January 13, 2017

Assistant Secretary Claire Jahns and
Chief Rajinder Sahota
California Environmental Protection Agency
Air Resources Board
1001 I Street
Sacramento, CA 95814

Submitted electronically at
https://www.arb.ca.gov/lispub/comm2/bcsubform.php?listname=sp2030nwlmodeling-ws&comm_period=1

Re: Comments on the CARB Workshop on Carbon Sequestration Modeling for Scoping Plan Dec 14, 2016

To the California Air Resources Board:

On behalf of Sierra Club California and Ebbetts Pass Forest Watch, we submit the following comments on the December 14, 2016 CARB Natural Working Lands Modeling Workshop. We appreciate the efforts of the Air Resources Board (ARB") and work being done by the Lawrence Berkeley National Laboratory and are hopeful that a reasonable model can be developed ultimately.

We ask the CARB to continue to acknowledge that biodiverse healthy forests with healthy soils will have the greatest likelihood for survival and resilience in our expected climate change scenarios. These forests will sequester more carbon and produce less emissions when uneven management practices and the use of controlled burning are also used if logging occurs. Biodiverse uneven-aged forests also are the best defense we have for protecting our wildlife and water as climate impacts intensify.

Climate change is advancing much more rapidly than we predicted and the massive tree die off in

the Sierra is showing us that areas without biodiversity can suffer catastrophic losses (as shown in areas where ponderosa and sugar pine were dominant). The industrial clearcutting and plantation model used widely in the Sierra is doomed to failure. The predominantly pine plantations are in areas that will undoubtably be hotter and drier and have more beetle infestations. Plantations usually have near total mortality when they burn.

Business as usual in our forests is not an option. Our efforts to curb climate change and model the future need to deal with the new realities.

The following are our brief comments re the modeling workshop

1. **Forest Carbon Modeling assumptions must be transparent and available to the public.** The underlying assumptions of any model that tries to portray and predict the complex regionally different forest carbon emissions and sequestration must be transparent and available to the public. Currently these assumptions are not available so we are unable to comment on their validity. For instance, at this point we cannot tell if full life-cycle accounting is being used so that carbon emissions due to obtaining and transporting biomass material are included. In addition, sensitivity analyses of key assumptions must be performed and reported.

2. **The model appears to rely heavily on 2010 FIA data which does not represent current conditions including forest carbon stores degradation from major fires, fuel breaks, tree die off, slower tree growth in drought, and widespread clearcutting, etc.** Other issues such as selection and access to private land FIA plots raise additional issues about reliance on this data.

3. **The forest high management option (shown in purple in the graph below) is of great concern in that it allows an increase in emissions and decrease in sequestration until 2045 and only increases sequestration and decreases degradation from 2045 to 2050. This option in effect causes other segments to "pick up the deficit" for decades and time is of the utmost importance re emissions and sequestration.**

- The purple line on the graph below assumes large scale new management practices (175,000 ac/yr such as thinning)
- This large scale management activity will impact over 2 million acres and will add to the forest loss of ongoing business-as-usual clearcutting and other carbon degrading logging activities. The so-called benefits will not be reaped until far in the future where it may be too late. These losses could however be compensated for with other reductions in logging elsewhere but that would need to be mandated.
- The costs of large scale thinning can be significant and according to the graph will yield few benefits for decades compared to less management scenario in blue. It should be noted that thinning is also generally facilitated by removing larger trees that are more fire resilient and proportionately store more carbon so that they may be sold to offset the thinning costs. Large trees should be retained and other sources of funding found.

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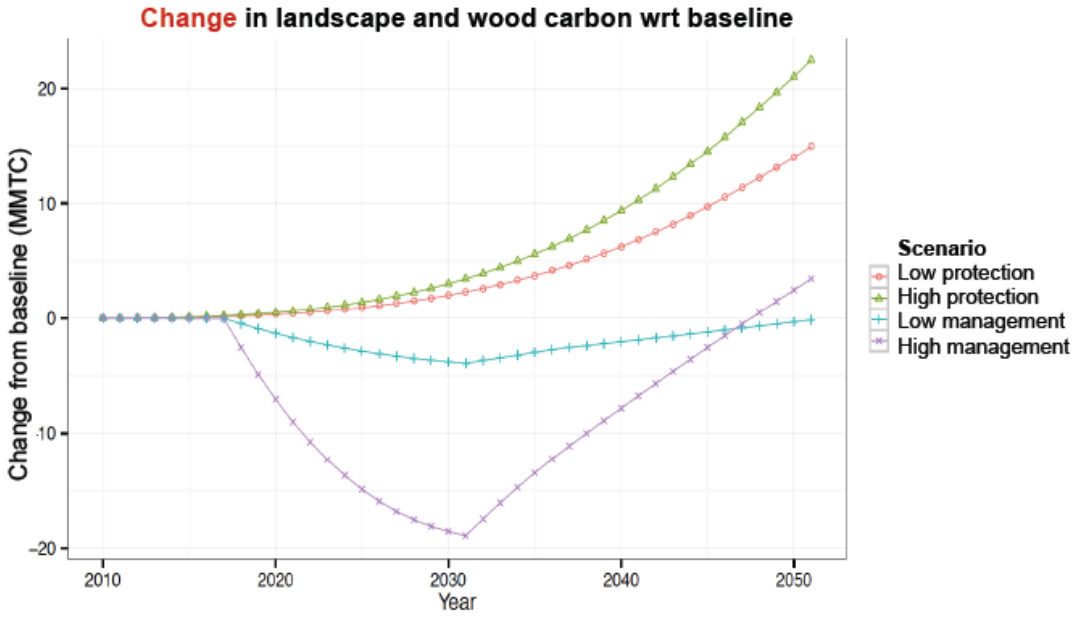
Scenarios vary considerably



4. The model needs to be able to evaluate the impact on emissions and sequestration of different logging management practices. Different forest management practices (such as clearcutting vs selective logging) have quite different emissions and sequestration results as well as different profiles for fire and insect resiliency. Use of the more climate-friendly logging practices could produce rapid and lasting positive impacts and could have immediate results and offset some of the losses occurring in forest sequestration.

5. Modeling must adequately include soil and roots, which can represent up to half the carbon sequestered in forests. Soil and root carbon sequestration also varies by logging management methods. Ultimately, we will need to set practices, goals and criteria for improving forest soils to improve resiliency of our forests.

6. It is not feasible nor ecologically desirable to dispose of all or most dead trees. Dead trees sequester carbon for a long period. The removal of most or all dead trees is not feasible due to costs or location, and dead tree debris is needed to replenish soils and house species. This issue should be considered in the model.

We appreciate the opportunity to submit these comments and look forward to working with CARB to achieve California's 2030 greenhouse gas reduction requirements especially in our complex and critical forest lands .

Sincerely,

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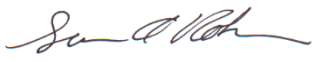

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