April 8th, 2016

Forest Climate Action Team
c/o California Department of Forestry and Fire Protection
1416 9th Street
Sacramento, CA 95814

Center for Sustainable Economy
Analysis • Solutions • Advocacy

Re: Comments on the California Forest Carbon Plan Concept Paper

Dear FCAT team:

Center for Sustainable Economy (CSE) has the following brief comments to offer on the "California Forest Carbon Plan Concept Paper: *Managing our Forest Landscapes in a Changing Climate*." CSE is a non-profit advocate for a sustainable economy. One of the issues of most concern to our partners and members is the ongoing crisis over deforestation and forest degradation in California, Oregon and Washington. The areal extent of forest cover in California has declined by at least 1.8 million acres since 2000.[1] Wildfires, drought, and disease have certainty taken their toll, but industrial forest practices are also to blame.

These practices include clearcutting and other forms of even-aged management, excessive building of logging roads, rapid rates of harvest, short rotations and heavy applications of chemicals and fertilizers. Roughly 35,000 acres of forest per year are cut down using intensive forest practices like these in California.[2] Not only are these practices devastating to clean water supplies, native coldwater fish, wildlife that needs interconnected and structurally diverse forests, soils, and scenic and recreational values, but they represent a significant source of greenhouse gas (GHG) pollution that is unregulated under California's climate action programs.[3] In western Oregon, industrial forest practices represent the second largest source of GHG emissions and are also completely unregulated.[4]

As such, we believe that the Forest Carbon Plan is a critical opportunity to reverse this trend by creating strong disincentives like carbon taxes, caps, or impact fees for high GHG practices and by incentivizing forest practices that minimize emissions and maximize carbon sequestration and storage. The payoff for California's climate goals could be substantial. If sustainable forest practices and investments in climate change resilience had been implemented over the past 14 years and successful at maintaining forest cover, forests lost during this time period could be

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[1] The World Resources Institute's Global Forest Watch program monitors forest cover loss and gain worldwide. Between 2000 and 2014, California has lost 1,029,003 hectares of land that meets a minimum forest cover definition of trees at least 5 meters high with a canopy closure of at least 30%. Reforestation and afforestation added 291,917 hectares through 2012. Available online at: www.globalforestwatch.org.

[2] CalFire maintains data on timber harvest plan (THP) submissions, and these figures are the most recent available for statewide clearcutting and shelterwood cutting treatments.

[3] Although California's Environmental Quality Act (CEQA) requires a timber harvest plan to include an estimate of carbon dioxide emissions, it is unenforceable. More importantly, emissions from this sector are not regulated with a mandatory cap or any other policy tool.

[4] Talberth, John, Dominick DelaSalla, and Erik Fernandez. 2015. Clearcutting our Carbon Accounts: *How state and private forest practices are subverting Oregon's climate agenda*. Lake Oswego, OR: Center for Sustainable Economy. Available online at:

sequestering roughly 3 million metric tons CO2-e per year.[5] Instead, they are largely in open clearcut condition or otherwise degraded and a net source of GHG emissions.

Against this backdrop, we find the Forest Carbon Plan Concept Paper lacking in several significant ways:

(1) The Forest Carbon Plan should establish mandatory GHG emissions reporting requirements that include emissions from timber harvest, post-harvest decay, foregone sequestration, and forest chemicals and fertilizers.

Industrial forest practices generate significant GHG emissions in a number of ways. Stored carbon is removed from the site, and, at best, only 18% of the original carbon stored ends up in long-lived wood products.[6] Decay of slash and waste generated throughout the product life cycle ensure that the other 82% of a site's original carbon stock ends up in the atmosphere in a very short time period. For the next twelve to fourteen years, sites treated with even-aged techniques continue to be net carbon dioxide emitters as decay of slash, roots, stumps, and other dead matter continues.[7]

Industrial forest practices also generate emissions associated with foregone sequestration – an important component of standard GHG emissions protocol developed by the IPCC at the international level.[8] These emissions are typically quantified as the sequestration that would have occurred if not for the timber harvest activity and associated road construction. In addition, chemical herbicides, pesticides, and fertilizers applied to reforested lands also have a high carbon content that has been well documented in the field.

These four elements: carbon lost to harvest, carbon lost from decay of waste, slash, roots, stumps and other debris over a 12-14 year period post-harvest, emissions associated with foregone sequestration, and emissions associated with forest chemicals and fertilizers should be part of a mandatory emissions reporting framework adopted by FCAT in the context of its Forest Carbon Plan. The existing CEQA reporting requirements administered by Cal Fire are insufficient as they exclude most of these factors. To be compatible with other mandatory reporting sectors, reporting should be required for each forestland owner (entity) who engages in industrial forest practices in a given year across its entire ownership.

(2) For the purposes of GHG emissions reporting, the amount of sequestration occurring on an entity's land that is not subject to timber harvest in a given year is irrelevant.

Reforestation is a legal baseline requirement of California's Forest Practices Act and thus the carbon sequestered by reforested lands should not be invoked directly or indirectly to mask or

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[5] Based on the average annual CO2 sequestration rates presented in Tables 4 and 5 of the Concept Paper.
[6] Ingerson, A. 2009 Wood Products and Carbon Storage: Can Increased Production Help Solve the Climate Crisis? Washington, D.C.: The Wilderness Society.
[7] Turner, David, Michael Guzy, Michael Lefsky, William D. Ritts, Steve Van Tuyl, and Beverly E. Law. 2004. Monitoring Forest Carbon Sequestration with Remote Sensing and Carbon Cycle Monitoring. *Environmental Management* 33(4): 457-466.
[8] See, e.g. Plevin, Richard, Holly K. Gibbs, James Duffy, Sahoko Yui and Sonia Yeh. 2014. Agro-ecological zone emission factor (AEZ-EF) model. Davis, CA: University of California and the California Air Resources Board.

offset an entity's actual emissions in a given year or responsibility for reducing those emissions should the industrial forest sector be regulated as recommended here. Enhanced sequestration projects that an entity implements in a given year are a better basis for any such "credits," but these need to be carefully evaluated against the standards of verifiability, additionality, permanence and other objective criteria. Closing, obliterating, and replanting logging roads or reforesting degraded lands are examples of sequestration-enhancing projects that are more likely to succeed.

(3) Emissions from industrial forest practices should be regulated on par with other GHG polluting sectors.

The current AB32 Scoping Plan contains a laudable goal for California's forests: "California forests must be managed to ensure that they provide net carbon storage even in the face of increased threats from wildfire, pests, disease, and conversion pressures."[9] But to accomplish this goal, GHG emissions from industrial forest practices should be regulated on par with other sectors. The Forest Carbon Plan should propose specific actions to accomplish this, including implementation of forest carbon taxes, impact fees for high GHG operations, mandatory reporting requirements based on the factors discussed above, enrolling industrial forest activities into the Cap-and-Trade program, or some combination of all these measures.

(4) Growth data is not a good indication of sequestration and should be dropped in favor of more reliable metrics such as net ecosystem productivity.

Although we oppose the concept of using sequestration estimates to mask or offset a particular entity's emissions because of the additionality constraint, it is important to understand the degree to which California's forests are meeting the goal of net carbon storage. In the Concept Paper, FCAT uses growth as a proxy for sequestration, with growth data derived from the Forest Inventory and Analysis (FIA) data.

However, growth is not synonymous with sequestration, in fact it greatly overstates it simply because forests do indeed put on more biomass each year as they grow but they also respire CO2 in the form of dead and dying vegetation, soils, fungi, and animals. Net ecosystem productivity (NEP) is viewed as a much more accurate metric. NEP is the net effect of photosynthetic carbon uptake and release of carbon to the atmosphere from respiration by autotrophs (plants) and heterotrophs.[10] The Forest Carbon Plan should establish a program to regularly monitor NEP as a basis for sequestration estimates.

(5) Maintenance of forest cover should be an important metric to gauge sustainability.

The maintenance of forest cover is, perhaps, the single most important metric to track since as forest cover disappears so to does the diverse array of ecosystem goods and services such forests provide. And as forest cover disappears, climate vulnerability increases as more watersheds are subject to abnormally hot and dry conditions. As noted above, California has experienced a loss

[9] State of California. 2014. First Update to the Climate Change Scoping Plan: Building on the Framework Pursuant to AB32, The California Global Warming Solutions Act of 2006.
[10] Turner et al. 2004, Note 7.

of roughly 1.8 million acres of forest cover since 2000. Part of this loss is related to the rate of logging – rates of logging that exceed the rate of forest regrowth will cause a reduction in forest cover. The critical task for FCAT is to monitor forest cover trends with the eventual goal of halting and reversing its loss in California. Forest cover trends should be reported on an entity basis so that good actors (those who use forest management techniques that maintain forest cover) and bad actors (those who use clearcutting and other even aged techniques that reduce forest cover) can be identified and regulated accordingly.

(6) Forests managed for biomass and bioenergy will lead to increased GHG emissions and should thus not be encouraged through policy incentives.

Forests managed for to produce biomass for energy (bioenergy) or biomass for other uses are among the most intensive GHG emitters because they are typically managed in an industrial plantation style involving rapid harvest rates, extensive clearcutting or even aged management, dense road systems, and heavy use of fertilizers, pesticides, and herbicides. Foregone sequestration is a major issue since these plantations never have a chance to attain their peak sequestration and storage potential.

According to the US Energy Information Administration (EIA) "analysts have debated whether the increased use of biomass energy may result in a loss of terrestrial carbon stocks and foregone future sequestration by natural vegetation. The initial loss of carbon stocks in natural vegetation cleared to grow biomass feedstocks and the foregone future removal of CO_2 are not captured in energy sector emissions."[11] In fact, burning biomass has shown to emit more CO2 that fossil fuels per megawatt energy generated.[12] Given this the Forest Carbon Plan should not encourage the use of California's forests for biomass or bioenergy in any way. The references encouraging biomass and bioenergy facilities should be removed.

Thank you for the opportunity to comment. We look forward to seeing how these issues are addressed as you continue to develop the Forest Carbon Plan in the months ahead.

Sincerely,

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[11] US Energy Information Administration. 2011. Emissions of Greenhouse Gases in the US. 6.1 Total land use, land use change, and forests. Available online at: http://www.eia.gov/environment/emissions/ghg_report/ghg_land.cfm.

[12] The Partnership For Policy Integrity maintains a good summary of the research on this issue. Please visit: http://www.pfpi.net/carbon-emissions.