reflects national best practice carbon intensities.

Petroleum Refinery Sector Compliance periods 2 and 3.

In the second and third compliance period CARB is proposing to use an allocation methodology for individual refiners (small and large) that has been adopted in the European Union's Emission Trading Scheme (EU ETS), the EU carbon trading program. The proposal is to give refineries 0.0295 allowances per CWT they produce.

The use of this benchmark is still in the implementation stages in the EU ETS, and it is slated to be introduced in 2013, at the start of the third phase of the EU carbon trading program. There is limited documentation available on the proposed benchmark which is derived from confidential non-transparent data. The underlying methodology is based on the proprietary Solomon Complexity Weighted Barrel (CWB) approach. The carbon efficiency basis of this metric is an improvement over the energy efficiency approach; however both are black box methodologies. From the limited documentation it is clear that more allowances are generated the higher the level of CWT, and CWT increases with greater process utilization; so if you increase the processing of your crude feedstock you get more allowances.[3] These subsidies for greater processing of crudes will lower the cost of refining lower quality crude feedstocks.

As is shown in Karras, 2011 the main reason why California refineries have much higher emissions intensity is because they use much lower quality crudes which require greater processing and produce greater carbon emissions as well as increased co-pollutants (See Figure 2).



California refineries use more "aggressive processing" than refineries in other parts of the US. These carbon intensive units, such as cokers and hydro-crackers, add to a refinery's "complexity" and also have the highest factors in the CWT system (e.g. a flexicoker has a CWT that is 16 times that for a regular distillation column). Some of the additional complexity used by California refineries may be necessary to meet the stringent fuel standards. However, it appears that most of the carbon intense aggressive processing in California refineries is driven by the use of lower quality crude oils.

Figure 2: Simple refinery block diagram.
Source: Karras 2011

[3] The use of the CWT benchmark does reward decreasing carbon emissions per processing unit, since greater process carbon efficiency relative to the benchmark would yield more allowances than was needed.

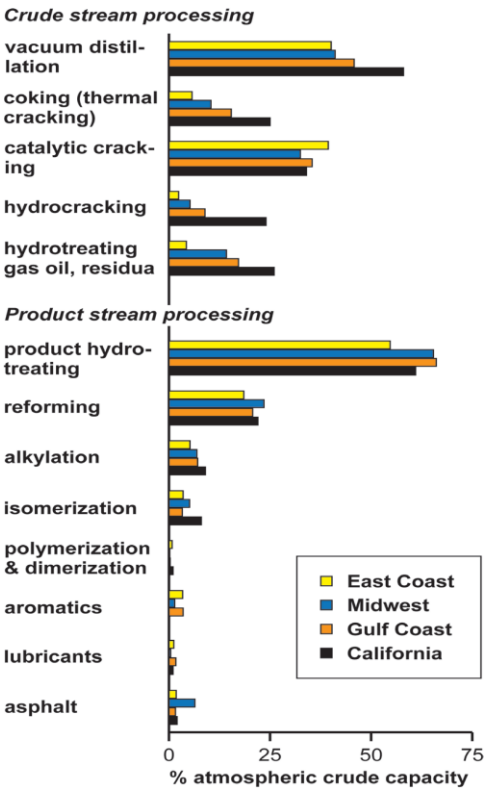


Figure 3 compares the use of processes for crude vs. product processing in California refineries versus those in other regions. Note the very heavy reliance of California refineries on crude stream coking and hydrocracking, two of the most energy intensive processes, while the product stream processing is similar across all regions.

Thus the use of the CWT will subsidize and support the use of lower quality and more carbon intensive crudes. This is a serious concern which could lead to underinvestment in lower carbon emitting refining configurations, and this conflicts with a key goal of AB 32.

Figure 3. Refinery process capacities at equivalent atmospheric crude capacity, PADDs 1–3 and California (5-yr. avg.) Source: Karras 2011

Recommendation: CARB should evaluate alternative benchmarks which do not subsidize the use of lower quality crude feedstocks. CARB should re-evaluate the use of the CWT and present documentation and analysis of how the CWT allowance allocations compare to the simpler output based methodology. We strongly support CARB's intention to undertake further technical analysis in the use of the CWT and look forward to participating in the review of the analysis that will inform the future regulatory package mentioned in Appendix A, page 7 to meet the goals of AB32.

All other Petroleum and Coal Products Manufacturing and Paper Mills. (NAICS code 324199, 322121)

CARB has reclassified the sectors, "all other petroleum and coal products manufacturing" and "tissue manufacturing" as high leakage risk and so these sectors now get many more free allowances in the second and third compliance periods. There is no supporting documentation or analysis to explain this change and its impacts.

> ***Recommendation***: CARB should provide appropriate analysis prior to changing the categorization of these sectors to high leakage.

Petroleum Production Allocations Benchmark

CARB has revised an initial proposal to grant allocations based on crude type to, instead, proposed benchmarks with an almost 10 fold increase for producers that use a highly carbon and emissions intensive production process, steam injection, compared to less carbon and emissions intensive production processes of air and water injection or primary production. There is no justification for this perverse incentive to increase emissions, which conflicts with the goals of AB32 to reduce GHG emissions and associated criteria pollutant emissions and transition industry to cleaner alternatives. In addition, this incentive would almost entirely benefit heavy crude oil with higher refining criteria and GHG emissions as noted earlier. Finally, the proposal would be difficult to implement due to questions about which underground crude oil production zones are subject to the

influence of underground steam injection wells. Of greatest concern, a more generous benchmark for the carbon intense use of steam could lead to increased use of steam, particularly in wells that are not steamed presently, in order to qualify for the nearly 10 times higher level of free allowances.

The best approach is a flat benchmark of 5 grams CO_2/MJ (or 0.020 to 0.025 allowances/barrel), with bonuses available to companies that implement advanced technology such as solar steam production.[4] While we prefer a single process-neutral benchmark for this sector, the original proposal of lower subsidies for light oil and higher subsidies for more carbon intensive heavy crude is more appropriate than the current proposal to scale up free GHG allowances based on the carbon intensity of the production process.

> ***Recommendation:*** CARB should allocate allowances based on a flat benchmark of 5 g/MJ, and commence the necessary technical studies to reassess the leakage risk for domestic captive producers of petroleum output.

New Cap Adjustment Factors

We remain concerned over the greatly reduced cap adjustment factors for cement manufacturing. The latest version of Table 9-2 in the regulation adds two other sectors to this special category achieving just 7.5 percent carbon reductions in 2020 versus a 15 percent carbon reduction expected from all other sectors. The rational that these three sectors (Nitrogenous fertilizer manufacturing, cement manufacturing and lime manufacturing) have a high level of carbon emissions inherent to their process is not a sufficient explanation for an excessively weak cap reduction factor. These sectors could employ cleaner fuels, efficiency measures and greater use of alternatives to make significant carbon reductions. Special treatment for these three sectors is unwarranted and increases the compliance costs for other sectors.

> ***Recommendation:*** Maintain the same cap adjustment factors for all direct allocations.

We appreciate this opportunity to provide comments and thank CARB staff for their dedication and effort in this very important milestone for California. We look forward to working with staff on these issues.

Sincerely,

Bonnie Holmes-Gen
American Lung Association in California

Andy Katz
Breathe California

Brian Nowicki
Center for Biological Diversity

Barry Vesser
Climate Protection Campaign

[4] This is discussed in detailed by the International Council on Clean Transportation in their June 6, 2011 letter to Richard Corey, CARB, entitled: Proposed Greenhouse Gas Cap and Trade Crude Oil Production Allocations.

Shankar Prasad
Coalition for Clean Air

Tyson Eckerle
Energy Independence Now

Ryan Young
Greenlining Institute

Diane Bailey
Natural Resources Defense Council

Kathryn Phillips
Sierra Club California

Jasmin Ansar
Union of Concerned Scientists