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California Air Resources Board
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RE: Comments on proposed cap-and-trade regulatory amendments

Dear ARB staff,

Thank you for the opportunity to provide comments on the material presented at the March 2nd cap-and-trade regulation workshop. These comments touch upon three proposed amendments to the cap-and-trade regulations discussed in the workshop and in the Preliminary Discussion Draft of Potential Changes to the cap-and-trade regulation.

1. Methods to assess whether an offset project generates Direct Environmental Benefits in the state (DEBs)

I appreciate ARB's consideration of the intent of the DEB provisions in the law and also the need to develop clear guidelines to enable the individual assessment of all new and existing offset projects.

AB389 states: *"'direct environmental benefits in the state' are the reduction or avoidance of emissions of any air pollutant in the state or the reduction or avoidance of any pollutant that could have an adverse impact on waters of the state."*

I offer here a few observations on how projects can be assessed against this requirement drawing from the language used in the bill.

1. There has been some discussion of defining direct benefits in California as a reduction in GHGs anywhere in the world. The GHG reductions from an offset project by definition do not have direct environmental benefit in California. An offset is not a net reduction in emissions, it is a trade in reductions from one place to another, and in this case, from the California capped sectors to emissions outside of California's capped sectors. For each offset credit used, whether the project is

located in California or outside of the state, global GHG emissions should remain the same as they would have been without the offset project, creating no net environmental benefit.

It is also apparent that defining DEBs as any GHG reduction was not the intent of the legislature. If it were, there would have been no need to define a new DEB requirement since all offsets by design should achieve GHG reductions.

I also note that the phrase "direct environmental benefits in the state" is used twice in the law. The second place it appears is in the establishment of the Compliance Offsets Protocol Task Force: "*The Compliance Offsets Protocol Task Force is hereby established to provide guidance to the state board in approving new offset protocols for a market-based compliance mechanism for the purposes of increasing offset projects with* ***direct environmental benefits in the state while prioritizing disadvantaged communities, Native American or tribal lands, and rural and agricultural regions****."* (bold added)

A concern commonly raised about the use of offsets by California regulated entities is that activities that emit GHGs are very often associated with the release of other air and water pollutants. Therefore, by allowing less GHGs to be reduced in the state's capped sectors, offsets effectively increase the release of associated air and water pollutants from those sectors. Offsets without direct environmental benefits in the state means that California loses the co-benefits associated with the reductions that would otherwise have occurred in the state's capped sectors. This has been a particularly concern for disadvantaged communities, Native American or tribal lands, and rural and agricultural areas. The law also defines direct environmental benefits as the reduction or avoidance of pollutants affecting air and water quality in the state. These specifications align with the concern that offsets lead to increased pollution in vulnerable communities, and the requirement interpreted in this way would mean that the increase in environmental pollution in the capped sectors resulting from the use of offsets is at least partially made up by reduced impacts on air or water quality elsewhere in the state.

In sum, since offsets do not achieve net GHG reductions, but simply trade where reductions happen, reducing GHGs, in state or out of state, does not in itself achieve direct environmental benefits in the state. This meaning is also clearly not the intent of the legislature, since this interpretation renders the new DEB requirement meaningless. Additional environmental benefit in terms of reduced air and water pollution is needed to meet the requirement in the law.

2. The bill defines the requirement as a "direct" environmental benefit. In common parlance, a "direct" effect or benefit means that the activity/policy itself is responsible for a change in the release of an air or water pollutant, in contrast to effects mediated by the market, global atmospheric circulation, or other secondary causal pathways which are more difficult to observe and to measure.

An offset project therefore has *direct* environmental benefit in the state if it:

- reduces an air pollutant that would have been generated in California or physically transported into California, or
- reduces a pollutant that would have directly impacted California waters in the state, including by reducing the quality of waters flowing into the state.

California's six adopted protocols credit projects that reduce air pollutants and/or improve water quality locally at project sites. Assessment of projects outside of California would focus on whether

they release air pollutants that are physically transported into the state or release water pollutants that directly affect the quality of water flowing into the state.

REDD programs far from California borders do not directly impact waters in the state. Any possible effect would be considered indirect.

3. Simply being located adjacent to a waterway flowing into California does not mean that a project generates DEBs in the state. Not all emissions affect water quality. The location of an offset project along a waterway flowing into the state does not necessarily benefit waters in the state. The offset project developer should show that the project reduces the release of a pollutant that meaningfully degrades the quality of water that flows into the state.

2. Ceiling price

Social cost of carbon
The actual social cost of carbon in California is substantially higher than most values of the social cost of carbon derived from integrated assessment models, including those cited in ARB's Preliminary Concepts discussion paper associated with the March 2 workshop, for three reasons.

First, these models only include a subset of total damages that were monetizable. Important damages are left out of the models (effectively treating these damages has having zero cost). Examples of damages left out of the models are the effect of climate change on conflict, the effect of ocean acidification (Anthoff & Tol, 2013) and the reduction in wellbeing caused by seeing others' suffering around the world and by knowing that we are responsible for this suffering and loss.

Second, the value of life and wellbeing of a poor person are considered by these models to be less than the value of a wealthy person's life, while the social cost of carbon is estimated as a single global figure. The different valuation is because sickness and mortality of a poor person has less absolute impact on global GDP than that of a wealthy person. To be ethically consistent, the social cost of carbon should also be varied across regions, reflecting that a dollar has more value to a poor person than to a wealthy person.

Third, these models put a greater value on the wellbeing of a person today than on the wellbeing of people in the future through the use of a discount rate.

One study attempts to correct for the second concern using an equity-weighted model. Under and equity-weighted model the social cost of carbon is higher for countries with greater per capita wealth. The study runs one integrated assessment model (FUND) with equity weighting, and finds that the social cost of carbon in the United States is two to eight times higher than the non-equity weighted estimate, depending on the equity principle used (Anthoff & Tol, 2010).

Another study attempting to address points two and three together applies an equity weighting and no discount rate. This study finds that the social cost of carbon in the United States is on the order of $2000 to $5000 per tCO_2 (Adler et al., 2017, figure 4).

This discussion does not necessarily suggest implementing a ceiling price of $2000 or higher, but instead notes that any ceiling price chosen will be less than California's social cost of carbon. It also

suggests that the ceiling price should be set high enough to drive the reductions needed to meet the state's 2030 target.

3. Technical changes to the U.S. Forest Projects offset protocol

Thank you for considering technical revisions to the Forest protocol. Here I provide a summary technical changes to the protocol I believe are needed as clarifications and to better reflect reductions achieved. I will send you a detailed description and analysis of these three technical changes in a separate document once it is complete. In the meantime, I'm happy to discuss these issues or send drafts of the analysis if that is helpful.

(1) Leakage rate: CAR recently updated its leakage rate from 20% to a range up to 80% reflecting the literature on the leakage resulting from changes in forest management in the United States. I have not found anything published that supports a 20% leakage rate, but have found a number of published articles supporting an 80% leakage rate. Is ARB considering updating its leakage rate to better reflect the literature as CAR did?

(2) Leakage timing: Currently the protocol credits an improved forest management project for the on-site carbon stocks above the baseline at the start of the project without accounting for the leakage associated with the credited reduction in harvesting at the same time. The leakage associated with initial credited carbon stocks above the baseline scenario is deducted over 100-years instead of when the reduction in harvesting actually is presumed to have happened and is credited. In other words, in the first year of an improved forest management project the project receives credits associated with the total on-site carbon storage above the baseline, but only 1/100th of the leakage associated with that avoided harvesting is deducted. This has resulted in the generation of more credits than reductions achieved compared to the baseline scenario. This accounting discrepancy can be remedied by deducting the leakage associated with the change in forest management practice at the same time that the change is credited.

(3) Definition of a reversal: Equations 3.1 and 5.1 define a reversal as net negative changes in carbon storage—including storage on-site, in harvested wood products, and in landfills, taking into account leakage—*every year* over the project life (defined through 100 years after the last credit issuance). If I'm reading this equation correctly, the reversal provisions would be triggered if net carbon storage was negative in any single year over a project's 100 year life. I believe what is important, and perhaps this was the intent of the protocol, is to ensure that there is no net over-crediting—that the total credits generated never exceed the effect of the offset project on emissions. It doesn't matter what happens in any one year as long as there is no reversal of the increase in carbon storage that has been credited. I believe this change is a more feasible requirement for a forestland owner and better reflects what is needed to avoid over-crediting. I suggest instead defining a reversal thus:

> A reversal has occurred if: the sum of all credits generated from the start of the project to the current reporting period is greater than the sum of (1) actual onsite carbon storage in the current reporting year minus baseline carbon storage in the reporting year, (2) the sum of long-term carbon storage in harvested wood products and landfills from the first reporting period to the present reporting period minus the sum of long-term carbon storage in harvested wood product and landfills in the baseline from the first reporting period to the present reporting period, taking into account leakage, and (3) the sum of all secondary

effects (which include leakage) from the first reporting period to the present reporting period.

I will send a more detailed description of these issues and proposed solutions on the Forest protocol in a separate correspondence with ARB once the analysis is complete.

Thank you for considering these comments.

Sincerely,

Barbara Haya

References:

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