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RE: Humboldt County Draft Climate Action Plan

Thank you for this opportunity to provide comment on the draft Humboldt County Climate Action Plan. As organizations whose missions include the preservation and protection of our environment, we believe that quick, coordinated action to reduce our greenhouse gas emissions locally is imperative to combat the effects of climate change and that local governments have a responsibility to adopt and implement policies to ensure this action. Although we support the concrete actions described in the draft CAP, we feel there are ways in which it can be strengthened, not only with more concrete actions, but also with a strong implementation plan which includes dedicated staffing. Please see our detailed suggestions below for each section of the draft CAP. We look forward to engaging further with this process as it progresses and hope to see a strong plan for how we can move into a more climate-friendly future in Humboldt County.

Section 1. Framework

- We suggest that the draft CAP reference the likely impacts from climate refugees when describing local climate impacts (pp.1-5 to 1-6).
- The comments on “Pavley” auto emissions standards are out of date (p.1-7).
- The justification for the CAP would be strengthened by quantifying some of the co-benefits, for example the lives saved from more active transportation and/or pollution reduction.
- Many of the measures in the draft CAP are hard-to-quantify things like “promote,” “participate,” “explore,” “coordinate,” etc. We suggest integrating measurable standards

to ensure accurate progress reports from jurisdictions, and to give them a clear pathway to implementing these measures.
- We encourage the addition of a quantitative equity impact assessment in the CAP.
- The draft CAP should be consistent with other regional planning documents, such as HCAOG's RTP and RCEA's RePower Plan/Comprehensive Action Plan for Energy (CAPE).

Section 2. Greenhouse Gas Emissions

- Although the article cited on p.2-7 claims that methane from cattle *may* not contribute to GHG emissions to the extent the GHG inventory shows, many of the article's claims fly in the face of hundreds of peer-reviewed studies in scientific journals, and its conclusions should be viewed skeptically. Furthermore, the article cited goes on to state that concrete changes to cattle operations, such as anaerobic digesters for manure piles and conversion to renewable energy, have led to up to 25% reductions in methane and other GHG emissions on dairies. The CAP should focus on implementing accepted science and strategies that have shown results, rather than glossing over the source of 12.6% of county emissions.

Section 4. Emission Reduction Measures

Zero Emission Vehicles

The target set for Zero Emission Vehicle (ZEV) infrastructure deployment in the draft CAP is not as ambitious as the target set in the Humboldt County Association of Governments' Regional Transportation Plan (RTP), which is set to be adopted prior to CAP adoption. The RTP calls for "electric vehicle charging stations serving, by 2025, at least 25% of public, and commercial, industrial, and multi-family residential private parking spaces that accommodate parking for more than 4 hours, and by 2050 serving 50% of such parking spaces." This target would likely translate into tens of thousands of charging stations by 2030, but the CAP calls for less than 2,500 chargers by that date (p.4-4). The CAP's targets should be adjusted to match the RTP's targets.

We are also concerned with the structure and content of non-electric alternative fuels measures included in the draft CAP. The call for an increase in renewable diesel as a "bridge fuel" (p.4-8 et seq.) is problematic. Natural gas was once widely seen as a "bridge fuel" in the transition away from coal and oil, but investment in natural gas infrastructure has proven rather to delay the ultimate transition than to hasten it. Similarly, investment in renewable diesel as a "bridge fuel" is more likely to prop up the existing infrastructure and activities dependent on fossil diesel than to ease the transition away from it. We request that this measure be removed from the CAP.

Additionally, the CAP's discussion of fuel cell-electric vehicles (FCEVs) fails to note that almost all hydrogen fuel is currently derived from fossil fuels (called "gray hydrogen"), and FCEVs using this fuel do not constitute an effective climate mitigation. The only climate-neutral hydrogen fuel is "green hydrogen," which is H2 produced from water by electrolysis using renewable electricity. However, green hydrogen is currently very expensive and not widely

available. To the extent the CAP includes measures promoting the adoption of FCEVs, it must include an implementation measure which requires jurisdictions to adopt ordinances committing to the purchase, production, or distribution of green hydrogen to fuel those vehicles. The option currently provided in the Appendix E Implementation and Monitoring Table to build fossil fuel-based hydrogen fueling infrastructure should be removed. Additionally, because of the uncertainty surrounding the future of green hydrogen price and availability, we suggest that the CAP not contain measures aimed at incentivizing general adoption of light-duty FCEVs, and instead focus FCEV measures only on use cases which do not allow adoption of EVs. Similarly, and also as a result of uncertainty regarding future economic and technological developments, we suggest that the bus fleet conversion targets (p.4-8) should not specify the technology of the new buses, only that they be ZEVs.

We also submit the following comments on other aspects of the draft CAP's ZEV measures:

- The draft CAP variously states the ZEV adoption target as 34% (p.4-3) and 31% (p.4-4). This discrepancy should be corrected.
- The draft CAP contains the important objective of incentivizing electrification of heavy duty fleets. One of the listed implementation measures for this measure is to "support HCAOG in its efforts to decarbonize Humboldt's goods movement system" (p.4-7). While we fully support HCAOG's decarbonization efforts, we also recognize that HCAOG has little experience or authority and few resources to regulate goods movement. Therefore, we question the idea that merely "supporting" HCAOG's efforts is a sufficient implementation measure.
- The CAP Consistency Checklist asks whether home charging infrastructure should be required for new developments. It should be.

Land Use

The target set for vehicle miles traveled (VMT) reduction in the draft CAP is not as ambitious as the target set in HCAOG's RTP, which is set to be adopted prior to CAP adoption. The RTP calls for a 25% reduction in per capita VMT by 2030. The draft CAP notes that the same target is found in the Redwood Coast Energy Authority's RePower Plan. But the draft CAP itself contains a VMT reduction target of only 12% by the same date. The CAP's target should be adjusted to match the RTP and RePower targets.

The draft CAP also focuses land use-related measures on zoning code reforms. While such reforms are critical, they are not sufficient. Decades of experience has shown that the real estate market does not by itself produce the kinds of development that best serve society. Therefore, jurisdictions must not only allow GHG-lowering development, they must also incentivize it. Just as the state holds jurisdictions accountable for producing a certain amount of new housing units, the CAP should hold jurisdictions accountable for reaching mixed use development benchmarks.

We are also concerned with the definitions of several terms used in the land use measures in the draft CAP. Specifically:

- The document suggests that jurisdictions may define any area as an “infill priority area” as long as it has water and sewer infrastructure (p.4-11). This is not a sufficiently rigorous criterion for infill. Many areas in Humboldt County are served by water and sewer infrastructure but not by adequate active transportation or transit options. We suggest using the RTP’s definition of “safe, comfortable and convenient travel” for urban areas, namely, that infill priority areas be defined as those areas where people can travel from home to work within 20 minutes, and from home to essential non-work destinations within 15 minutes, without using a private vehicle.
- The draft CAP refers to proximity to “existing bicycle, pedestrian or transit corridor” as an implementation measure to improve accessibility of new development (p.4-12), but does not define that term. We recommend using the same criterion of “safe, comfortable and convenient travel” for urban areas as noted above.

We also submit the following comments on other aspects of the draft CAP’s land use-related measures:

- Free transit passes for tenants should be included as an implementation measure under the “improve location and accessibility of new development” objective.
- Standards for new development which use a “project square mile” (p.4-12) as a yardstick are not helpful in Humboldt County, where few if any new projects will be large enough for such standards to apply. They should be modified to refer instead to the area that *includes* the project - that is, a certain radius around the project - not the area contained within the project itself.
- Regarding the “include bicycle accommodations” objective (p.4-12):
    - Class IV bikeways should be included as an implementation option along with Classes I and II.
    - The usefulness of long-term bike parking depends on it being secure, adaptable to various kinds of bicycles, and weather-protected. These criteria must be spelled out in the requirement for providing bike parking.
    - Bike parking requirements should be linked to the number of housing units in a new development, not a percentage of required vehicle parking spaces. Elsewhere in the draft CAP, implementation measures call for removing vehicular parking requirements, so tying bike parking to vehicle parking will not serve the intended aim.
- The CAP Consistency Checklist specifies that a project may either provide on-site pedestrian facilities which connect to off-site facilities or provide active transportation facilities and traffic calming features on all streets. These are not interchangeable features, and we strongly urge the checklist to require *both* rather than provide an option.
- Likewise, the Checklist allows for either proximity to Class I or II bike lanes, inclusion of one mile of bike lanes, or access to bike parking. Encouraging cycling without providing access to parking is inconsistent. Access to bicycle parking should be included with the other options, not considered separately.

Active Transportation
As noted above, the target for expansion of bikeways should include Class IV as well as Classes I and II (p.4-14). Additionally, the CAP should include basic guidelines as to where they each should be applied. This is critical because, for example, Class II bike lanes on a busy street do not provide enough comfort and safety to encourage many new riders. Decisions about where to deploy each type of bike facility should be based on bicycle network analyses that examine levels of traffic stress and identify high-stress corridors and crossings that act as obstacles to bicycle transportation.

We also note that while the draft CAP calls for jurisdictions to "explore the development of local bike-share services" (p.4-16), there is already an active bike-share system in the City of Arcata and a scooter-share system in the City of Fortuna. We suggest that these implementation measures focus on expanding existing successful systems, and coordinating a single system between jurisdictions to the extent feasible to maximize the utility of the system.

We support the inclusion of an objective calling for the promotion of e-bikes (p.4-16), but we are concerned that there are no implementation measures listed for this objective. Implementation measures are suggested in the discussion paragraph, but for clarity's sake, we suggest that they be listed as such explicitly.

Finally, we strongly support the creation and improvement of pedestrian networks, as discussed on p.4-15 of the draft CAP. However, we note that pedestrian barriers include more than just fences and walls. In fact, the most important pedestrian barriers in most places are busy streets without adequate pedestrian facilities.

Vehicle Parking
The CAP's target of a 25% increase in parking price is difficult to apply uniformly. In particular, most parking in the county, even in downtown areas, is currently free, so it is unclear what a 25% increase in price would mean. Rather than specifying a price increase, we suggest implementing dynamic pricing systems which change parking prices over time based on observed demand. Current best practice is to set prices at a level which ensures that 1-2 parking spaces per block (for on-street parking) are available at any given time, which maximizes parking revenues while minimizing "cruising for parking." We suggest a target of implementing dynamic pricing systems for parking in 100% of downtowns and other high-demand parking areas by 2030.

Charging for parking which is currently provided for free on public streets and lots is not only an important GHG reduction measure, but also a potentially important source of revenue for funding other such measures (p.4-23). While the draft CAP makes this connection in a general sense, we suggest that parking fees be identified more clearly as a potential revenue source in the CAP's implementation chapter and in the Funding Matrix in Appendix E.

We also suggest the following additional implementation measures related to parking:

- A key implementation measure for car-share programs (p.4-16) is dedicating desirable public parking spaces for car-share vehicles only.
- Additional objectives and implementation measures should be included under the strategy of "Parking Management" (p.4-12), including requiring the "unbundling" of parking costs from rents in multifamily residential developments, as well as jurisdictions providing free transit passes instead of free parking for their own employees.

Public Transit

The draft CAP appropriately acknowledges that reduced headways are extremely important to increasing transit ridership (p.4-20). However, the target of reducing headways by 15% on 50% of routes is insufficient. Most current routes have headways of 1 hour or more, with the busiest corridor having headways of 30 minutes at some times of day. A 15% reduction of an hour headway is only 9 minutes, and it's less than 5 minutes for a 30 minute headway. Those changes will hardly be noticed. We suggest a target of reducing headways by at least 50% on all routes.

The draft CAP's target for free transit passes provided to employees of large employers is 4,170 (p.4-18). This target is not ambitious enough. The jurisdictions alone could likely meet this target simply by offering free passes to their own employees.

We also suggest that the CAP include a brief discussion of the potential for on-demand service to replace lost fixed-route service as bus routes are streamlined (p.4-20, 4-22).

Finally, we note that some relatively low-ridership transit routes may find that going fare-free does not actually require funding, but in fact saves enough in operating costs that the net financial impact is positive. This is a relatively common phenomenon in rural transit systems.[1] We suggest that the CAP note this fact in its discussion (p.4-21).

Other Transportation and Land Use Comments

- The draft CAP suggests using traffic signalization changes to encourage active and public transportation, but does not quantify a target (p.4-13). We suggest that the CAP adopt a target that 50% of signalized intersections within a given jurisdiction be prioritized for these modes by 2030.
- The draft CAP notes the importance of traffic calming and complete streets, but the implementation actions suggest that competitive grants are the only potential source of funding for such projects (pp.4-15), 4-16. In fact, many of the non-competitive funding sources that jurisdictions currently use for other transportation-related projects can also be used for traffic calming and complete streets projects. It is now considered a best practice to incorporate traffic calming and complete streets features into all routine road maintenance, repaving and repair projects, as feasible. The CAP should include adoption of such a policy by jurisdictions as an implementation measure.

[1] Transportation Research Board. "TCRP Synthesis 101: Implementation and Outcomes of Fare-Free Transit Systems." 2012.

Electrification and Efficiency

- Although a "sustainable energy fair" is not inconsistent with the CAP (p.4-29), as an implementation measure in and of itself, it is not adequate and will only reach those who are already on board with the concept. These efforts will need sustained and overwhelming public outreach, along with an expansion of the capacity of existing RCEA/RCAA programs.
- The draft CAP consistency checklist section 6.4.3 allows jurisdictions to choose whether to exceed Title 24 energy efficiency requirements. We recommend that exceeding these requirements should be required rather than optional.
- Electrifying buildings and much of the transportation sector is a key strategy of the draft CAP that we support.
- Fuel switching from natural gas, propane, and wood burning stoves to renewable electricity for space and water heating will require much greater amounts of electrical power to flow through PG&E's local distribution lines. We question whether the local grid will be able to handle a substantially larger load. To what extent can we rely on PG&E to upgrade the system as needed to accommodate many new loads, as for example the EV charger stations? We're unsure whether this was analyzed when the CAP was under development.
- We support the Section 4.5 energy efficiency measures.
- On page 4-25: "Once RCEA's Community Choice Energy program reaches 100% clean and renewable electricity in 2025, emissions from electrical appliances can effectively equal zero" should have two qualifications: a) to the extent that biomass is part of the energy mix or RCEA falls short in its wind, solar and storage goals, there will still be warming emissions associated with electrical appliances. b) More fundamentally, it is only possible to say electricity is "carbon free" if the emissions accounting is on an hourly basis. The fact that RCEA may purchase enough clean, renewable energy over a year to match consumption does not ensure that the energy in any given hour of appliance use is clean and renewable.[2]

Grid Decarbonization

- We suggest that the draft CAP address the need to change electric rate structures to encourage EV charging at times of day with cleaner electricity
- We support the development of additional local solar microgrids and batteries, like Blue Lake Rancheria and the Humboldt County Airport. Solar developments over parking lots or commercial buildings could fit into this approach.[3]

Waste Management

- We recommend that this section be titled Sustainable Materials Management rather than Waste Management.
- Waste management plans for construction and demolition (p 4-43) need to be accompanied by verification requirements.

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[2] https://www.volts.wtf/p/an-introduction-to-energys-hottest

[3] https://denvergazette.com/news/environment/denver-committee-oks-26-million-25-year-contract-for-solar-energy-projects/article_5e236f22-4262-11ec-8054-d3eded07fcea.html

- We recommend that the draft CAP require a transition from the wasteful practices of demolition to Deconstruction requirements, such as the City of Palo Alto has, which requires taking buildings apart in such a manner that materials can be reused rather than put in a landfill. Local governments should require verification of deconstruction, and provide justification when deconstruction methods are not used. This not only diverts waste from landfills, but can supply local used building materials centers with the good materials from deconstruction.[4]
- The CAP consistency checklist doesn't say whether the construction waste diversion measure is required or not. It should be required.
- We urge inclusion of investing in infrastructure for waste prevention and materials reuse to support returnable, washable,refillable beverage systems (plumbing, commercial dishwashing, water bottle refill stations, sanitizing equipment, storage of valuable materials for reuse) as part of the draft CAP.
- While exploring residential compost programs (p. 4-42) is important, we recommend that the draft CAP also include food waste prevention and edible food recovery both for people and for farms as measures to reduce the methane produced in landfills.

Section 5. Carbon Sequestration in Forests, Agricultural Lands, and Wetlands

- The draft CAP says that conversion of forestland is not a big issue in Humboldt because of new focus on infill development (p.5-4). This is inconsistent with the reality of the amount of forested land that is zoned for development, especially in the unincorporated parts of the county.
- The draft CAP says that "Growth can be increased and maintained by active forest management" (p.5-4). Continuing to harvest timber from our forests at current rates is irreconcilable with California's climate goals. Timber harvesting is the largest emitter of CO2 of any natural or human-caused forest disturbance type.[5] Timber harvests require the burning of fossil fuels while simultaneously reducing the capacity for forests to sequester carbon.[6] In this way, they are a lose-lose action with regards to protecting the climate. Limiting timber harvesting and increasing forest protection on public lands is the best approach to increasing forest carbon uptake.[7] When not disturbed by timber harvest, our forests naturally sequester tremendous amounts of carbon. In fact, increasing forest protection is the lowest cost and the single most effective tool we have in meeting emission reduction targets.[8]

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[4] https://www.cityofpaloalto.org/Departments/Public-Works/Zero-Waste/Zero-Waste-Requirements-Guidelines/Deconstruction-Construction-Materials-Management#section-2

[5] Harris, N. L., et al. "Attribution of net carbon change by disturbance type across forest lands of the conterminous United States." *Carbon balance and management* 11.1 (2016): 1-21.

[6] Hudiburg, Tara W., et al. "Meeting GHG reduction targets requires accounting for all forest sector emissions." *Environmental Research Letters* 14.9 (2019): 095005.

[7] Law, Beverly E., et al. "Land use strategies to mitigate climate change in carbon dense temperate forests." *Proceedings of the National Academy of Sciences* 115.14 (2018): 3663-3668.

[8] Moomaw, William R., Susan A. Masino, and Edward K. Faison. "Intact forests in the United States: Proforestation mitigates climate change and serves the greatest good." *Frontiers in Forests and Global Change* 2 (2019): 27.

- The draft CAP states “the extent of high-severity wildfires over the last decade have reversed much of California’s emission goals” but then immediately says “Wildfire generally kills trees but does not consume them.” (p.5-5) These two statements indicate a misunderstanding of the exact nature between wildfire and carbon emissions. It is true that in recent years wildfire has become a significant source of carbon emissions from California’s Natural and Working lands. One talking point that has been raised by the timber industry is that this is the result of decreased logging activities. The argument goes that if the timber industry were permitted to extract more timber from our forests then there would be less fuel to burn and the forest fires would be less intense. This argument is not borne out by the best available evidence.
    - First off, it's important to remember that most of the carbon in a forest remains after a wildfire.[9] In fact, total annual emissions from wildfires over entire regions are generally much less (~10% in active fire seasons) than total annual emissions from logging in the same region.[10] This is because during a fire only a small portion of a trees’ biomass (mainly twigs and leaves) is actually combusted. Moreover, about half the carbon in burned forests remains within soils for nearly a century, and the rest of the soil carbon builds over millennia.[11] If allowed to do so, growth of surviving trees and new vegetation sequester carbon will typically offset emissions within about 5-50 years.[12]
    - Second, it must be stressed that timber harvesting actually increases wildfire intensity. In recent years, across the entire western U.S., fires burned with less intensity on lands that had the highest protections from logging.[13] Bradley et al. 2016, a comprehensive study of forest lands including over 1500 fires and 9.5 million hectares of land, concluded that “Forests with higher levels of protection [less logging] had lower severity values even though they are generally identified as having the highest overall levels of biomass and fuel loading. Our results suggest a need to reconsider current overly simplistic assumptions about the relationship between forest protection and fire severity in fire management

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[9] Campbell, John, et al. "Pyrogenic carbon emission from a large wildfire in Oregon, United States." *Journal of Geophysical Research: Biogeosciences* 112.G4 (2007); Meigs, Garrett W., et al. "Forest fire impacts on carbon uptake, storage, and emission: the role of burn severity in the Eastern Cascades, Oregon." *Ecosystems* 12.8 (2009): 1246-1267; Mitchell, Stephen. "Carbon Dynamics of Mixed-and High-severity Wildfires: Pyrogenic CO2 Emissions, Postfire Carbon Balance, and Succession." *The Ecological Importance of Mixed-Severity Fires*. Elsevier, 2015. 290-309.

[10] Campbell J, Harmon ME, Mitchell SR. 2012. Can fuel-reduction treatments really increase forest carbon storage in the western US by reducing future fire emissions? *Frontiers in Ecology and Environment* 10: 83- 90

[11] Singh NS, et al. 2012. Fire-derived organic carbon in soil turns over on a century scale. *Biogeosciences* 9:2847-2857.

[12] Meigs GW, Donato DC, Campbell J, Martin J, Law BE. 2009. Forest fire impacts on carbon uptake, storage, and emission: The role of burn severity in the Eastern Cascades, Oregon. *Ecosystems* 12:1246–1267

[13] Bradley, Curtis M., Chad T. Hanson, and Dominick A. DellaSala. "Does increased forest protection correspond to higher fire severity in frequent-fire forests of the western United States?." *Ecosphere* 7.10 (2016): e01492.

and policy."[14] Logging intensity is the second most important factor for predicting wildfire intensity with more aggressive logging correlated with higher wildfire intensity.[15] Even selective logging thins the canopy and stand allowing for greater in-canopy and in-stand wind speeds that fuel higher intensity fires.[16] Cruz et al. (2014) also found that thinning in all scenarios increased fireline intensity and in the most likely scenario also increased in-stand wind speeds and the associated crowning potential of the fire.[17] In a retrospective post-fire study of three management types, uncut (no treatment of natural fuels) and partial-cut stands (treated and untreated slash), the uncut forest had the least fire damage while the region's partial-cut stands with the untreated slash suffered the most severe damage.[18] The 1996 Sierra Nevada Ecosystem Project Report, commissioned by Congress, concluded: "Timber harvest, through its effects on forest structure, local microclimate, and fuel accumulation, has increased fire severity more than any other recent human activity."[19]

- Some have argued that we should increase timber harvest in order to reduce wildfire emissions and thereby reduce carbon emissions. This would be a terrible mistake. Campbell et al. (2012) determined that thinning forests to avoid high-severity fire would reduce stored forest carbon and increase overall carbon emissions.[20] Because the chance of a fire burning on any given acre of forest is low, forest managers must treat many more acres than will ever actually burn. This causes thinning to end up removing more stored carbon than would be released by fire in most years. The study concluded that "we found little credible evidence that such efforts [fuel reduction treatments] have the added benefit of increasing terrestrial C stocks" and "more often, treatment would result in a reduction in C stocks over space and time." Chiono et al. (2017) analyzed the carbon balance of thinning and prescribed fire treatment scenarios in the Sierra Nevada compared to a no treatment scenario.[21] In all of the fuel treatment scenarios they analyzed "treatment related emissions exceeded the avoided wildfire emissions conferred by treatment." Their study concluded "[d]ue to the

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[14] Bradley, Curtis M., Chad T. Hanson, and Dominick A. DellaSala. "Does increased forest protection correspond to higher fire severity in frequent-fire forests of the western United States?." *Ecosphere* 7.10 (2016): e01492.
[15] Zald, Harold SJ, and Christopher J. Dunn. "Severe fire weather and intensive forest management increase fire severity in a multi-ownership landscape." *Ecological Applications* 28.4 (2018): 1068-1080.
[16] Banerjee, Tirtha. "Impacts of forest thinning on wildland fire behavior." *Forests* 11.9 (2020): 918.
[17] Cruz, Miguel G., Martin E. Alexander, and Jelmer E. Dam. "Using modeled surface and crown fire behavior characteristics to evaluate fuel treatment effectiveness: a caution." *Forest Science* 60.5 (2014): 1000-1004.
[18] Weatherspoon, C. Phillip, and Carl N. Skinner. "An assessment of factors associated with damage to tree crowns from the 1987 wildfires in northern California." *Forest Science* 41.3 (1995): 430-451.
[19] Erman, Don C. *Status of the Sierra Nevada: Sierra Nevada Ecosystem Project*. Centers For Water & Wildland Resources, University of California, 1996.
[20] Campbell, John L., Mark E. Harmon, and Stephen R. Mitchell. "Can fuel-reduction treatments really increase forest carbon storage in the western US by reducing future fire emissions?." *Frontiers in Ecology and the Environment* 10.2 (2012): 83-90.
[21] Chiono, Lindsay A., et al. "Landscape-scale fuel treatment and wildfire impacts on carbon stocks and fire hazard in California spotted owl habitat." *Ecosphere* 8.1 (2017): e01648.

significant emissions associated with treatment and the low likelihood that wildfire will encounter a given treatment area, forest management that is narrowly focused on C accounting alone would favor the no-treatment scenarios."[22]

- Simmonds et al. (2021) recently found that California's fuel-reduction plans (understory treatment, prescribed burning, thinning) actually produced 29.1 and 25.5 times more carbon emissions than they prevented for Scenarios A and B, respectively.[23] They found that the activity that had the greatest benefit in reducing carbon emissions was forest protection and the associated enhanced ecosystem carbon uptake.[24]

- The Draft CAP states that "[r]oughly half of the harvested tree carbon is lost to the atmosphere in harvests via manufacturing and slash disposal, and about half is conserved in forest products." (5-7) Full life cycle analyses of wood products reveal that their creation is far more carbon intensive and costly to the climate than is often portrayed.[25] After accounting for the carbon emitted during logging, milling, and transportation on average only 15.2% of the net carbon from a live tree is stored in a final wood product.[26] The graph below, which is based on data from two separate case studies of the life cycle of carbon in harvested trees, illustrates where and how carbon is emitted to the atmosphere after a tree is harvested.

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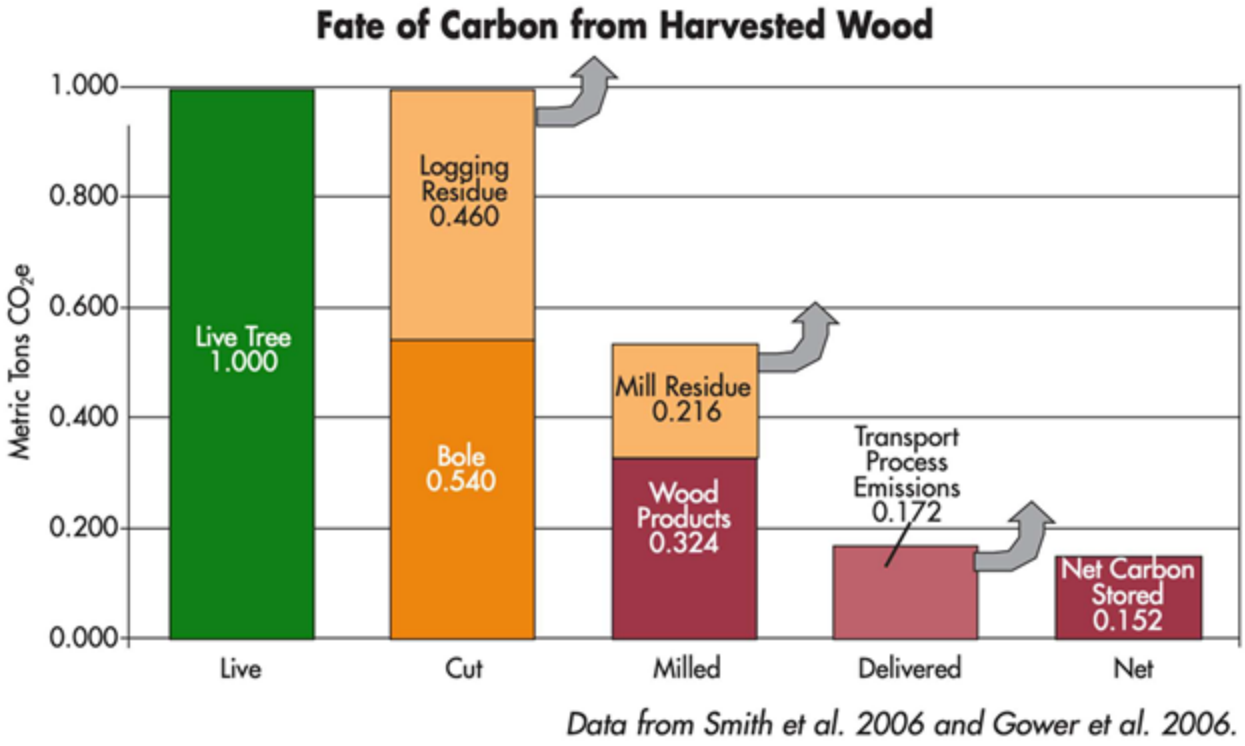
[22] Chiono, Lindsay A., et al. "Landscape-scale fuel treatment and wildfire impacts on carbon stocks and fire hazard in California spotted owl habitat." *Ecosphere* 8.1 (2017): e01648.

[23] Simmonds, Maegen B., et al. "Impacts of California's climate-relevant land use policy scenarios on terrestrial carbon emissions (CO2 and CH4) and wildfire risk." *Environmental Research Letters* 16.1 (2021): 014044.

[24] Simmonds, Maegen B., et al. "Impacts of California's climate-relevant land use policy scenarios on terrestrial carbon emissions (CO2 and CH4) and wildfire risk." *Environmental Research Letters* 16.1 (2021): 014044.

[25] Ingerson, Ann. "Carbon storage potential of harvested wood: summary and policy implications." *Mitigation and Adaptation Strategies for Global Change* 16.3 (2011): 307-323;

[26] Gower, Stith T., et al. *Following the paper trail: The Impact of magazine and dimensional lumber production on greenhouse gas Emissions: a case study*. H. John Heinz III Center for Science, Economics and the Environment, 2006; Smith JE, Heath LS, Skog KE, Birdsey RA (2006) Methods for calculating forest ecosystem and harvested carbon with standard estimates for forest types of the United States. Gen. Tech. Rep. NE-343. US Department of Agriculture, Forest Service, Northeastern Research Station, Newtown Square, PA



- The CAP also states “Some forest products, such as tissue paper, are ephemeral, but most harvested timber is used for lumber, which typically has a long life and stores carbon for decades to more than a century.” (5-7) This statement reveals the inadequate nature of storing carbon in wood products. A comprehensive study found that the average lifespan of an American home (and thus also the carbon stored within its lumber) is 70-100 years.[27] That time frame is a fraction of the sequestration potential of old-growth forests, particularly our county’s redwoods that if left growing can live, store, and sequester carbon for millennia.[28] By “storing” carbon in wood products we are actually dramatically shortening the amount of time before that carbon enters the atmosphere.
- Moreover, the carbon emissions associated with the timber harvest and processing (emissions resulting from cutting, yarding, slash burning, transport, milling, manufacturing, and distribution to the marketplace) are immediately returned to the atmosphere.[29] California’s climate goals necessitate a reduction in emissions in the near term, but timber harvesting directly contradicts that goal.
- That is why scientists have begun calling for transforming our planet’s forests into carbon reserves, unmanaged forests whose primary purpose is fighting climate

[27] O’Connor, Jennifer. "Survey on Actual Service Lives for North American Buildings (PDF), September 2004." *Woodframe Housing Durability and Disaster Issues Conference*. 2006.
[28] Sillett, Stephen C., et al. "Aboveground biomass dynamics and growth efficiency of Sequoia sempervirens forests." *Forest Ecology and Management* 458 (2020): 117740.
[29] Harmon, Mark E., et al. "Modeling carbon stores in Oregon and Washington forest products: 1900–1992." *Climatic change* 33.4 (1996): 521-550.

change.[30] Leaving forests intact and unlogged allows them to store the greatest amount of carbon possible.[31] As the climate action plan already discusses (5-9), Humboldt is uniquely suited as a location for these carbon reserves. These carbon reserves should contain large, old trees which store disproportionally large amounts of carbon compared to younger, smaller trees.[32] Research has found that, “Over time old-growth forests store approximately twice as much carbon as forests managed on a 100-year rotation, and forests managed on a 50-year rotation store about 38% as much as old growth”.[33] Studies show that trees continue to grow and absorb carbon throughout their lives.[34] In other words, the longer a forest goes without being logged, the better it is at sequestering and storing carbon. At the same time, logging causes an immediate carbon release followed by decreased sequestration potential over time.[35] Due to the crucial importance of mitigating climate change, transforming our forests into carbon reserves would provide more benefit for the people of California than industrial timberlands ever could. So, we wholeheartedly endorse the goal of creating more carbon reserves within Humboldt County. (5-18)

- California’s Cap and Trade system has design flaws that have limited the effectiveness of offsets for reducing emissions. These are widely acknowledged and should not be ignored in the CAP.[36]]

Section 6. Implementation commitments:

The measures set forth in the CAP require major changes in the technologies we rely on, and in a short time period. One challenge is to ensure the adequacy of the human resources needed to implement the CAP. An ambitious rate of solar installations and electrifying buildings will require many more electricians, solar installers, and general building trades professionals than Humboldt County currently supports. The switch from HFCs to natural refrigerants will require new technicians. This may require additional training opportunities through College of the Redwoods and the future “California Polytechnic University - Humboldt.”

In the public sector we’ll face a similar challenge. Electrifying buildings and installing PV solar and EV charging stations will require changes in building codes to guarantee electrification at

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[30] Kun, Zoltán, et al. "Recognizing the importance of unmanaged forests to mitigate climate change." *GCB Bioenergy* 12.12 (2020): 1034-1035.
[31] Moomaw, William R., Susan A. Masino, and Edward K. Faison. "Intact forests in the United States: Proforestation mitigates climate change and serves the greatest good." *Frontiers in Forests and Global Change* 2 (2019): 27.
[32] Mildrexler, David J., et al. "Large Trees Dominate Carbon Storage in Forests East of the Cascade Crest in the United States Pacific Northwest." *Frontiers in Forests and Global Change* 3 (2020): 127.
[33] Harmon, Mark E., William K. Ferrell, and Jerry F. Franklin. "Effects on carbon storage of conversion of old-growth forests to young forests." *Science* 247.4943 (1990): 699-702.
[34] Stephenson, Nathan L., et al. "Rate of tree carbon accumulation increases continuously with tree size." Nature 507.7490 (2014): 90-93;
[35] Battles, J. J., et al. "California forest and rangeland greenhouse gas inventory development." *State of California Air Resources Board. Sacramento, CA* (2013).
[36] Cullenward, Danny, and David G. Victor. *Making climate policy work*. John Wiley & Sons, 2020

time of turnover or at issuance of a permit for unrelated work. Building codes are often unpopular among homeowners, and changes that may require increased upfront costs, even for a vital purpose, can be especially unpopular. This will challenge the city and county building inspectors who will be at the front lines of implementing changes. We'll need more building department employees, and additional training for them in the need and rationale for electrification.

Section 6.1 states "Cities and the County will also need to commit staff hours and other resources toward implementation, outreach, securing outside funding, monitoring, reporting, adaptive management, and CAP updates." The expectation that local municipalities which are often struggling to fund services will be able to commit staff time to this is unrealistic. Likewise, expecting one person (the CAP Coordinator) to find funding sources and track, facilitate and administer those funds, in addition to facilitating public outreach, assisting cities in implementing plans and monitoring progress (p.6-2 et seq.) is setting that person, and this plan, up for failure. In order for the CAP to be successfully funded, implemented and monitored, the CAP Coordinator will need dedicated staff. It is also unclear from this report which agency will be hiring the CAP Coordinator, but this is a job for more than one person at more than one agency. The CAP Coordinator and/or their Department need to have the influence and power to move projects along rather than just encouraging and assisting.

These public sector staffing needs will require a rigorous dedication on the part of the county and its cities to guarantee the human resources needed for the CAP.

We offer these additional comments on Implementation:

- The equity stakeholder group (p.6-4) should be formed in collaboration with existing organizations that have relationships with low-income communities and communities of color to increase the likelihood of active participation by, and gain an accurate picture of the benefits and impacts to, these groups. This early engagement can lead to projects that are not tailored to privileged socio-economic groups. The promise of providing compensation to members of the equity stakeholder group is important and can lead to more consistent engagement.
- Funding (p.6-2, p.6-4): Consider parking revenues, energy projects, and other measures that actually create revenues to help pay for the rest. With the input of the equity stakeholder group, work to ensure that these do not disproportionately affect low-income communities and communities of color.
- It's not clear from the Implementation and Monitoring matrix how exactly each individual jurisdiction is going to implement the CAP. According to the matrix, of the provided options that are categorized, 64 are low effort, 58 are medium effort, and 10 are high effort. Referenced with table 5 which estimates staff level needed for each measure, this means 64 measures will require 40 hours or less of staff time, 58 will require between 40 and 160 hours of staff time, and 10 will require 160 hours or more of staff time. This again points to the necessity of having dedicated staff for the CAP Coordinator to help find funding, do the necessary public outreach, and work with

jurisdictional staff to implement these measures. Relying on municipalities to devote this staff time is unrealistic.

- RCEA will develop emissions inventories every 5 years following CAP adoption (p.2-1, p.6-6); on p.6-6, they say this will be done by CAP coordinator. Again, the CAP Coordinator must be provided with enough staff support to deliver on this requirement.
- We strongly urge that the draft CAP explicitly commit jurisdictions to the preparation of an annual progress report (p.6-6) and that jurisdictions include measurement criteria with each proposed strategy and action.
- Implementation & Monitoring Table (Appendix E) contains a lot of blank spaces for the jurisdictions' targets/commitments, including for measures pertaining to home EV charging infrastructure, traffic calming, pedestrian network improvements, bike parking, commute trip reduction measures, bikeshare programs, reduction in transit headways, transit passes subsidized in new homes, and parking fees and time limits. Therefore, it appears as if the jurisdictions are not committing to implement any of these measures. However, they do appear to be included in the GHG reduction quantification in Appendix A. Are the jurisdictions committing to these or not?
- Why are the jurisdictions' commitments to decarbonize their own buildings listed as "unquantified" in Appendix E? It seems this impact would be easy to quantify. Similarly, why does the section on Reduced Emissions from Municipal Operations in Appendix E remain blank?
- The Implementation & Monitoring Roles Summary Table (Appendix E) lists the local jurisdictions' roles for measures related to ZEVs, transportation mode shift, and electrification as "continue" to do what they've been doing. Most jurisdictions have done little to implement these measures so far, and none have done enough that just "continuing" is an option. The role should be changed to "expand" to reflect the need to increase efforts and direct more resources to these measures.

In conclusion, although the draft CAP contains many concrete actions that we support, we feel the document can be strengthened through the inclusion of the above recommendations and a more robust plan for implementation. We would like to see this Climate Action Plan succeed and in order for it to do so, there must be a strong implementation plan and dedicated staffing. Thank you for your consideration of our comments. We look forward to engaging with the process as it unfolds.

Sincerely,

Redwood Coalition for Climate and Environmental Responsibility (RCCER)
350 Humboldt
Coalition for Responsible Transportation Priorities (CRTP)
Environmental Protection Information Center (EPIC)
Northcoast Environmental Center (NEC)