September 19, 2016

Via internet upload: https://www.arb.ca.gov/lispub/comm/bclist.php

Clerk of the Board
Air Resources Board
1001 I Street
Sacramento, CA 95814

Re: Proposed Amendments to the California's Greenhouse Gas Cap-and-Trade Program Beyond 2020

Dear Members of the Board:

The Center for Biological Diversity ("Center") offers the following comments on the Proposed Amendments to the California Cap on Greenhouse Gas Emissions and Market Based Compliance Mechanisms ("Proposed Amendments"). The Center is a non-profit organization with more than one million members and online activists and offices throughout the United States, including in Oakland, Los Angeles, and Joshua Tree, California. The Center's mission is to ensure the preservation, protection and restoration of biodiversity, native species, ecosystems, public lands and waters and public health. In furtherance of these goals, the Center's Climate Law Institute seeks to reduce U.S. greenhouse gas emissions and other air pollution to protect biological diversity, the environment, and human health and welfare. Specific objectives include securing protections for species threatened by global warming, ensuring compliance with applicable law in order to reduce greenhouse gas emissions and other air pollution, and educating and mobilizing the public on global warming and air quality issues.

The Center very strongly supports California's continuing commitment to statewide reductions in greenhouse gas emissions beyond 2020. Dramatically reducing anthropogenic greenhouse gas emissions is critical not just for stabilization of the global climate but for the integrity of the health, environment, and prosperity of California.

That said, the Center has deep concerns with the Proposed Amendments as they overwhelmingly rely on cap-and-trade as the primary mechanism for achieving emissions reductions, and they would perpetuate certain crucial failings of California's current greenhouse gas Cap-and-Trade program. For example, the Cap-and-Trade program's failure to account for the substantial climate impacts of forest-sourced woody biomass energy is contrary to science, undermines the integrity and effectiveness of the cap, and threatens California's ability to attain the emissions reduction targets established in AB 32, SB 32, and Executive Orders S-3-05 and B-30-15. The program's overwhelming reliance on carbon offsets forgoes direct reductions in California and the associated co-benefits, prolonging, and in some cases exacerbating, environmental burdens borne by low-income communities and people of color. Also, the failure

to prioritize direct reductions contradicts the explicit mandate of Assembly Bill 197. These concerns and others are detailed below.

For all of these reasons, the Center respectfully urges the Board to reject the Proposed Amendments to extend the existing Cap-and-Trade program beyond 2020, and to pursue alternative, non-cap-and-trade approaches to achieving California's greenhouse gas reductions.

I. California's Cap-and-Trade Program Fails to Account for the Climate Impacts of Forest-Sourced Woody Biomass in Bioenergy Production.

California's continuing refusal to address biomass emissions under the cap-and-trade program—and, accordingly, under the Clean Power Plan Compliance Plan built around the cap-and-trade program—is contrary to science and unsupportable, and undermines the integrity and effectiveness of the cap as a whole. The Cap-and-Trade regulation exempts emissions from combustion of many forms of biomass from any compliance obligation whatsoever, and thus effectively treats biomass as "carbon neutral"; this exemption is completely out of step with prevailing scientific knowledge.[1] Extending this exemption beyond 2020 would be arbitrary, capricious, and indefensible.

Treating biomass as effectively carbon neutral is also inconsistent with the limits imposed on biomass energy generation as a compliance measure in the CPP.[2] In the CPP, EPA confirmed that its own Science Advisory Board panel and its revised draft "Framework" for biomass carbon accounting had explicitly rejected the assumption that all biomass combustion can be considered "carbon neutral." (Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units, 80 Fed. Reg. 64,662, 64,885 (Oct. 23, 2015) ("Final CPP".) Rather, "the net biogenic CO_2 atmospheric contribution of different biogenic feedstocks generally depends on various factors related to feedstock characteristics, production, processing and combustion practices, and, in some cases, what would happen to that feedstock and the related biogenic emissions if not used for energy production." (*Ibid.*)

The CPP thus provided that states may use only "qualified biomass"—defined as "a biomass feedstock that is demonstrated as a method to control increases of CO_2 levels in the atmosphere (40 C.F.R. § 60.5880)—in demonstrating compliance with either a rate-based or a mass-based emissions goal.[3] (Final CPP, 80 Fed. Reg. at p. 64,886.) "Not all forms of biomass

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[1] The Center has addressed these issues in detail elsewhere. (See Center for Biological Diversity, Comments on the Proposed Short-Lived Climate Pollutant Strategy (May 26, 2016), available at https://www.arb.ca.gov/lispub/comm/bccommlog.php?listname=slcp2016 [comment nos. 94, 96, 97]; Center for Biological Diversity, Comments on Second Set of Proposed Modifications to the AB 32 Greenhouse Gas Cap-and-Trade Regulation (Sept. 27, 2011), *available at* https://www.arb.ca.gov/lispub/comm/bccommlog.php?listname=capandtrade10 [comment no. 93]; Center for Biological Diversity, Comments on the Proposed Greenhouse Gas Cap-and-Trade Regulation (December 15, 2010, *available at* https://www.arb.ca.gov/lispub/comm/bccommlog.php?listname=capandtrade10 [comment nos. 718, 746].) Each of the comment letters referenced in this footnote, and all exhibits submitted with those letters, are hereby incorporated by reference.

[2] The Center has also addressed this issue in its comments on California's proposed CPP Compliance Plan, filed under separate cover today.

[3] EPA's proposal for allowance trading under a federal mass-based implementation plan would require covered facilities co-firing with biomass to hold allowances for all of their CO_2 emissions, including emissions from

are expected to be approvable as qualified biomass (i.e., biomass that can be considered as an approach for controlling increases of CO_2 levels in the atmosphere)." (*Ibid.*) Accordingly,

> State plan submissions must describe the types of biomass that are being proposed for use under the state plan and how those proposed feedstocks or feedstock categories should be considered as ''qualified biomass'' (i.e., a biomass feedstock that is demonstrated as a method to control increases of CO_2 levels in the atmosphere). The submission must also address the proposed valuation of biogenic CO_2 emissions (i.e., the proposed portion of biogenic CO_2 emissions from use of the biomass feedstock that would not be counted when demonstrating compliance with an emission standard, or when demonstrating achievement of the CO_2 emission performance rates or a state rate-based or mass-based CO_2 emission goal).

(*Ibid.*) EPA will "review the appropriateness and basis for proposed qualified biomass and biomass treatment determinations and related accounting, monitoring and reporting measures in the course of its review of a state plan," and the agency will base its "determination that a state plan satisfactorily proves that proposed biomass fuels qualify . . . in part on whether the plan submittal demonstrates that proposed state measures for qualified biomass and related biogenic CO_2 benefits are quantifiable, verifiable, enforceable, non-duplicative and permanent."

The Compliance Plan relies entirely on the cap-and-trade regulation, which in turn treats virtually all biomass generation as "carbon neutral"—directly contrary to EPA's intent in the federal CPP. Indeed, as the Center's comments in other contexts (see footnote 1, *supra*) and supporting materials indicate, it is extremely doubtful that many, if any, biomass resources typically used in California can be verifiably demonstrated to "control" atmospheric CO_2 concentrations on the timescales relevant to the CPP (i.e., between 2022 and 2030).

This problem alternatively could be described as a leakage problem: generation and emissions from CPP-covered EGUs, which bear regulatory costs under cap-and-trade, may "leak" to biomass units, which are not covered EGUs and bear no similar regulatory costs. The effect of this leakage on the atmosphere could be dramatic. California's CPP-covered EGUs had a combined emissions rate of 870 lbs/MWh in 2014. (Compliance Plan at p. 12.) A new biomass steam turbine, in contrast, would have an emissions rate of more than 3,000 lbs/MWh at the smokestack.[4] Absent a sound, verifiable demonstration that California biomass actually controls atmospheric CO_2 concentrations, leakage to biomass facilities could dramatically undermine achievement of California's overall CPP emissions target, as well as threatening

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biomass; EPA sought comment on an alternative approach allowing facilities to identify "qualified biomass" and "potential methods for demonstrating compliance, and thus reduc[ing] the mass emissions attributed to" an EGU co-firing with biomass. (Federal Plan Requirements for Greenhouse Gas Emissions From Electric Utility Generating Units Constructed on or Before January 8, 2014; Model Trading Rules; Amendments to Framework Regulations, 80 Fed. Reg. 64,966, 65,012 (Oct. 23, 2015).) Although EPA has not yet finalized the proposal, it confirms provisions in the Final CPP indicating that "qualified biomass" requirements apply to both mass-based and rate-based compliance options.

[4] This figure is based on heat rate and efficiency data from the Department of Energy, Energy Information Administration, and Oak Ridge National Laboratory. (See Partnership for Policy Integrity, CO2 Emission Rates for Modern Power Plants (Sept. 2016) (Attachment 1 hereto).)

California's ability to attain the emissions reduction targets established in AB 32, SB 32, and Executive Orders S-3-05 and B-30-15.

II. California's Cap-and-Trade Program Allows for the Use of Offsets to Exceed the Amount of Targeted Reductions.

Like the current cap-and-trade regulation, the Proposed Amendments would allow offset credits to be used to satisfy up to 8 percent of the greenhouse gas compliance obligation of covered entities (i.e., regulated emission sources). As detailed in an analysis released last week by Lara Cushing, et al., offset credits worth more than 12 million tons CO_2eq were utilized to meet compliance obligations in the first compliance period.[5] These offsets represent 4.4 percent of the total compliance obligation of all regulated companies and over four times the targeted greenhouse gas reduction in 2013 to 2014.[6]

Seventy-six percent of the offset credits used to date were generated by out-of-state projects. Thus, rather than achieving reductions at the emissions sources, where California communities might benefit from reductions in associated co-pollutants, those reductions were produced via financial transfers from offset projects outside of California. Furthermore, for the 46% of offset credits that came from the destruction of ozone-depleting substances—primarily industrial refrigerants, previously captured and stored in containers—no co-benefits were felt at the actual project site outside of California, either.

III. California's Cap-and-Trade Program Adversely Affects Communities Facing Existing Pollution Burdens.

We share the serious concerns raised in the comments submitted by the Center on Race, Poverty and the Environment, et al., on the Proposed Amendments, regarding the ways in which cap-and-trade appears to be prolonging, and in some cases exacerbating, environmental burdens borne by low-income communities and people of color, and we include those comments by reference here.

According to the aforementioned report by Cushing, et al., which assessed the inequalities in the reductions of greenhouse gas emissions and associated particulate matter (PM_{10}) co-pollutants from sources covered under California's Cap-and-Trade program, "preliminary evidence suggests that in-state GHG emissions from regulated companies have increased on average for several industry sectors and that many emissions reductions associated with the program were linked to offset projects located outside of California."[7] Cushing *et al.*, also found that "large GHG emitters that might be of most public health concern were the most likely to use offset projects to meet their obligations under the cap-and-trade program."[8] Specifically, the report found that the first compliance period reporting data show that the cement, in-state electricity generation, oil and gas production or supplier, and hydrogen plant

[5] Lara J. Cushing, Lara J. Cushing, Madeline Wander, Rachel Morello-Frosch, Manuel Pastor4 Allen Zhu, and James Sadd, 2016, A Preliminary Environmental Equity Assessment of California's Cap and Trade Program, at 9. Available at http:// dornsife.usc.edu/PERE/enviro_equity_CA_cap_trade.
[6] *Id*. at 8.
[7] *Id*. at 10.
[8] *Id*. at 10.

sectors have increased greenhouse gas emissions in the 2013-2014 compliance period over the baseline period (2011-2012.

As mentioned in the Initial Statement of Reasons ("ISOR"), the Air Resources Board has yet to finalize and/or implement the Adaptive Management Plan that has been under development since 2011, and which may be able to identify potential public health issues such as those identified in Cushing *et al*.,. ISOR at 302. Furthermore, the long-awaited Adaptive Management Plan, as it has so far been represented, is narrowly constrained to look only at *increases* in emissions due to the implementation of California's Cap-and-Trade program and is deliberately designed *not* to identify scenarios in which California's Cap-and-Trade program results in the persistence of emissions or slower reductions in some communities and locations compared to others. These are serious problems that call for rejecting the Proposed Amendments to extend California's Cap-and-Trade program beyond 2020, and a .

IV. Linking With Ontario is Premature and Further Undermines In-State Reductions.

The Proposed Amendments propose to link California's Cap-and-Trade program with the new cap-and-trade program in Ontario, Canada, beginning January 2018. However, the government of Ontario has yet to publish offset protocols, or even to specify those sectors for which it intends to develop offset protocols in the foreseeable future. In June of this year, the government of Ontario indicated that it was considering offset protocols for agriculture, forestry, lands, and resource recovery sectors.[9]

As the Initial Statement of Reasons points out, Senate Bill 1018 (SB 1018; Chapter 39, Statutes of 2012) requires that the Governor of California make specific findings prior to linking the California Program with other jurisdictions. Among other things, the Governor must find that the linked program has adopted program requirements for greenhouse gas reductions (including, but not limited to, requirements for offsets) that are equivalent to or stricter than those required by AB 32.[10] While this is admittedly not a particularly daunting hurdle, the aforementioned sectors are all highly complex and problematic, and it has proven very difficult for California to develop offset protocols that would effectively provide high-quality offsets. Ontario's protocols would certainly need to be finalized with sufficient time for review not only by the Governor, but by the public and experts, before such credits could be incorporated and accepted into California's Cap-and-Trade program.

Even under the best scenario, in which Ontario is able to develop offset protocols that result in high-quality offsets, linking with Ontario and accepting those offsets credits means that California would be further exacerbating the problems of forgoing in-state direct reductions in exchange for out-of-state offset credits. Again, as indicated by the findings of Cushing, *et al*., , this is exactly the type of approach that risks prolonging and exacerbating environmental burdens borne by low-income communities and people of color here in California.

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[9] "Due to their ability to remove carbon from the atmosphere, Ontario's agriculture, forestry, lands, and resource recovery sectors will be able to supply carbon offsets to the cap and trade market, providing made-in-Ontario compliance options for emitters."
https://www.ontario.ca/page/climate-change-action-plan#section-11 June 2016

[10] ISOR at 17.

V. California Must Prioritize Direct Reductions

The California Legislature recently adopted, and Governor Brown has since signed, Senate Bill 32, legislation requiring California to reduce emissions 40 percent below 1990 levels by 2030. Stats.2016, ch. 249 (Sen. Bill 32), § 2 (Health & Saf. Code § 38566, eff. Jan. 1, 2017). However, that law is conspicuously silent on the role of the cap-and-trade regulation in achieving these increasingly steep reductions after 2020. Specifically, SB 32 did *not* identify cap-and-trade as a vehicle for attaining those goals. Moreover, Assembly Bill 197—companion legislation to Senate Bill 32, and also recently signed into law by Governor Brown—specifically requires the Air Resources Board to prioritize "direct emission reductions" in achieving reductions beyond the 2020 limit. Stats.2016, ch. 250 (Asm. Bill 197), § 5 (Health & Saf. Code § 38562.5, eff. Jan. 1, 2017).

The Proposed Amendments must be considered—and revised—in light of the specific direction and authority provided in SB 32 and AB 197. Specifically, the Proposed Amendments must be revised to prioritize direct emission reduction rather than increased reliance on out-of-state carbon offsets.

Conclusion.

The Center very strongly supports California's continuing commitment to statewide reductions in greenhouse gas emissions beyond 2020. Dramatically reducing anthropogenic greenhouse gas emissions is critical not just for stabilization of the global climate but for the integrity of the health, environment, and prosperity of California.

However, the concerns and problems enumerated above speak to the failure of California's Cap-and-Trade program to provide an adequate and equitable mechanism for achieving the necessary greenhouse gas reductions. Therefore, the Center must respectfully urge the Board to reject the Proposed Amendments to extend the existing Cap-and-Trade program beyond 2020, and to instead pursue alternative, non-cap-and-trade approaches to achieving California's greenhouse gas reductions.

Thank you for your consideration of these comments.

Sincerely,

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Attachment 1.

CO2 Emission Rates for Modern Power Plants (Sept. 2016)
Published by the Partnership for Policy Integrity.

CO_2 Emission Rates From Modern Power Plants	Lb CO_2/MMBtu	Facility efficiency	MMBtu /MWh	Lb CO_2/MWh	Biomass v. Tech
New gas combined cycle[a]	117	51%	6.7	**786**	385%
New subcritical coal steam turbine[b]	210	39%	8.7	**1,839**	165%
U.S. coal fleet avg, 2013[c]	210	33%	10.5	**2,198**	138%
New biomass steam turbine[d]	213	24%	14.2	**3,028**	

References:

CO_2 per MMBtu

a, b, c : from EIA at http://www.eia.gov/environment/emissions/co2_vol_mass.cfm. Value for coal is for "all types." Different types of coal emit slightly more or less.

d: Assumes HHV of 8,600 MMBtu/lb for bone dry wood (Biomass Energy Data Book v. 4; Oak Ridge National Laboratory, 2011. http://cta.ornl.gov/bedb.) and that wood is 50% carbon.

Efficiency

a: DOE National Energy Technology Laboratory: Natural Gas Combined Cycle Plant F-Class (http://www.netl.doe.gov/KMD/cds/disk50/NGCC%20Plant%20Case_FClass_051607.pdf)

b: International Energy Agency. Power Generation from Coal: Measuring and Reporting Efficiency Performance and CO_2 Emissions. https://www.iea.org/ciab/papers/power_generation_from_coal.pdf

c. EIA data show the averaged efficiency for the U.S. coal fleet in 2013 was 32.6% (http://www.eia.gov/electricity/annual/html/epa_08_01.html)

d: ORNL's Biomass Energy Data Book (http://cta.ornl.gov/bedb; page 83) states that actual efficiencies for biomass steam turbines are "in the low 20's"; PFPI's review of a number of air permits for recently proposed biopower plants reveals a common assumption of 24% efficiency.