

Environmental Justice Advisory Committee
2022 Scoping Plan Recommendations
September 30, 2022

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California Air Resources Board

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cc: CARB Chair Liane Randolph and CARB Board Members

There is a Better Way: A Path to Real Zero

As we prepared to write this letter in advance of the September 1 joint meeting between the California Air Resources Board (CARB) and the Environmental Justice Advisory Committee (EJAC), deals were being struck in the legislature and with the Governor's office on environmental laws that will seal the fate of Californians for decades and potentially generations to come. We are still emerging from the COVID-19 pandemic and other global turmoil, including catastrophic climate impacts; people are struggling for survival. Yet California has an embarrassing abundance of natural resources, as well as social, and economic riches. How will we invest this wealth? Will we continue to concentrate it among the powerful elite, or will we realign our resources to prioritize communities that have been disinvested in and discriminated against? How we answer this question informs the assumed investments and transformations to meet our climate goals. Whatever details are decided, CARB will continue to have a leading role in developing and implementing climate policies and programs.

Environmental justice communities have been waiting for more than 15 years to reap the social, health, and environmental benefits of Assembly Bill 32. While some may point to the fact that California "met" its 2020 greenhouse gas (GHG) reduction target as progress," air pollution and the human-caused climate crisis continue to inflict disproportionate harm on Black people, Indigenous people, people of color, and low income communities. All agencies with a role in cleaning and protecting our air have an obligation to focus regulatory attention on the communities that historically have borne the greatest burdens from pollution, patriarchy, and racism, and who continue to do so today.¹ No one recognizes the urgency of our climate crisis more than frontline community residents and environmental justice advocates. **The climate and health emergency must be met by bold action that focuses our efforts on direct emission reductions. We call on the CARB staff and Board to be bold with us and chart a path to reach real zero emissions in the Scoping Plan.**

¹ National Association of Clean Air Agencies. "Improving Our Nation's Clean Air Program: Recommendations from the National Association of Clean Air Agencies to President-Elect Biden's and Vice President-Elect Harris' Administration." January 15, 2021.

EJAC Recommendations

In 2008, then EJAC chair Angela Johnson Meszaros stated that there is a better way to reach emissions reductions. Here we are again with the same message. Aligning with the mission and climate goals of AB 32, these EJAC recommendations offer a better path to reaching emissions reductions in multiple sectors. This path focuses on **direct emission reductions** and includes **all climate emission sources** (e.g., Pesticides) that have previously been ignored or simply not included in the discussion of how we address climate change. We are in a critical moment as a society—one that experts and policy makers have clearly described as a climate and health emergency—with communities suffering climate fueled impacts, from the floods in Pakistan to the current heat wave across our state.

We recognize that our great state faces an even more insidious imminent threat: environmental racism. This moment requires brave, ambitious action and a commitment to do the hard work of centering equity and justice. This path moves us away from notions like “net zero” and carbon negative and moves us proactively toward a sustainable, transformative future that is only achievable with actual “real zero” direct emissions reductions.

These recommendations represent the deep need in our communities to breathe clean air and have access to safe, healthy environments. We call on CARB to invest in an equitable and just transition now, and to refocus the Scoping Plan on meeting real zero targets. Our recommendations focus on substantive measures to reduce emissions, and speak to our equity and health concerns related to CARB’s modeling approach, which neither factors in the full social costs of carbon, nor takes into consideration a life cycle assessment of the technologies presented in its plan.

We call on CARB to collaborate with the EJAC on a holistic approach to addressing the myriad systemic problems EJ communities face in fighting, and as a result of, addressing the climate crisis. CARB must use its authority to convene key state agencies and community stakeholders to help implement an equitable and just transition. CARB cannot and should not attempt to tread this path alone and must break through silos to work collaboratively across divisions within the agency.

The scenarios presented to the EJAC by CARB staff thus far do not include justice-based approaches to protecting the most burdened communities. **The EJAC’s recommendations provide tangible and concrete strategies for the state to achieve a total state greenhouse gas emissions reduction of 83.3% (not including the industrial sector) through immediate direct emissions reductions at the sources of pollution.**² As the recent Working Group II contribution to the IPCC Sixth Assessment Report³ makes clear, there is no time for delay.

² Letter to CARB & EJAC dated February 25, 2022 “RE: Environmental Justice Recommendations and Framework for CARB Scoping Plan.” <https://ww2.arb.ca.gov/sites/default/files/2022-02/Letter%20to%20EJAC%20re%20framework%20%26%20substance%20for%20SP%20reccs%20to%20CARB%20-%2025%2022.pdf>

³ IPCC, 2022: *Climate Change 2022: Impacts, Adaptation, and Vulnerability*. Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [H.-O. Pörtner, D.C. Roberts, M. Tignor, E.S. Poloczanska, K. Mintenbeck, A. Alegría, M. Craig, S. Langsdorf, S. Löschke, V. Möller, A. Okem, B. Rama (eds.)]. Cambridge University Press. In Press. <https://www.ipcc.ch/report/ar6/wg2/>

The EJAC takes issue with the fundamental approach of this Scoping Plan, given its reliance on economic modeling at the expense of adequately incorporating health and equity concerns. Relying on modeling fails to evaluate or build on CARB's own past experiences and EJAC recommendations from prior Scoping Plan revisions. Instead, CARB has treated each Scoping Plan modeling exercise as a new technical exercise, and regardless of outcomes, continues to put the interests of the fossil-fuel industry and industrialized agribusiness over the needs of communities and workers for healthy communities and high road jobs. The environmental justice movement has long worked to build a "regenerative economy" that seeks to undo the harm done by the current "extractive economy."⁴ Safe, sustainable communities and an economy that works for working class people and people of color will require visionary and bold leadership that is beyond the scope of the current modeling tools. The EJAC is offering CARB a path for incorporating the principles of a Just Transition and a regenerative economy into its modeling.⁵

Because of the limited timeline CARB provided for this process, the EJAC has approved the recommendations below with many caveats: there is an ongoing need (1) to conduct thorough community engagement and consultation; (2) to provide further opportunities for discussion between EJAC members, the board, and staff across CARB divisions; and (3) to provide adequate opportunity for meaningful Tribal and Indigenous engagement, and thorough incorporation of Tribal and Indigenous recommendations into updated modeling and drafts. The EJAC is still determining ways to address the CARB's failure to engage Indigenous communities, and the lack of attention to and resources for community engagement is a glaring omission. The EJAC will continue to strive for robust community engagement and work to strengthen and ground-truth these recommendations, to integrate voices that have been excluded.

Procedural Concerns

The EJAC continues to have concerns about the overall Scoping Plan process. The structure that CARB staff have presented for the 2022 Scoping Plan continues to be a "decide, announce, and defend" approach to policy making. This approach is antithetical to cooperative, equitable decision making, and it actively precludes meaningful engagement of environmental justice communities. It is a far cry from the co-designed model EJAC members proposed at the outset of this process, which has continued to lean heavily on technical analysis while skimming over community engagement. Furthermore, CARB has failed to substantively incorporate past EJAC recommendations into the Draft Scoping Plan, including evaluation of previous Scoping Plan measures. The EJAC continues to unwaveringly demand a robust, detailed, and high-resolution public health and equity analysis of the Scoping Plan proposals. CARB must also engage a third party to objectively assess the impacts of previous Scoping Plans' implementation, both in terms of the benefits and burdens for impacted communities.

The EJAC continues to feel the pressure of CARB's unrealistic timeline. EJAC members continue to put in a substantial amount of work and were disappointed when we were informed just a few days before the June community engagement event that funding to support outreach could no longer be offered. This issue is still

⁴ "From Banks and Tanks to Cooperation and Caring: A Strategic Framework for a Just Transition" Movement Generation Justice and Ecology Project. Accessible at [A Strategic Framework for a Just Transition](#). Pages 7-9.

⁵ "A Program For Economic Recovery and Clean Energy Transition in California" By Robert Pollin, Jeannette Wicks-Lim, Shouvik Chakraborty, Caitlin Kline, and Gregor Semieniuk. Department of Economics and Political Economy Research Institute (PERI), University of Massachusetts-Amherst. June 2021. [A Program for Economic Recovery and Clean Energy Transition in California](#).

unresolved. EJAC needs additional staff and resources to function at the level necessary to inform this process.. As we heard resoundingly at the June Board meeting and the summer listening sessions, community engagement is being sacrificed to meet CARB's timeline. Throughout CARB's Scoping Plan process, community members have repeatedly raised concerns about the lack of Language Justice practices and practices enabling equitable participation by people with disabilities. Going forward, these inequities must be rectified, and appropriate timing adjustments must be made to allow full review of the Scoping Plan by people with disabilities and those speaking languages other than English. Furthermore, the commitment to make EJAC permanent must be met with requests for adequate staffing and financial support, particularly for community engagement and for the Office of Environmental Justice.

Inadequacies of Modeling and the Lack of Modeling Results Data to Inform Recommendations

The Natural and Working Lands sector has been modeled separately from the other sectors. While undertaking this modeling is welcome as an overdue commitment, it is unclear how the distinct models fit together and what the implications could be for environmental justice and Tribal communities. Furthermore, both for the PATHWAYS and the Natural and Working Lands models' high-level gross "systems analysis" approach, the lack of geographic specificity and granularity continue to be a huge challenge for our ability to adequately evaluate the various proposed scenarios' potential impacts. Given the importance of this endeavor, we are providing recommendations for a much more robust modeling of this critical sector and the creation of an interagency work group with CNRA and other agencies. Overall, several fundamental assumptions in the draft plan are under revision, thus our recommendations can only respond to the draft while these updates are underway. With EJAC permanence, plus given the complexity of these topics and the shifting policy landscape, crafting recommendations must be approached as an iterative process. As the plan nears finalization, EJAC must continue its work on related rule making and implementation processes.

There is a Better Way

While some assumptions have been adjusted given the Governor's direction, CARB's current course represents a business-as-usual approach that extends the life of fossil fuel and natural resource extraction in ways that are inconsistent with achieving overall climate goals, as well as the goals of AB 32 and AB 197. The EJAC co-chairs continue to have grave concerns that without significant course correction this Scoping Plan will cause more harm to environmental justice communities, when instead we should be reducing burdens and improving quality of life. The following EJAC recommendations represent a better pathway for reaching the deep emissions reductions that science tells us we need, and the deep transformation communities and workers need for an equitable and just transition. We are eager to discuss the integration and implementation of these recommendations further.

In the spirit of collaboration,

Martha Dina Argüello, EJAC Co-Chair, Physicians for Social Responsibility-Los Angeles

Sharifa Taylor, EJAC Co-Chair, Communities for a Better Environment

Dr. Catherine Garoupa White, EJAC Co-Chair, Central Valley Air Quality Coalition

J. Kevin Jefferson III, Interim EJAC Co-Chair, Urban Releaf

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Recommendations

The following are recommendations that address environmental justice and equity issues in CARB's 2022 Scoping Plan. The EJAC is aware that CARB does not have the authority to address all concerns, however, we implore CARB to foster better working relationships with the state agencies and to break down silos within the agency itself to collectively advance environmental justice.

Abbreviations in the recommendations:

NF: Non-Fossil Fuel

F: Fossil Fuel Industry and Transportation

ES: Electricity Sector

C: Cap and Trade

CC: Carbon Capture, Use, and Storage

M: Manufacturing

P: Public Health and Social Cost

N: Natural and Working Lands

CE: Community Engagement

JT: Just Transition

E: Enforcement

Non-Fossil Fuel Energy Generation		Type of Activity
“CARB should” is implied at the start of every recommendation.		
Overarching		
NF1	Prioritize programs reducing energy use and energy efficiency programs because they produce the “cleanest,” lowest emissions energy. Because energy efficiency programs are de facto “local” programs, they increase equity in energy access by reducing utility bills and creating local workforce development opportunities. CARB’s staff leadership and Board should coordinate with the CPUC to implement the CEC’s loading order for energy investments that prioritize the lowest emissions energy.	Interagency Coordination
Coordination		
NF2	Support local non-fossil fuel projects (e.g., rooftop solar, community solar and battery storage, microgrid neighborhoods). Large, remote non-fossil fuel projects require large capital. Such projects increase profits for large corporations and increase utility bills, resulting in increased wealth inequality in low-income and people of color communities.	Action / Interagency Coordination
NF3	Examine all types of non-fossil fuel energy generation for life cycle harm to environmental justice communities. For instance, energy produced by nuclear power plants is hailed as carbon-free, though the mining and storage of nuclear fuel causes major harm for Indigenous communities. The harm caused by mining for uranium, nuclear weapons testing, and nuclear accidents falls most heavily on frontline, Black, Indigenous, People of Color (BIPOC) communities.	Analysis
Workforce Development		
NF4	Follow the recommendation of the Building, Energy, Equity, and Power (BEEP) Coalition: Ensure job access for local and priority populations underrepresented in high-road construction jobs, such as through community workforce development and employment agreements. Include water efficiency in policy changes to facilitate meaningful job development in drought-impacted sectors. Job quality of electrification and decarbonization work to-date is more reflective of a low-road versus high-road approach due to lack of focus on workforce development and high-quality job creation. Reductions in natural gas use and development will impact many union jobs. “Just Transition” investments are critical. <i>(Preliminary Report: Community Priorities for Equitable Building Decarbonization. 2022. https://ww2.arb.ca.gov/sites/default/files/2022-03/BEEP%20Letter%20and%20Report_Equitable%20Decarb%20March%202022.pdf.)</i>	Action
Electric Vehicles		
NF5	To address concerns about lithium mining out of geothermal sites and impacts on EJ communities CARB, CEC, Lithium Valley Commission, and other relevant agencies must conduct a full life cycle assessment of lithium extraction methods by a disinterested third-party. Assessment of the lithium battery lifecycle must include manufacture, repurposing, and eventual recycling and/or disposal.	Analysis
NF6	CARB must increase accessibility to low-income communities and communities of color to EV charging infrastructure in key locations that are frequently used (airports, community colleges, health care centers and hospitals, multi-family housing, grocery stores, etc.). A 2018 EV survey found that only 2% of EVs are owned by Black households.	Action
NF7	Prioritize funding incentives of electrification of mass transit and heavy-duty vehicles (HDVs) to reduce Diesel Particulate Matter (DPM), rather than electrification of single-passenger vehicles.	Investment
NF8	Push to electrify transportation. Explain the sources of energy powering EV charging facilities. Explain how non-fossil fuel-powered transportation relates to non-fossil fuel	Investment/ Action/

	energy generation, by analyzing the benefits and burdens to EJ communities, prior to prioritizing investments, especially in single-passenger EVs. We wish to prioritize non-dirty forms of renewable energy to power non-fossil fuel-based transportation infrastructure.	Interagency Coordination
	Rooftop Solar	
NF9	Address the equity issues of solar ownership. Prioritize low-income people, small and diverse businesses, people of color, and Native communities first in directing public incentives for rooftop solar. Acknowledge that public and private utilities are profiting from utility-scale solar, and that investor-owned utilities make most of their profit on long distance transmission lines. Rooftop solar reduces utility revenues and the need for long distance transmission lines. Ensure that the tools (e.g., CalEnviroScreen 4.0, Disadvantaged Communities maps) enable CARB to identify the communities most at need, including rural communities and Indigenous communities.	Investment/ Action/ Interagency Coordination
NF10	Targeted incentives are needed for low-income communities, communities of color, and Indigenous communities so they can go solar (including storage batteries) and pay for energy efficiency. Rather than the punitive proposed revision of NEM 3.0 currently being considered by the CPUC, a graduated solar tariff increasing as household income decreases is needed to address equity in access to rooftop solar. Energy efficiency programs can be made affordable through grants, combined with on-bill repayment mechanisms, guaranteed to reduce energy bills at no upfront cost, from day one.	Action / Investment/ Interagency Coordination
NF11	Ensure that the Scoping Plan prioritizes and directs significant public dollars to invest in local clean energy resources for energy equity in low income and BIPOC communities that are most burdened by pollution.	Investment
NF12	CARB must work with the CPUC and CEC to promote community ownership and control of local solar and wind facilities, including incentivizing microgrids. This will reduce the cost of energy by eliminating the need for long-distance transmission lines and for paying corporate shareholder profits and provide a more reliable and resilient local source of non-polluting energy for decarbonized buildings in these communities during power outages.	Investment / Action / Interagency Coordination
NF13	Invest in community-controlled and community-owned microgrids, powered by community solar with battery storage. Such investment must play a major role in supplying future electricity needs. If island enabled, these mini power plants can continue to provide power during grid outages. They also maximize the efficiency of energy use overall, reducing electrical demand and cost to customers. Microgrids also can be a mechanism for sharing electricity and energy costs between households within a community.	Investment/ Interagency Coordination
NF14	Prioritize and direct public investments in rooftop solar to benefit the most disadvantaged communities most impacted by poverty, pollution, and climate impacts, first. The California Environmental Justice Alliance has called for the CPUC to increase funding for the proposed Equity Fund from \$150 million to \$1 billion. The Equity Fund would be used for distributed energy resources in low income and disadvantaged communities.	Investment / Interagency Coordination
NF15	Do not support electrification that results in the increased use of fossil fuels, including false “green” hydrogen solutions. Using fossil fuel-sourced power plants to meet increased electrical demand negates electrification efforts to keep fossil fuels in the ground and to reduce GHG emissions at the scale and pace that is demanded by science to address the climate emergency.	Action / Analysis/ Interagency Coordination
	Building Decarbonization	
NF16	Closely follow the Building Energy, Equity, and Power (BEEP) Coalition’s energy justice principles and listening session report with recommendations. (<i>Preliminary Report: Community Priorities for Equitable Building Decarbonization</i> . 2022. https://ww2.arb.ca.gov/sites/default/files/2022-03/BEEP%20Letter%20and%20Report_Equitable%20Decarb%20March%202022.pdf .)	Action
NF17	Closely follow the approach of the Strategic Actions for a Just Economy’s (SAJE) report. (SAJE. 2021. <i>Los Angeles Building Decarbonization: Tenant Impact and Recommendations</i> . https://www.saje.net/resources/reports/building-decarbonization/ .)	Action

NF18	Coordinate with relevant local, regional, and statewide agencies or jurisdictions to incentivize and remove bureaucratic red tape from permitting of gray water systems and rainwater catchment systems as part of comprehensive building decarbonization and healthy home renovations, for established single-family units and mandatory greywater systems for single-family and multi-family homes, prioritizing low-income communities, communities of color, and Native communities.	Interagency Coordination
NF19	<p>Establish official funding for community engagement for each sector of the Scoping Plan in order to perform meaningful community engagement and investigate potential unintended consequences.</p> <ol style="list-style-type: none"> I. For building decarbonization, the funding needs to be nine-figured. Funding will be used for staffing of local organizations, organizing events, stipends for participants, and translation services. II. Support partnerships with local groups to facilitate planning, outreach, and education efforts, similar to the model used in the San Joaquin Valley Affordable Energy Pilots. Engaging with local groups is critical to ensuring that trusted advisors are responsible for enrolling, educating, and supporting community members as they decarbonize. III. Regional approaches will be needed as there is no blanket solution that can meet the diverse needs of California's communities and local groups have the expertise and relationships necessary to ensure that all communities across the state are decarbonizing. 	Investment / Action
NF20	Provide resources, capacity, and time for key stakeholders, such as affordable housing groups (groups with specific needs and financial concerns about building decarbonization), in recognition that building decarbonization is a highly intersectional movement with multiple stakeholder groups centering on ensuring healthy homes.	Investment / Action/ Coordination
NF21	<p>Prioritize funding incentive programs that support low-income tenants and homes to fuel switch from gas appliances to all electric appliances. Incentives should pay the upfront cost and not come as a rebate.</p> <ol style="list-style-type: none"> I. Incentive programs should also include direct community grants, equipment and installation incentives, rate reform, debt relief, and bill protection to enable no-cost improvements for low-income households. II. These mechanisms would include aligning existing incentives and cross-sector retrofit funding to enable holistic building upgrades to happen simultaneously. This also includes aligning affordable housing funding and technical assistance so that nonprofit developers can implement decarbonization for new and existing buildings. 	Investment / Action/ Interagency Coordination
NF22	<p>Perform decarbonization in phases and prioritize new buildings, the largest buildings and largest emitters, and publicly owned buildings.</p> <ol style="list-style-type: none"> i. Roll decarbonization out in phases. Owners of large buildings are typically better able to comply with a decarbonization mandate. It should target all new construction, privately owned buildings 20,000 square feet or larger, and public buildings larger than 7,500 square feet (commercial and residential) first. ii. Recognize the needs of smaller landlords and subsidized housing providers. By targeting public buildings, there is no expectation of landlord harassment of tenants. By prioritizing the largest buildings, policymakers will have more time to identify funding and technical assistance for smaller landlords and subsidized housing providers who may need the most support. 	Action/ Interagency Coordination
NF23	For existing buildings, prioritize energy affordability and tenant protections from cost increases, harassment, displacement, evictions, or energy debt burdens. Prevent landlords from absorbing decarbonization subsidies while passing the costs to tenants.	Action / Interagency Coordination / Investment

	<ul style="list-style-type: none"> i. Only support efforts that do not increase rents and tenants' risk of displacement. Low-income renters live in the least-efficient homes and have the highest energy burdens. Research shows that under landlord-tenant laws, decarbonization is expected to increase rents and tenants' risk of displacement. ii. Work with local and state housing policymakers to (1) strengthen the current tenant anti-harassment policies to protect tenants from decarbonization-related harassment and include budget resources for enforcement; (2) ban pass-through costs for decarbonization retrofits to rent stabilization ordinance (RSO) tenants, tenants in covenanted affordable units, and low-income tenants in non-RSO units; (3) establish new permanent relocation amounts for tenants displaced by decarbonization retrofits or increase existing ones; and (4) close the remodel eviction loophole in AB 1482—the statewide rent control law—that could lead to displacement of non-RSO tenants. iii. Ensure that loopholes in state and local law are closed. Tenants should be able to access programs without fear of untenable rent increases or being permanently displaced for these improvements. The state must also identify a robust enforcement mechanism that includes trusted community-based organizations for upholding these protections. iv. Prioritize funding incentive programs that support low-income tenants and homes to fuel switch from gas appliances to all electric appliances. Incentives should pay the upfront cost and not come as a rebate. v. Ensure that incentive programs have tenant protections tied to them. Most do not. A landlord can get a grant or subsidy to electrify their kitchen but still pass the cost onto the tenant. Ensure that any incentive program includes tenant protections, so if the property owners take advantage of incentives, they cannot increase rent. vi. Develop funds to support low-income homes with energy and infrastructure upgrades to reduce barriers in fuel switching from gas appliances to all electric appliances. Infrastructure upgrades should include electrical wiring, roofing, panel upgrades, and other upgrades to streamline installation. 	
NF24	<p>Address building decarbonization in tandem with affordable housing preservation.</p> <ul style="list-style-type: none"> i. Ensure that policies that affect the residential market are carefully considered and designed to directly support affordable housing and low-income households. There is a significant need to not only build new affordable housing but also to protect and retrofit existing units in ways that improve habitability, reduce household expenses, and support a healthier environment. ii. Include sector stakeholders in the policy design process to avoid perpetuating the cycle of disenfranchisement. Lack of funding, limited access to capital, the complexity of financing structures, backlogs of deferred maintenance, and other challenges make affordable housing the least likely to transition by market forces alone. iii. Enact policy approaches to support social equity tools (such as displacement and rent increase protections) to expand the pool of regulated affordable housing and support alternative ownership, and wealth-building opportunities for tenants. Decarbonization can be leveraged to drive investment into existing affordable housing to improve performance and keep units fit for purpose in a changing climate. iv. Coordinate with other public agencies to make sure all building decarbonization efforts preserve and improve affordable housing. 	Interagency Coordination / Action
NF25	<p>Include policy protections to protect and empower small landlords and homeowners, and prevent consolidation of corporate building ownership.</p> <ul style="list-style-type: none"> i. COVID-19 has created financial issues that might force small landlords to sell their properties. The high upfront costs of a decarbonization retrofit could intensify cash 	Action / Investment / Interagency Coordination

	<p>flow issues for smaller landlords, prompting them to sell, enabling deep-pocketed corporations to buy their properties.</p> <ul style="list-style-type: none"> ii. Target subsidies toward small landlords and homeowners. At the very least, corporate landlords should not be eligible to receive public assistance for decarbonization, as they are the most well-positioned to finance this transition. iii. Coordinate with public agencies to prioritize tenant and Community Land Trust purchases of buildings sold by landlords, allowing them the first option to buy a building for sale. Some landlords will exit the rental market when confronted with the cost of decarbonization, and this provides an opportunity to promote homeownership of tenants and communities. iv. Ensure ratepayers are not negatively impacted by policies over time and address potential hurdles like “obligation to serve” and other limitations that may hamper statewide decarbonization efforts. 	
NF26	<p>Pair building decarbonization with other critically needed renovation efforts to make buildings healthier and resilient, and design a consumer-friendly one-stop shop for retrofits.</p> <ul style="list-style-type: none"> i. Issue a mandate for holistic decarbonization retrofit that results in habitable, energy-efficient, all-electric, and climate-resilient homes. Fuel switching in buildings from natural gas to electric appliances will, alone, achieve emission reductions because electricity generation is getting cleaner. However, coupling fuel switching with both energy efficiency measures and building envelope improvements can further reduce energy cost burdens, reduce peak demand for electricity (both seasonally and over the course of a day) to mitigate grid impacts, and better protect inhabitants from extreme weather events like heat waves. ii. To maximize benefits to occupants and return on investment, upgrades should produce healthy, high-quality indoor environments by using materials without hazardous chemicals and address issues like mold, moisture, and ventilation. Public financial support for comprehensive building improvements in the rental market can be coupled with anti-displacement measures that preserve and expand housing and energy affordability. Upgrading schools and colleges both reduces operational expenditures and improves ventilation and indoor air quality for students and teachers. iii. Assist local government and community groups with designing and implementing a consumer-friendly one-stop shop for retrofits. The City of San Francisco and PODER are developing this together. iv. Financially support local government and community-based organization partnerships to design and implement programs that help low-income tenants and households decarbonize their homes. Modeled after the healthy home model that utilizes community health promoters. Programs should consider holistic home improvements such as asbestos removal, electrical support, permitting support, infrastructure support, and incentives to fuel switch gas appliances to all electric appliances. 	Action / Investment / Interagency Coordination
NF27	<p>Prioritize creation of local, unionized or family-sustaining “high road” jobs in partnership with labor unions, community colleges, and green jobs training centers, particularly for youth, people of color, formerly incarcerated people, and people with other barriers to employment.</p> <ul style="list-style-type: none"> i. UCLA’s Luskin Center for Innovation estimates that, in general, the electrification of buildings statewide is expected to create more than 100,000 jobs annually for 25 years in California in the construction, energy, and manufacturing industries. ii. Think upfront about who will perform the work to improve building performance. Engaging a skilled and trained workforce is fundamental in ensuring that the expected energy savings and emission reductions are actually achieved. Adopting hiring standards on publicly funded projects and coordinating with apprenticeship 	Analysis / Interagency Coordination

	<p>readiness programs can ensure job access for priority populations underrepresented in high-road construction jobs. For example, support, training, and capacity building of women and minority-owned business enterprises (WMBEs) can ensure diversity, equity, and inclusion on the contracting side.</p> <p>iii. Coordinate building decarbonization efforts with labor agencies to ensure that this job creation is inclusive and uplifting for vulnerable populations.</p>	
NF28	<p>Design and promote financial interventions that address overlooked consumer groups that do not qualify for commercial loans due to unduly restrictive credit score requirements.</p> <p>i. Building decarbonization has high upfront costs. Many consumers will need to take out commercial loans to finance the upgrades. However, these commercial loan products are designed to minimize risk for institutional investors and unduly prevent the adoption of energy upgrades. These barriers are unduly restrictive because credit score is not an accurate indicator of a household's ability to pay for energy upgrades. For example, PosiGen is a solar and energy efficiency provider for low-income, low-credit score, and low-income/low-credit score customers that does not consider individual credit scores. The overall performance of PosiGen's 14,000-low-income-household portfolio is comparable to the general market for similar loans with a default rate of 0.4%.</p> <p>ii. Lenders do not issue loans to consumers with FICO credit scores below 650. Research of the Inclusive Solar Finance Framework estimates that 30% of all consumers in the U.S. have bad and poor credit scores (below 650), and 35% of the U.S. households qualify as low-income. Interventions for the loan underwriting process are needed for these U.S. consumers, estimated to encompass 44 million to 78 million households.</p> <p>iii. Work with related agencies to design financial interventions. California needs to innovate and implement equity-focused financing interventions to underwrite the loans for low-income and low-credit-score consumers. It is important to ensure the building decarbonization transition is inclusive so we do not repeat the same stories where solar and EV adoption exacerbates existing disparities.</p> <p>iv. Finance expanded pilots to create on-bill financing or "pay for performance" inclusive financing programs to amortize the upfront cost of expensive appliances or rehabilitation construction work over a period of time. These are paid on the customers' utility bill from the bill savings of the energy efficiency improvements. On-bill financing enables customers of all incomes to pay for decarbonization measures at no upfront cost and is currently being piloted by East Bay Community Energy (EBCE), with BlocPower and Revalue.io.</p>	Analysis / Investment / Interagency Coordination
NF29	Support clean and equitable technology innovation. Fuel switch technologies must be affordable and accessible to low-income homes and low-energy consumers.	Action / Analysis
NF30	Continue to support affordable electric rates designed for electrification for low-income homes.	Action / Analysis / Interagency Coordination
NF31	Support high road jobs. Ensure frontline communities can access and benefit from new job opportunities. This includes exploring community workforce agreements, as well as public coordination of projects to ensure high-road job standards are upheld.	Action
NF32	Perform a comparative life cycle assessment of different kinds of renewable energy. Don't assume that all generation options are clean; there will be some carbon from construction because there is no carbon-free source. Even with solar, the panel must be produced.	Analysis

NF33	CARB, prior to any investment in technology fixes, must and should conduct a full life cycle assessment of different technologies, including worst case scenario modeling. This includes a comparison of all of the different kinds of hydrogen, CCS/CCUS, and projects receiving credits from the LCFS.	Analysis
NF34	Limit the use of green hydrogen produced by photovoltaic solar energy and hydrolysis to small scale and decentralized operations, for use as energy storage that could power electric vehicles. Assess the water treatment issues related to hydrogen production and work with the Department of Water Resources, California Water Board, and impacted EJ and Tribal communities to assess the impacts of green hydrogen on water resources.	Action / Analysis / Interagency Coordination
NF35	Do not include or allow blue or gray hydrogen, which are more polluting than natural gas.	Action
NF36	Be innovative in exploring a range of alternatives.	
NF37	Establish stringent permitting rules that prevent frontline communities from increased emissions.	Action
NF38	Issue siting and land use guidance to protect agricultural lands from being used to site energy generation facilities on that land, and to encourage organic agriculture.	Action
NF39	By 2030, 100% of appliance sales in California must be electric. All gas end uses should be retired by 2045. Prioritize low-income communities and communities of color to make that switch—both affordability of retrofits and readiness of homes for installing electric appliances.	Action
NF40	<p>Exclude hydrogen combustion (whether pure or blended) from decarbonization strategies for building decarbonization because creating, transporting, and combusting hydrogen risk increasing climate change and criteria pollutant impacts.</p> <ul style="list-style-type: none"> • Production: Electrolysis to create green hydrogen is extremely energy-intensive, and the electricity sector, which will grow to decarbonize the rest of the economy, has not planned for increased electrolysis load. The process also requires water, which California chronically lacks. Use of hydrogen created through steam methane reformation, even if paired with CCS, jeopardizes achievement of climate goals, is inconsistent with the need to plan for the phasedown of oil refineries. • Transport: Hydrogen is an indirect GHG, and commercially-available technology does not exist to locate pipeline leaks. • Use: Combusting hydrogen blended with natural gas in buildings may increase GHG emissions, thwarting “more viable decarbonization pathways while increasing consumer costs, exacerbating air pollution, and imposing safety risks. Combustion of hydrogen-methane blends have been found to emit up to six times the amount of nitrogen oxide (NOx) than the burning of methane, and is associated with significant amounts of additional criteria pollutants, while burning pure hydrogen may be associated with even higher levels of NOx emissions. <p>Sara Baldwin et al., ASSESSING THE VIABILITY OF HYDROGEN PROPOSALS: CONSIDERATIONS FOR STATE UTILITY REGULATORS AND POLICYMAKERS, at pp. 2, 7-11, Energy Innovation (March 2022), https://energyinnovation.org/wp-content/uploads/2022/04/Assessing-the-Viability-of-Hydrogen-Proposals.pdf.</p> <p>Mehmet Salih Celtek & Ali Pınarbaşı. “Investigations on Performance and Emission Characteristics of an Industrial Low Swirl Burner While Burning Natural Gas, Methane, Hydrogen-Enriched Natural Gas and Hydrogen as Fuels.” <i>International Journal of Hydrogen Energy</i> 43, Issue no. 2 1194-1207 (January 11, 2018), available at https://doi.org/10.1016/j.ijhydene.2017.05.107</p> <p>Sasan Saadat and Sara Gersen. <i>Reclaiming Hydrogen for a Renewable Future: Distinguishing Fossil Fuel Industry Spin from Zero-Emission Solutions</i>. Earthjustice (August 2021), at 20, available at https://earthjustice.org/sites/default/files/files/hydrogen_earthjustice_2021.pdf</p>	Action

	<p>Ilissa B. Ocko and Steven P. Hamburg. "Climate consequences of hydrogen emissions." <i>Atmospheric Chemistry and Physics</i> (20 Jul 2022) https://acp.copernicus.org/articles/22/9349/2022/</p> <p>Limit consideration of the use of green hydrogen produced by photovoltaic solar energy and hydrolysis to small scale and decentralized operations, for use as energy storage, and hard-to-electrify modes of transportation. electric vehicles. Assess the water treatment issues related to hydrogen production and work with the Department of Water Resources, California Water Board, and impacted Environmental Justice and Tribal communities to assess the impacts of green hydrogen on water resources.</p>	
	Biogas	
NF41	CARB must acknowledge the significant environmental justice and sustainability concerns around biogas and particularly biomethane, including: (1) the incentivizing of ongoing and expanded, massive dairies and their associated impacts to the air, water, odor, and well-being of local communities; (2) the perpetuation of a polluting natural gas industry via sustained gas infrastructure; and (3) the improper accounting of emissions and emissions reductions from dairies in the state's credit schemes, which additionally allows ongoing oil and gas emissions.	Action/ Analysis
NF42	CARB and other state agencies must regulate livestock methane starting in 2024 instead of relying solely on incentives to yield dairy methane reductions, and do so in a manner that advances co-equal benefits to local air and water quality, odor, and community well-being.	Interagency Coordination
NF43	CARB must commit in the Scoping Plan to examining the life cycle impacts of dairy biogas to ensure the state is relying on the most accurate assessments of the technologies and fuels making up California's long term GHG reduction strategy. If a rulemaking is not already underway, the Scoping Plan must commit to addressing the problems and impacts of dairy biogas in a dedicated Low Carbon Fuel Standard (LCFS) rulemaking. LCFS Pathways certifications for dairy biogas should be paused until the conclusion of the rulemaking.	Action/ Analysis
NF44	Increase LCFS stringency to at least 30%–35% to meet the Governor's stated goal. This will force a more rapid removal of NOx- and black carbon-emitting internal combustion engine (ICE) powered stationary and mobile sources.	Action
NF45	Exclude polluting fuels like biogas, biofuels, and factory farm gas from the LCFS and any other definition of clean, renewable, and/or zero-carbon energy.	Action
NF46	Regulate dairies to limit methane instead of producing factory farm gas that benefits oil and gas companies and artificially delays progress to zero emission transportation.	Action
NF47	The SB 1383 moratorium on regulation expires in 2024, and as the Scoping Plan is a five-year plan, it must include a plan to begin regulating emissions from dairies in 2024. In the alternative, direct the upcoming LCFS rulemaking to address these issues, and pause certification of LCFS pathway applications that include these polluting fuels until the completion of the 2024/2025 rulemaking.	Action
NF48	Ensure that materials used to produce transportation fuels do not incentivize feedstocks and production practices that result in air quality and water quality degradation. Fuels derived from livestock and dairy manure must be excluded from the LCFS, and the LCFS must be reformed to ensure that its implementation does not negatively impact low-income communities, communities of color, and areas already suffering environmental degradation including areas that are in nonattainment status for state and federal air quality standards.	Action
NF49	A dramatic increase in alternative fuel production must not come at the expense of a transition to clean electricity, global deforestation, unsustainable land conversion, environmental justice, or adverse food supply impacts, to name a few examples. Staff	Action

	<p>must continue to monitor scientific findings on these topics to ensure that California policies, such as the LCFS, send appropriate market signals and do not result in unintended consequences.</p> <p>AB 32 Environmental Justice Advisory Committee, Draft Recommendations, F1E. ejacrecsrevised.pdf (ca.gov).</p>	
NF50	<p>Accelerate the reduction and replacement of fossil fuel production and consumption in California.</p> <p>AB 32 Environmental Justice Advisory Committee, Draft Recommendations, F3. ejacrecsrevised.pdf (ca.gov).</p>	Action
NF51	Incentivize private investment in new non-polluting and zero-carbon fuel production in California.	Action / Investment
NF52	Invest in the infrastructure to support reliable refueling for transportation such as electricity.	Investment
NF53	Evaluate and propose, as needed, changes to strengthen the Cap-and-Trade Program, including eliminating eligibility for offsets that result in either the perpetuation or increase in local air or water pollution.	Action
NF54	<p>Initiate a public process focused on options to increase the stringency, integrity, and scope of the LCFS:</p> <ul style="list-style-type: none"> • Evaluate and propose accelerated carbon intensity targets pre-2030 for LCFS. • Evaluate and propose further declines in LCFS post-2030 carbon intensity targets to align with the Final 2022 Scoping Plan. • Consider integrating opt-in sectors into the program. • Provide capacity credits for electrolytic hydrogen and electricity for heavy-duty fueling. • Evaluate and ensure full life cycle emissions from all LCFS pathways and each LCFS project, including all upstream and downstream • Evaluate and ensure that credits issued pursuant to the LCFS are based on additional GHG emission reductions and were not already accounted for through other state or federal funding and incentive programs • Ensure that LCFS pathways and projects do not disproportionately impact communities of color, low-income communities, or communities already disproportionately burdened by environmental degradation and do not conflict with efforts to ensure that regions attain state and federal air quality standards. • Reevaluate the carbon intensity value of livestock and dairy gas based on a full life cycle analysis, an analysis of additionality for each project, and relevant regulatory programs. • Evaluate whether to remove livestock and dairy gas from the LCFS based on the role of the LCFS in incentivizing herd concentration near pollution-burdened communities and in pollution-burdened regions, accurate GHG emissions analyses, and conformity with additionality requirements. 	Action / Analysis /
NF55	Monitor for and ensure that raw materials used to produce low-carbon fuels or technologies do not result in unintended consequences, including allowing for ongoing pollution in low income communities, communities of color, and environmentally burdened regions and communities.	Action / Analysis

Electricity Sector		Type of Activity
"CARB should" is implied at the start of every recommendation.		
	Overarching	
ES1	Prioritize programs reducing energy use and energy efficiency programs because they produce the "cleanest," lowest emissions energy. Because energy efficiency programs are de facto "local" programs, they increase equity in energy access by reducing utility bills and creating local workforce development opportunities. CARB's staff leadership and Board should coordinate with the CPUC to implement the CEC's loading order for energy investments that prioritize the lowest emissions energy.	Interagency Coordination
ES2	Overcome both policy and technical barriers to offshore wind production.	Action
ES3	Overcome barriers to tidal energy production.	Action
ES4	Incorporate full-cost accounting to correctly assess the economic savings from investing public resources in community-owned, community-controlled, and local clean energy resources over utility-scale, IOU-owned renewable power generation. Utility-scale solar energy is only counted as less expensive than rooftop solar because the cost of transmission from remote facilities to distribution centers is not included in that cost. When construction costs of transmission lines are added to the cost of energy produced, utility-scale solar costs are about equal to rooftop solar. If the operation and maintenance costs of transmission lines are also added to the energy costs, utility-scale solar is more expensive than rooftop solar. If the costs of wildfire destruction from transmission line-caused wildfires is added, utility-scale costs rise even higher above rooftop solar.	Analysis
ES5	Develop guidelines for utility-scale solar and wind projects that address environmental and social impacts so that utility-scale projects are required to address and mitigate their threats to sensitive ecosystems and endangered species, as well as Indigenous sacred sites and other types of land use in California.	Action
ES6	The Scoping Plan should support a target of zero million metric tons (MMT) by 2045, instead of overreliance on engineered Carbon Dioxide Removal.	Action
ES7	The Scoping Plan should support an interim target of 30 MMT by 2030 to accelerate near-term decarbonization given that electrification is critical to decarbonization across other sectors.	Analysis
ES8	Not categorize burning of waste as "renewable energy." Increase scrutiny on utility credits and enhanced enforcement. Burning waste increases the heat/efficiency of combustion but is a hazard to the surrounding area, as is dumping.	Action
ES9	Recognize that decentralized energy generation (such as rooftop solar and microgrid systems) is far better for greenhouse gas (GHG) reduction, improving air quality, and public health than utility-scale generation.	Action/ Analysis

<p>ES10</p>	<p>Exclude hydrogen combustion (whether pure or blended) from decarbonization strategies for the electricity sector because creating, transporting, and combusting hydrogen risk increasing climate change and criteria pollutant impacts as described in NF45. In addition, combusting green hydrogen in turbines is extremely inefficient—it generates less than half the power used to create the hydrogen. Energy agencies have not planned for, and the Scoping Plan is not structured to address, the electricity load required to produce volumes of green hydrogen to be used in combustion turbines for power generation.</p> <p>Sara Baldwin et al. Assessing the Viability of Hydrogen Proposals: Considerations for State Utility Regulators and Policymakers. At pp. 2, 7-11, <i>Energy Innovation</i> (March 2022). https://energyinnovation.org/wp-content/uploads/2022/04/Assessing-the-Viability-of-Hydrogen-Proposals.</p> <p>Mehmet Salih Celtek and Ali Pınarbaşı. “Investigations on Performance and Emission Characteristics of an Industrial Low Swirl Burner While Burning Natural Gas, Methane, Hydrogen-Enriched Natural Gas and Hydrogen as Fuels.” <i>International Journal of Hydrogen Energy</i> 43, Issue no. 2 1194-1207 (January 11, 2018), available at https://doi.org/10.1016/j.ijhydene.2017.05.107.</p> <p>Sasan Saadat and Sara Gersen. <i>Reclaiming Hydrogen for a Renewable Future: Distinguishing Fossil Fuel Industry Spin from Zero-Emission Solutions</i>. Earthjustice (August 2021), at 20. Available at https://earthjustice.org/sites/default/files/files/hydrogen_earthjustice_2021.pdf.</p>	<p>Action</p>
<p>ES11</p>	<p>Hydrogen <u>creation and</u> leakage risk should be a priority consideration in evaluating hydrogen as a climate emission reduction strategy. <u>Using grid power for electrolysis increases GHG emissions, and using off-grid renewables will require a scale of renewables build-out that is considered infeasible. Given that hydrogen is an indirect GHG, significant hydrogen reliance in the electric sector would require meticulous leakage monitoring.</u> Currently, there is insufficient evidence to show that leakage detection, monitoring, and safety mitigation plans exist, especially for all parts of hydrogen infrastructure that may be associated. Hydrogen risks causing “embrittlement” of pipes in fossil gas pipelines, and existing gas lines do not have adequate systems in place to detect dangerous hydrogen leaks.</p> <p>(Saadat and Gerson at 19.)</p>	<p>Action</p>

Fossil Fuel Industry and Transportation		Type of Activity
<i>“CARB should” is implied at the start of every recommendation.</i>		
F1	Transportation / Reducing Vehicle Miles Traveled (VMT)	
F1A	<p>Maintain aggressive zero emission vehicle (ZEV) goals to meet AB 32 climate goals. Light-duty vehicle sales must be 100% ZEV by 2035 and aggressive interim targets for 2026 and 2030 must be set at 46% and 75% sales, respectively. Both are feasible and will deliver significant health and climate benefits. These interim targets will allow California to meet climate goals while protecting the most vulnerable neighborhoods along transportation corridors. Additionally, CARB should put in place mandatory and enforceable equity measures that will enhance access to ZEVs for low-income communities of color.</p> <p>On the medium- and heavy-duty side, CARB must accelerate its 100% sales mandate to 2035. Additionally, CARB must include a mandatory retirement of 18 years or 800,000 miles for medium- and heavy-duty trucks. CARB’s current lack of dirty truck retirement mandates will prolong the pollution burden in EJ communities by allowing diesel trucks to continue operating well beyond 2035 and potentially into 2050. CARB must accelerate the drayage truck target to 100% zero-emissions by 2030.</p> <p>CARB’s budget plan for 2021–22 vastly underspent in equity programs targeted to meet the scale of what climate justice demands. For example, the Charge Ahead Coalition is asking for \$1.5 billion this coming year in clean transit equity investments alone. CARB must greatly increase funding for transit equity.</p>	Action / Investment
F1B	<p>CARB climate policies must not be achieved at the expense of environmental justice communities impacted by lithium mining. Support all requests and recommendations of environmental justice communities impacted by lithium mining. A just transition must include mitigation and workforce investment. (See NF5 above.)</p>	Action / Analysis / Investment
F1C	<p>Significantly increase funding for CARB’s Clean Transportation Equity Investments. Transportation equity programs are currently oversubscribed and only available in some parts of the state.</p> <p>Dramatically increase funding for Clean Truck and Bus Vouchers (HVIP), Clean Off-Road Equipment Vouchers (CORE), and demonstration and pilot projects to advance zero emission technology. Additionally, facilitate the fleet adoption of ZEV trucks by providing direct funding to small fleets and enable greater private market financing through large fleets. Prioritize the majority of investments in ZEV and charging to be spent only in the top 25% disadvantaged communities (DACs) to ensure an equitable transition to electric vehicles to benefit environmental justice (EJ) communities.</p>	Investment
F1D	<p>Support the implementation of the Caltrans California Transportation Plan 2050. Set VMT reduction targets of statewide mode share for transit of 11% by 2035, with a corresponding VMT reduction of at least 30%. Transit mode share could increase to 22% by 2045 with a corresponding VMT reduction by continuing to double the investments in transit. This corresponds to implementing the combined land-use and transportation scenario in the Caltrans California Transportation Plan 2050. The MPO GHG reduction target should be increased to 25% by 2035.</p> <p>(California Department of Transportation (Caltrans). https://dot.ca.gov/-/media/dot-media/programs/transportation-planning/documents/ctp-2050-v3-a11y.pdf)</p>	Action / Investment / Coordination

	<p>Signal the need for additional policy and investments in mass transit for EJ communities for regional capacity building. These should focus on increasing accessibility, frequency, reliability, and affordability of zero-emission transit options such as expanding electric bus and light rail service by increasing frequency, reducing transit fares, or improving transit stops.</p> <p>Set higher Metropolitan Planning Organization (MPO) greenhouse gas (GHG) emission reduction targets at sliding scales relative to each region in the Scoping Plan. Each region can increase the ambition for GHG reductions by implementing localized VMT reduction strategies. For example, the San Diego Association of Governments (SANDAG) GHG reduction target can be increased from 18% to 25% by 2035.</p>	
F1E	<p>Send a strong signal that CARB plans to amend the Low Carbon Fuel Standard (LCFS) to reflect serious climate and sustainability concerns. CARB must be clear about the very limited supply of sustainable, carbon-free liquid and gaseous fuels and avoid using them in any sectors where it is feasible to implement solutions that are zero-emission for both air pollution and GHGs. CARB has previously identified these environmental sustainability concerns in the 2018 CARB LCFS Environmental Assessment. Previous PATHWAYS modeling included a biofuels module that chose to exclude purpose-grown crops because of their harmful environmental impacts and climate risks and further limited the biomass used to in-state production in addition to California's population-weighted share of total national waste biomass supply.</p> <p>Without intervention, the majority of renewable diesel and sustainable aviation fuel produced in the state will come from food crop and food system oils, predominantly soybean oil. A chief substitute for soybean oil is palm oil, whose production has been linked to significant deforestation and associated carbon sink loss. After a decade of studies, the European Parliament has voted to restrict use of soybean oil as a feedstock, by providing that it would no longer be counted toward the quota for first-generation biofuels. Belgium has already banned soybean oil-based biofuels as of 2022.</p> <p>Although soy is currently the main feedstock concern, distiller's corn oil is a growing concern as well, with the production of ethanol causing major problems in the corn growing states. At the public EJAC meeting on July 25, 2022, Dr. Maureen McCue from Physicians for Social Responsibility-Iowa described significant environmental problems caused by ethanol (using the Iowa experience because Iowa is the largest producer of ethanol in the U.S), including deforestation, soil and nutrient loss, pollinator extinction, and rising food costs. Additional market disruption results from the fact that distiller's corn oil was has long been used in animal feed, before large amounts of it were diverted to produce biodiesel.</p> <p>The Scoping Plan should make clear that California fuels policy will assess and refrain from supporting fuels associated with soy, corn, and any other feedstocks, either due to CI impacts from ILUC, other environmental harms, or food system disruptions. At the very minimum, CARB should commit to establishing a cap on the availability of the LCFS subsidy for feedstocks such as soybean oil that carry the highest risks of market disruption or Indirect Land Use Change emissions, based on such factors as feedstock availability and California's proportional share of the distillate fuel market; the availability of LCFS credits should be limited in order to deter production of volumes and types of biofuel that are inconsistent with California's climate planning trajectories.</p> <p>(Malins and Sandford. 2022. <i>Animal, vegetable or mineral (oil)?</i> Cerulogy. https://theicct.org/wp-content/uploads/2022/01/impact-renewable-diesel-us-jan22.pdf.)</p>	Action

	<p>("Soy oil set to follow palm as crop faces biofuel feedstock restrictions," <i>Biofuels International</i> July 14, 2022, available at https://biofuels-news.com/news/soy-oil-set-to-follow-palm-as-crop-faces-biofuel-feedstock-restrictions/. See Malins, C. <i>Risk Management: Identifying high and low ILUC-risk biofuels under the recast Renewable Energy Directive</i>; Cerulogy, 2019; 4, 14. http://www.cerulogy.com/wp-content/uploads/2019/01/Cerulogy_Risk-Management_Jan2019.pdf; Belgium to ban palm- and soy-based biofuels from 2022. Argus Media, Apr. 14, 2021. https://www.argusmedia.com/en/news/2205046-belgium-to-ban-palm-and-soybased-biofuels-from-2022.)</p> <p>(<i>Final Environmental Analysis Prepared for the Proposed Amendments to the Low Carbon Fuel Standard and the Alternative Diesel Fuels Regulation</i>, California Air Resources Board: Sacramento, CA, 2018. https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2018/lcfs18/finalea.pdf)</p> <p>(Mahone et al., 2020. Achieving Carbon Neutrality in California: Pathways Scenarios Developed for the California Air Resources Board, California Air Resources Board, Energy and Environmental Economics, Inc., footnote 2 at 19-20, available at https://ww2.arb.ca.gov/sites/default/files/2020-10/e3_cn_final_report_oct2020_0.pdf).</p>	
F1F	Refer to the EJAC's active transportation recommendations in the 2017 Scoping Plan. These include not only GHG and emissions reductions, but also promote healthy lifestyles.	Action
F1G	The definition of "green hydrogen" in the Scoping Plan should be limited only to include hydrogen produced through electrolysis of excess renewable energy that qualifies under the Renewable Portfolio Standard, does not increase pollution burdens via production or end use, and retires any Renewable Energy Credits associated with the power source to ensure that avoided emissions are not double-counted. Importantly, this definition of clean renewable energy to produce "green hydrogen" should exclude hydrogen produced from any methods reforming or refining fossil fuels, biogas, biomass, biomethane, or purposely grown feedstocks. These fuel sources may increase GHG emissions associated with the project and impose additional environmental injustices in our communities.	Action
F1H	<p>Hydrogen leakage risk should be a priority consideration in evaluating the subsidization of hydrogen as a climate emission reduction strategy. Currently, there is insufficient evidence to show that sufficient leakage detection, monitoring, and safety mitigation plans exist, especially for all parts of hydrogen infrastructure that may be associated.</p> <p>A greenhouse gas itself, hydrogen contributes a warming multiplier effect to methane. The planet-warming effects of hydrogen are severely under-studied, and it is believed to be approximately up to 20 times more potent than CO2.</p> <p>Steven Hamburg and Ilissa Ocko. <i>For Hydrogen To Be a Climate Solution, Leaks Must Be Tackled</i>. Environmental Defense Fund (March 7, 2022). https://www.edf.org/blog/2022/03/07/hydrogen-climate-solution-leaks-must-be-tackled</p>	Action
F2	Oil Refineries	
F2A	<p>Sound the Alarm for a Fossil Fuel Worker and Community Safety Net Fund</p> <p>With urgency, the 2022 Scoping Plan must call for an immediate, robust safety net fund for displaced fossil fuel workers and communities that will otherwise lose local tax revenue for critical services. Given the accelerating rate of decarbonization targets and the imminent phaseout of the internal combustion engine under California climate policy, the Scoping Plan should outline a plan to:</p> <ol style="list-style-type: none"> 1. Collaborate with other state agencies to establish a robust safety net fund that will support fossil-fuel-dependent workers who will lose their livelihoods and communities whose essential services are at risk from a contracting tax base. 	Investment / Action / Interagency Coordination

	<p>a. An equitable transition for fossil fuel workers would include wage replacement, income and pension guarantees, healthcare benefits, and relocation and peer counseling for professional and personal support. It would provide access to education and training for existing and future jobs that are safe and healthy.</p> <p>b. Affected communities' city and county services, schools, and libraries should receive financial support to maintain or strengthen local budgets as the fossil fuel industry sunsets. These EJ communities should also be considered a priority for CARB equity investments.</p> <p>(Relief Programs for Displaced Oil & Gas Workers. https://static1.squarespace.com/static/60b43a18079fdd42c6d01286/t/60bdc5bf6a007c14509e0887/1623049663256/LNS_Pollin+Fact+Sheets_Displaced+Worker_v2.pdf.)</p> <p>(A Program for Economic Recovery and Clean Energy Transition in California. https://static1.squarespace.com/static/60b43a18079fdd42c6d01286/t/60c18578a87f6318ff2a5a1a/1623295356282/Pollin+et+al--CA+Economic+Recovery--Clean+Energy+Transition---6-8-21.pdf.)</p> <p>2. Contribute climate data and modeling as well as projections of changes in transportation fuel production to establish a timetable in which to accumulate and deploy a robust statewide safety net fund for fossil fuel workers and communities.</p> <p>3. Support urgent allocation of funding to a robust safety net for fossil fuel workers and communities. Sudden losses of refinery jobs in California and the historical pattern of fossil fuel companies declaring bankruptcy as a shield from closure and post-closure financial accountability at local facilities across the nation indicate that the state must act quickly.</p> <p>(Rogers, N. Op-Ed: If our oil jobs are ending, we need safety nets and good replacement work. 2021, Oct. 3. LA Times. https://www.latimes.com/opinion/story/2021-10-23/oil-gas-jobs-clean-energy-california.)</p> <p>(Goldberg, T. Shutdown of Marathon's Martinez Refinery Prompts Calls for 'Just Transition' for Oil Workers. KQED. Aug. 3, 2020. https://www.kqed.org/news/11831607/shutdown-of-marathons-martinez-refinery-prompts-calls-for-just-transition-for-oil-workers.)</p> <p>(Macey, J. and Jackson Salovaara, "Bankruptcy as Bailout: Coal Company Insolvency and the Erosion of Federal Law," 71 <i>Stanford Law Review</i> 879 (2019); Sadasivam, N. How bankruptcy lets oil and gas companies evade cleanup rules, <i>Grist</i>, Jun 07, 2021.)</p>	
F2B	<p>By 2024, in close collaboration with refinery workers and communities, CalEPA should lead the adoption of an interagency plan to manage the decline of California oil refinery production of gasoline, diesel, and other fossil fuels, as it reflects California's climate laws and zero emission transportation policies by 2045. With urgency, the 2022 Scoping Plan must call for an immediate, robust safety net fund for displaced fossil fuel workers and communities that will otherwise lose local tax revenue for critical services.</p> <p>(AB 32 requires California to cut 40% of GHGs by 2030; EO B-55-18 provides policy direction to reduce GHG emissions 80% at least by 2050, and EO N-79-20 ends the sales of internal combustion passenger vehicles by 2035 and sets 2045 zero emission transportation targets; the timeline also follows the October 2020 E3 Achieving Carbon Neutrality Report's Zero Carbon Energy assumption.)</p>	Action / Interagency Coordination / Investment

	<p>Commit to an interagency planning process to manage petroleum refinery decline</p> <ol style="list-style-type: none"> 1. Commit to developing a regulatory process, in collaboration with refinery operators and communities, to identify and set key milestones, timetables, and reporting mechanisms to manage the decline of refinery production. <ul style="list-style-type: none"> ● Consider the declining and minimum throughput of crude oil into refineries, fuel outputs, financial assurances, and additional measurements reflecting milestones for increased zero emission transportation in California and corresponding reductions in fossil transportation fuel demand. ● Model multiple potential refinery phasedown scenarios, projecting the slate of liquid fuel demand decline across refinery capacities statewide to assist worker-led and community-led decision making. For each scenario, present total and disaggregated liquid fuels consumption over time with corresponding sustainable feedstock levels. ● Plan a corresponding phasedown of carbon-emitting refinery hydrogen operations. ● Measure and assess all phasedown milestones against cumulative GHG emissions. ● Develop health and safety guidance for the decommissioning, closure, and post-closure of refineries. 2. Develop guidance measures for local and regional permitting agencies that identify the expansion of refinery and associated fossil fuel infrastructure as inconsistent with state goals. 3. Develop health and safety guidance for the decommissioning, closure, and post-closure of refineries. <ul style="list-style-type: none"> ● Assess the cost of refinery land remediation obligations statewide and accordingly enhance financial assurance amounts and mechanisms to ensure cleanup at decommissioning. ● Assess the cost of increased climate risks to workers and communities, and accordingly establish or enhance financial assurance amounts and mechanisms to ensure financial accountability for petroleum companies. ● Evaluate health benefits in communities surrounding refineries and regional benefits toward achieving state and federal Clean Air Act standards. <p>Recommendation F2A should be pursued in conjunction with Recommendation F2B.</p>	
F3	Oil Extraction	
F3A	End oil drilling in California by 2035. This phaseout should start as soon as possible and include protections for workers and tax-base replacement for county and local governments. A just transition needs to be developed for workers in the petroleum industry, to minimize/prevent job loss and ensure tax dollars continue to support the communities.	Action / Investment/ Interagency Coordination
F3B	<p>Assess regulatory strategies to require disclosure and evaluate the source of crude oil imported into California.</p> <p>California continues to be the largest export destination for oil drilled from the rainforests and Indigenous territories of the Amazon, with 50% of Amazonian crude exports—mostly produced in Ecuador—refined in California. California refineries also source crude from the Boreal forests of Canada and the Alaskan Arctic, with increasing pressure to expand into the Western Arctic.</p>	Analysis / Action

	<p>The state needs to ensure that refineries report on crude sourcing, including detailed information from both domestic and international production, and ensure that refineries' crude demand stops contributing to oil expansion pressures in the Amazon and the Arctic. Oil drilling has been a gateway to deforestation and represents a toxic legacy in extraction regions from ongoing spills that pollute rivers and lands to devastating Indigenous communities that depend on those rivers and lands.</p> <p>Screening import crude sources for human rights violations, impact on biodiversity and deforestation, and violation of FPIC principles will be a critical step to mitigating the impacts of California's refineries ongoing crude supply choices. The "Linked Fates" report from Stand.earth and Amazon Watch outlines the connections between California and Amazonian communities, and the necessity for action. https://www.stand.earth/LinkedFates</p>	
F4	Carbon Capture and Storage (CCS) and Carbon Capture Use and Sequestration (CCUS) on Refineries, 'Blue Hydrogen' or 'Low-carbon Hydrogen'	
F4.1	<p>Do not consider any engineered carbon removal for fossil fuel infrastructure in the 2022 Scoping Plan.</p> <ol style="list-style-type: none"> Revisit the LCFS CCS Protocol to clarify the application of rigorous eligibility and application review criteria specific to different types of fossil fuel infrastructure. Currently, the protocol lacks adequate assessment criteria to evaluate the addition of carbon capture technology to different types of CCS capture facilities, as defined in the LCFS CCS Protocol Section A.2(19). Despite inclusion in the system boundary under Section B.1, the substantive Sections B.2 (Quantification of Geologic Sequestration of CO₂ Emissions Reductions), and the entirety of Section C (Permanence Requirements for Sequestration), there must be no question which provisions apply to what types of capture facilities themselves, not only injection and sequestration sites. Additionally, the permissibility of weak financial assurance instruments in Section C.7 (Financial Responsibility) is unsupportable. Revisit regulations governing the Refinery Investment Credit program, title 17, CCR, section 95489(e), which currently fails to consider the range of risks necessary to protect refinery communities; additionally, amend the regulations to reflect initial assessments and findings from the first examples of CCS projects on fossil fuel infrastructure across the globe. Do not authorize LCFS credits for CCS infrastructure in EJ communities that would increase net criteria pollution; knowingly incentivizing projects that would increase net criteria pollutant emissions as described in section 95489(e)(1)(c), perpetuates and worsens a long legacy of environmental racism. 	Action
F4.2	<p>Evaluate industry projections and promises of reduced GHG emissions with a thorough GHG life cycle analysis, conducted by a panel of independent experts. Life cycle analyses should include multi-criteria pollutant analysis and should include calculation of emissions from the parasitic load, or the energy that is required to operate the carbon capture equipment. In one instance, a report by Global Witness documents that CCS on a Shell hydrogen plant at a refining upgrader in Alberta, Canada, prevented 5 million metric tons of CO₂ from escaping into the atmosphere at the plant since 2015, but it released a further 7.5 million metric tons of GHGs over the same period.</p> <p>(Global Witness, Hydrogen's Hidden Emissions, Jan. 2022, https://www.globalwitness.org/en/campaigns/fossil-gas/shell-hydrogen-true-emissions/)</p> <p>(Meredith, S. 2022. "Shell's massive carbon capture facility in Canada emits far more than it captures, study says." CNBC.</p>	Analysis

	<p>https://www.cnbc.com/2022/01/24/shell-ccs-facility-in-canada-emits-more-than-it-captures-study-says.htm.)</p> <p>(Zegart, Dan. 2021. "The Gassing of Satartia." <i>HuffPost</i>. https://www.huffpost.com/entry/gassing-satartia-mississippi-co2-pipeline_n_60ddea9fe4b0ddef8b0ddc8f.)</p>	
F4.3	<p>Always prioritize direct emissions reductions over CCS. The recently published Sixth Assessment Report by the United Nations' Intergovernmental Panel on Climate Change states that the most effective way to address the climate crisis is to keep fossil fuels in the ground and to rapidly phase out the extraction, transport, refining, and burning of fossil fuels.</p> <p>(IPCC. August 2021. <i>AR6 Climate Change 2021: The Physical Science Basis</i>. https://www.ipcc.ch/report/sixth-assessment-report-working-group-i/.)</p>	Action
F4.4	<p>Prioritize ecologically based solutions to naturally sequester carbon by restoring soil and ecosystem health through practices such as afforestation, reforestation, soil carbon management, and biochar. Ecological solutions should be prioritized first, prior to and instead of engineered CCS, CCUS, or bioenergy CCS (BECCS). Ecologically based carbon sequestration strategies—such as incentivizing regenerative agriculture and Indigenous rematriation and food sovereignty projects—should not be used as offsets in carbon trading schemes.</p>	Action / Investment
F4.5	<p>Ensure that permitting of CCS projects is conditional upon completion of a rigorous health impact analysis that includes workers, communities, and their environments to evaluate the potential health impacts of using CCS, CCUS, DAC, or BECCS, by public health experts including the Office of Environmental Health Hazard Assessment (OEHHA) and the California Department of Public Health (CDPH). Regions like the San Joaquin Valley and the Delta should be treated with special consideration.</p>	Action / Analysis
F4.6	<p>Include worst-case scenarios in any modeling of engineered carbon removal. This includes an analysis of the health and human harm risk posed by:</p> <ol style="list-style-type: none"> Ruptures of CO₂ pipelines (e.g., the CO₂ pipeline explosion in Satartia, Mississippi in 2020 that resulted in the emergency room hospitalization of 49 people). Man camps for the construction of CO₂ pipelines, which increase rates of Missing and Murdered Indigenous Women (MMIW). Risk of inducing seismic activity (earthquakes) from geologic injection of CO₂. Poisoning of groundwater or destruction of aquatic ecosystems. <p>(See EJ Letter re: CCUS to CARB for other impacts and concerns with Engineered Carbon Removal https://www.arb.ca.gov/lists/com-attach/26-sp22-co2-removal-ws-AXFTJgNwVCpXPQJj.pdf)</p>	Action / Analysis
F4.7	<p>ECR (Engineered Carbon Removal), as an unproven, expensive technology, should be eligible for government assistance only after proven sequestration and reduction strategies have been fully exhausted. According to the United Nations' IPCC AR6 WRG1 Scientific Report 2021 report, "Technologies to achieve direct large-scale anthropogenic removals of non-CO₂ GHGs are speculative at present."</p> <p>(IPCC. August 2021. <i>AR6 Climate Change 2021: The Physical Science Basis</i>.)</p>	Action / Analysis
F4.8	<p>Make any publicly funded ECR strategy conditional on the free, prior and informed consent (FPIC) of locally impacted Environmental Justice communities, in accordance with the United Nations' Declaration on the Rights of Indigenous Peoples.</p> <p>(United Nations Declaration on the rights of Indigenous Peoples. 2008. https://www.un.org/esa/socdev/unpfii/documents/DRIPS_en.pdf.)</p>	Action / Interagency Coordination

F4.9	EJAC has recommended that CCUS not be pursued, but if it is used, ensure that it is a public utility, with oversight from the public. EJAC expects further discussion on this recommendation to flesh out the details.	Action
F5	<p>Minority Recommendation</p> <p>There was not complete consensus in the earliest iteration of the Fossil Fuel Transportation Workgroup as to whether a specific phaseout date should be set in Recommendations F2B and F3A. Because the EJAC member who asserted this position is no longer available for further consensus-building dialogue, we note this perspective now as a minority recommendation.</p> <p>However, it is important to note that there was consensus that existing market conditions indicated a decline of the petroleum extraction and refining industries in California and an urgent need to prioritize the establishment of an equitable transition for fossil fuel workers and communities to facilitate appropriate transition planning.</p>	

	Cap and Trade	Type of Activity
	<p>As CARB creates a 20-year climate blueprint to cut California’s GHG emissions to 80 percent below 1990 levels by 2050, we need CARB to step up to put California on a path toward a full, multi-agency coordinated phaseout of fossil fuels, especially in sectors like oil refining where we’ve seen emissions increase over the course of the cap-and-trade program. By prioritizing agency rules and regulations to achieve direct emissions reductions through policy signals that move California towards a full coordinated phaseout of fossil fuels, CARB will be able to reduce reliance on market-based mechanisms such as cap-and-trade to achieve the state’s emissions reduction target.</p> <p>In order for the EJAC to make substantive recommendations in this area, CARB needs to immediately prioritize conducting and providing the EJAC with a program review of cap-and-trade, as mandated in AB 398 (Garcia, 2017) to be initiated as soon as possible and be completed no later than 2025, including a thorough analysis of the cap needed to meet 2030 goals. Assessing the program’s current functioning is essential to ensuring a robust program. The review must include, in addition to the reforms described below:</p> <ul style="list-style-type: none"> • A complete examination of emissions trends for large facilities of concern that utilize the cap-and-trade program, including those sited in environmental justice communities (e.g., the Richmond Chevron refinery). Pursuant to long-time commitments from CARB to ensure there was no harm to EJ communities from the implementation of this program, this analysis should include criteria and toxic emissions trends as well as greenhouse gas emissions. The baseline should not be “cap-and-trade versus no program,” but include a three pronged analysis: (1) no program, (2) cap-and-trade, and (3) a third analysis of what impacts would have been if facilities had been forced to produce direct emissions reductions on track with the 2020 and 2030 targets. • A complete review of the price point and projected rate of increase in price of allowances to determine if that price is sufficient to drive the level of reductions needed to reach the 2030 target. This review should be based on the cost to retrofit or reduce emissions at the source to ensure that the cost of allowances is 	Analysis / Action

	<p>high enough to cause those changes to occur. Pursuant to AB 197, the social cost of carbon should also be taken into account.</p> <ul style="list-style-type: none"> • A recession analysis (comparable to what was done after the 2008 economic crisis) to understand the impact the COVID-19 pandemic has had on the system and any adjustments that may be needed to ensure program stringency. These adjustments may include, but are not limited to, retiring allowances from the system to account for lower than anticipated emissions, or increasing the price to accelerate emissions reductions that have stalled or increased. • A complete review of the number of allowances in the system, including banked allowances or reserves. This analysis should include consideration of how many allowances can be allowed to ensure that actual emissions in the state of California meet the statutory requirements. <p>Along with a program review, and consideration of recommended reforms, including those listed below, CARB must analyze the cap needed to meet 2030 goals to provide certainty that cap-and-trade will lead us toward actual emissions reductions. This analysis should be based on historical emissions trends since 2006, and include a causality analysis to document reductions attributed to cap-and-trade versus other, more direct (like the Renewable Portfolio Standard) or more costly (like the Low Carbon Fuel Standard) Scoping Plan programs to help inform realistic assumptions in the final scenario.</p>	
C1	<p>CARB should minimize reliance on cap-and-trade. Given the unpredictability of the carbon market, CARB should plan for direct emissions reduction methods to account for the entirety of reductions necessary. Cap-and-trade should not be relied upon as an assured way of meeting climate targets.</p>	Action
C2	<p>CARB must simultaneously close loopholes in cap-and-trade that further prevent direct emissions reductions in EJ communities. Reforms in program design could include the following:</p> <p>Eliminate offsets and free allowances. Policies like offsets and free allowances give cheap and free opportunities to avoid reducing what is coming out of smokestacks.</p> <ul style="list-style-type: none"> • Free allowances. The process of allocating free allowances to prevent leakage is based on old data and assumptions about allowance prices. If free allowances are not eliminated, CARB should commit to evaluate the emissions impacts of offsets and free allowances in EJ communities and further assess the extent to which free allowances contribute to increased emissions overall. Following this, CARB should revise the framework under which industrial polluters are allocated free allowances to account for the technical analysis of leakage risk conducted in earlier rulemakings for the program. • Offsets. If this recommendation is not accepted and offsets continue to be used, they must offset the emissions in the area where the emissions occur and within the State. Location of emissions reductions matter given the disproportionate health impacts from co-pollutants exposure in EJ communities that remain largely unaddressed by out-of-state offsets. In alignment with this recommendation, CARB should consider activities that can reduce pollution coming from across the Mexican border and should not allow emissions reductions from deforestation and forest degradation (REDD) international offsets. 	Action / Analysis
C3	<p>Implement IEMAC’s recommendations for market design and program reform. The IEMAC report makes several market-based suggestions that would address loopholes, including reducing the supply of new allowances, raising the allowance price floor,</p>	Action

	<p>conditioning offset availability on auction price (if offsets are not eliminated), and retiring allowances to account for shortcomings in offsets.</p> <p>(CalEPA. 2022. 2021 Annual Report of the Independent Emissions Market Advisory Committee. https://calepa.ca.gov/2021-iemac-annual-report/.)</p>	
C4	<p>Establish no-trading zones in EJ communities. Facilities in or directly adjacent to disadvantaged communities as defined by Health & Safety Code Section 39711 should be restricted from using allowances to demonstrate compliance. Instead they should be subject to regulations requiring direct emissions reductions equivalent to the declining caps applicable to the overall program (e.g., 3% per year). This would protect the most impacted communities from excessive exposure to co-pollutants. A proportional number of allowances should subsequently be removed from circulation to avoid further exacerbating existing oversupply issues.</p>	Action
C5	<p>Increase evaluation and data transparency. During the Scoping Plan process and in evaluating alternative scenarios, CARB should conduct further analysis and evaluation on industrial sectors such as refineries to determine whether facility- and industry-specific emissions increases are the result of the state’s overreliance on cap-and-trade and specific strategies to prevent and reduce those emissions (especially in EJ communities). Moving ahead, GHG and co-pollutant data collection and reporting must be standardized across agencies. CARB should move to an annual cycle for cap-and-trade crediting and reporting, and collect and publicly release data on facility- and company-specific allowance allocations and trading patterns via the CARB Pollution Mapping Tool.</p>	Analysis / Action

Carbon Capture, Use, and Storage		Type of Activity
<i>“CARB should” is implied at the start of every recommendation.</i>		
CC1	Prioritize direct reductions through the replacement of fossil fuel infrastructure with sources of clean, renewable energy, and reliable storage, as well as natural sequestration for planning, action, and investments.	Action
CC2	Replace fossil fuel infrastructure with sources of clean, renewable energy and reliable storage.	Action
CC3	Prohibit the use of CCUS in fossil fuel infrastructure, including refineries and natural gas power plants. Instead, both require comprehensive infrastructure phaseout and just transition planning processes in line with transportation policies and energy policies such as SB 100.	Action
CC4	Prohibit the use of CCUS on bioenergy infrastructure. Do not allow or rely on bioenergy carbon capture and storage (BECCS). If BECCS is used, the modeling assumptions should include permit requirements (i.e., BECCS is a net carbon emitter, a horrific source of local pollution, and a colossal waste of money).	Action/ Analysis
CC5	Prohibit the use of CCUS with natural gas power plants because it perpetuates fossil fuel infrastructure that must be phased out as part of a just transition.	Action
CC6	Eliminate consideration of CCUS as a direct emissions reduction strategy because it is a control technology that operates after the point of emission through a primary industrial process, which creates uncertainty in calculating total emission reductions that depends on a reliable performance of the technology.	Action
CC7	If deciding to apply CCUS, have strict monitoring protocols and only allow it to be narrowly applied to the most difficult to decarbonize sectors, like cement production.	Action/ Analysis/ Coordination
CC8	Place a moratorium on permit approvals projects that inject CO ₂ underground until the unified permit system authorized under SB 905 is complete and the State Geologist has evaluated all proposed sites for cumulative seismic risks associated with CO ₂ injection.	Action
CC9	<p><i>Carbon Pipelines and Transportation Safety</i></p> <p>A geologic carbon sequestration project shall only receive carbon dioxide streams from a pipeline.</p> <p>Once promulgated, the Office of the State Fire Marshal shall apply the Pipeline and Hazardous Materials Safety Administration (PHMSA) regulations to intrastate pipelines transporting CO₂ in liquid or supercritical states for pipelines within its jurisdiction. At a minimum, standards should meet the same stringent thresholds of liquid natural gas, including internal monitoring (inside the pipe).</p> <p>The California Public Utilities Commission shall apply the PHMSA regulations to intrastate pipelines transporting carbon dioxide in a gaseous state for pipelines within its jurisdiction.</p> <p>Within six months of the promulgation of new PHMSA federal regulations, the Office of the State Fire Marshal (OSFM) must initiate a rulemaking to create additional regulations for the protection of public health and safety. Every five years, the OSFM must determine whether the best available science, and the lessons of real-life deployment of pipelines, require stronger protections, and if so, the OSFM must start a new rulemaking to provide stronger protections.</p>	Action

CC10	<p><i>Project-Specific Air and Water Pollution</i></p> <ol style="list-style-type: none"> 1. The addition of carbon capture equipment shall not contribute to any project-level increase in any criteria air pollutant or toxic air contaminant or to increased levels of regulated water contaminants. <ol style="list-style-type: none"> 1. Any facility with carbon capture equipment shall create an Air Monitoring Plan to conduct baseline and fence-line monitoring using the best available technology, and the facility can only employ its carbon capture equipment if the CARB approves the plan. 2. Facilities adding carbon capture equipment shall minimize local air pollution, water pollution, and soil pollution during construction. 3. Any increase in any criteria air pollutants and toxic air contaminants will result in a presumption of fault from the addition of carbon capture equipment, rebuttable by proof that the increase results from other sources. 4. If carbon capture increases any criteria air pollutant or toxic air contaminant, it shall be a nuisance per se, and any impacted community member may bring suit against the operator or owner of the facility for the nuisance. 5. If carbon capture increases any criteria air pollutant or toxic air contaminant emissions, the Air District shall order the facility to cease operating its carbon capture equipment or take any other action necessary to reduce the criteria air pollutant or toxic air contaminant level to the previous baseline. 6. Facilities adding carbon capture equipment must also improve local air quality. If the addition of carbon capture equipment at a point source within a facility results in the same or increased criteria air pollutant emissions due to the emissions necessary to operate the carbon capture equipment, the facility may not weaken emission controls at a different point source elsewhere within the permitted facility in order to meet the required net reduction of air pollution. 2. CARB shall require and enforce a monitoring and pollution minimization program to monitor for air pollution and atmospheric CO₂ leaks at and near geologic carbon sequestration sites. <ol style="list-style-type: none"> 1. Each geologic carbon sequestration site shall create an Air Monitoring Plan to conduct baseline and fence-line monitoring using the best available technology, and the operator can only perform sequestration at the site if CARB approves the plan. 2. Operators of geologic carbon sequestration sites shall minimize local air pollution, water pollution, and soil pollution from construction and reinjection at injection wells. 3. A person may bring a civil action for actual damages, compensatory damages, punitive damages, injunctive relief, any combination of those, and any other appropriate relief against any operator or owner of a geologic carbon sequestration site that acts in violation of the monitoring and pollution minimization plan. 	Action
CC11	<p><i>Subsurface CO₂ Plume Monitoring and Leak Avoidance</i></p> <ol style="list-style-type: none"> 1. Each geologic carbon sequestration site shall create a Plume Monitoring Plan to conduct monitoring using the best available technology, and the State Geologist must approve the plan. <ol style="list-style-type: none"> a. An operator of a geologic carbon sequestration site must monitor the plume through monitoring wells in all directions. 	Action/ Analysis

	<ul style="list-style-type: none"> b. Monitoring wells must be located both where the plume is expected and where it is not expected to ensure that observed plume behavior is consistent with predicted behavior. 2. If the plume extends beyond where it is expected, injection must immediately cease, CARB and the State Geologist must alert potentially affected communities, enact an emergency response plan, and reassess the operation of the project to ensure permanence and durability of the project before continued operation is allowed. Any property rights-holders subsequently affected by the actual plume must be notified and grant affirmative consent to the plume on their property before operation may continue. 3. Geologic carbon sequestration site operators must perform corrective action on all wells that either penetrate the storage complex or are within the surface projection of the storage complex that are determined to need corrective action, including all wells that penetrate the storage complex and are determined to have been plugged and abandoned in a manner such that they could serve as a conduit for fluid movement into the shallower subsurface, prior to the commencement of injection. 	
CC12	<p><i>Reducing Induced Seismicity, Improving Site Characterization, and Securing Long-Term Assurances</i></p> <ul style="list-style-type: none"> I. In addition to other regulatory and permit requirements, each geologic carbon sequestration site must receive a permit from the State Geologist before it can operate. The State Geologist shall not issue a permit for geological carbon sequestration unless: <ul style="list-style-type: none"> 1. The State Geologist certifies that adequate site characterization has been completed to assure that: <ul style="list-style-type: none"> 1. The project will not significantly increase seismicity locally or regionally; 2. Seismicity does not present a significant risk in the long-term storage integrity of the targeted formations; and 3. The increase in sub-surface pressure due to injection will not unreasonably affect other property rights holders. <ul style="list-style-type: none"> 1. The site is capable of storing carbon at the level anticipated for at least 1,000 years; 2. The applicant has properly characterized the site, including which directions the plume may travel; and 3. The applicant has included a plume monitoring plan sufficient to ensure that observed plume behavior is consistent with predicted behavior. II. All draft permits proposed under this section must be noticed to the public and open for public comment. <ul style="list-style-type: none"> 1. Notice must be provided to residents, property owners, and sensitive receptors within 10 miles of the proposed project, as well as any interested parties that have requested notice. <ul style="list-style-type: none"> 1. Notice must be translated into any language that is the primary language of at least 5% of residents living within ten miles of the proposed project. 2. Notice must also be posted on the State Geologist's website. <ul style="list-style-type: none"> a. The public must be provided at least 60 days to submit public comment. 	Action/ Analysis

	<p style="text-align: center;">b. At least one public hearing must be held within 30 miles of the project, or as close as feasible if there is no available facility within 30 miles.</p> <p>III. The State Geologist shall consider and respond to all comments received on the draft permit when creating the final permit.</p> <ol style="list-style-type: none"> 1. On or before January 1, 2025, the State Geologist shall adopt regulations requiring a geologic carbon sequestration operator to conduct regular monitoring and reporting of seismic activity related to geologic sequestration of carbon dioxide for any geologic carbon sequestration project in the state. The State Geologist shall require changes in operations of a geologic carbon sequestration pilot project to ensure safety, including, but not limited to, a mandatory pause in operation, if monitoring and reporting detects increased seismicity. 2. CARB shall ensure that geologic carbon sequestration project operators provide for at least 100 years of project monitoring and financial assurance. 	
CC13	<p><i>Ensuring Project Integrity and Fiscal Responsibility</i></p> <ol style="list-style-type: none"> 1. Operators of carbon capture equipment must achieve an average annual carbon capture rate of 90% on a per-smokestack basis, inclusive of the emissions required to operate the carbon capture equipment itself. Credits generated under programs administered by CARB shall not be granted for carbon capture projects until actual performance of a 90% capture rate is demonstrated. This performance metric is required because the federal tax credit design-based standard is wholly insufficient. 2. Operators of carbon capture equipment must publish reports on actual operational capture rates to CARB and the public on an annual basis. Published capture rates shall include the emissions required to operate the carbon capture equipment itself. 3. Operators of geologic carbon sequestration must pay a fee into a financial assurance account, overseen by CARB, for each ton of carbon injected. The fees will be adjusted annually based on the state's estimated cost of repair or closure. If any project leaks, increases pollution, increases risks to human health or safety, or causes additional damage, as determined by CARB, then costs of the leaks, pollution, risks, or damage can be drawn from the financial assurance account. CARB shall determine the per-ton and per-facility fee based on the costs that would be associated with future leaks, increased pollution, increased risks to human health or safety, and potential damages; the risk of those leaks; and the need to protect communities and taxpayers from bearing externalities associated with potential future leaks and failures. 4. Taxpayers must not carry any financial liability or be exposed to any financial risk that is not fully insured by the operator. 	Action
CC14	<p><i>Protecting Future Regulations from Legal Challenge</i></p> <p>The State of California should expressly reserves all rights to regulate geologic storage of CO₂ for purposes of public safety. No grant of a property right under this title shall be interpreted to abridge or interfere with the state's reserved rights nor shall a court construe a compensable taking of property to have occurred if in the future the State utilizes these reserved rights.</p>	Action/ Coordination
CC15	<p>Allow the EJAC to influence the resources and research conducted to ensure it is driven by the needs of Environmental Justice communities and informed by their experiences,</p>	Action/ Coordination

	and that EJ communities participate in the research. The research should include direct involvement and leadership of the most-affected communities.	
CC16	Require the disclosure of potential conflicts of interest of all research study authors utilized to inform CCUS policy. Potential conflicts of interest are a set of circumstances that reasonable observers would believe creates an undue risk that judgment or actions regarding the twin interests of the state to reduce carbon and non-carbon pollutants would be inappropriately influenced by a secondary interest, including a financial interest. All financial compensation from industries associated with a past or present record of promoting climate denialism or disinformation must be disclosed and considered.	Action
CC17	Include direct emissions reduction strategies, sector-by-sector policies, and associated equitable implementation recommendations as outlined in the February 25, 2022 letter from environmental justice organizations to CARB and the EJAC titled “Environmental Justice Recommendations and Framework for CARB Scoping Plan.” https://ww2.arb.ca.gov/sites/default/files/2022-02/Letter%20to%20EJAC%20re%20framework%20%26%20substance%20for%20SP%20reccs%20to%20CARB%20-%202022_25_22.pdf	Action
CC18	Fund education to be administered by community-based organizations.	Action
CC19	Do no harm, and reduce the harm that already has been done.	Action
CC20	Publish diagrams and specifications of CCUS monitoring on a public website and to nearby communities.	Action
CC21	Disclose global examples of CCUS projects, successful or not, upon which CARB relies on to inform its CCS policies.	Action
CC22	Disclose how CARB is measuring the success of CCUS projects.	Action
CC23	Share CARB’s perspective on high road jobs.	Action
CC24	Share any evaluation of direct air capture in California.	Action
CC25	Provide a list of potential and proposed CCUS and hydrogen projects.	Action
CC26	Develop a dashboard that enables the public to access the data and research used by CARB for decision making.	Action
CC27	Address whether CCUS drops any gross polluters below a regulatory threshold and their responsibility to pay for their emissions.	Analysis
CC28	Discuss geological exploration and whether every avenue was explored.	Analysis
CC29	Consider the long-term effects of CCUS.	Analysis
CC30	Include remote sensors at the plug of CCUS projects under the Delta.	New Data Source
CC31	Consider cooperatives and other business models for public to be able to own the infrastructure we are investing in.	Investment
CC32	Identify the communities that are most neglected and develop guidelines to ensure that investments and programs match the communities where they are the most needed before any funding is released.	Investment
CC33	Triage the communities that are most neglected.	Action / Investment

Manufacturing		Type of Activity
<i>“CARB should” is implied at the start of every recommendation.</i>		
M1	Share a menu of direct emissions reduction strategies.	Action
M2	Oppose carbon sequestration, and focus on direct emissions reductions first.	Action
M3	Place a value on options in terms of the solution they provide, not spewing more carbon into the atmosphere.	Action
M4	Don't consider climate reducing policies that increase pollution in EJ communities.	Action
M5	Accelerate the closing of carbon credits. When credits close, they will have to pay a tax or a fee.	Action
M6	Seek the maximum feasible technology that is achievable to reduce emissions directly.	Action
M7	Target reductions on the dirtiest polluters.	Action
M8	Do not use biomass or renewable natural gas (RNG)-based hydrogen.	Action
M9	Ensure any switched fuels and new technologies/materials used do not increase local air pollution on disproportionately burdened communities.	Action
M10	Prioritize eliminating emissions before allowing CCS.	Action
M11	If it is used against our recommendations, establish a permitting process for CCS (see F4.6 for details).	Action
M12	Ensure that manufacturing infrastructure addresses historical inequities.	Action
M13	State CARB's position on carbon neutrality for manufacturing, electricity generation, and concrete.	Transparency and Access
M14	Prioritize (via innovation, investments, etc.) reductions of materials/process emissions versus energy source emissions, depending on which is the greatest contributor of emissions in any particular industry.	Transparency and Access
M15	Provide key information about demand trends and feasibility/scalability for different technologies produced by various manufacturers, as well as materials and fuels substitutions, so stakeholders can make informed decisions.	Transparency and Access
M16	Discuss integration of short-lived climate pollutants (SLCP) and hydrofluorocarbon (HFC) issues in the manufacturing sector.	Transparency and Access
M17	Factor innovative technologies, such as regenerative heat with electricity, into the modeling.	Analysis
M18	Analyze how the Scoping Plan has affected the manufacturing sector and publicly report on that analysis.	Analysis
M19	Promote education about pesticides, including the application and identification of petrochemicals used in pesticides, including those manufactured outside of California but purchased for use in California.	Education
M20	Channel investments into research and development, pilot programs, etc. to reduce the maximum levels of emissions directly from both materials used and from the manufacturing process, including fuels.	Investment

Public Health and Social Costs		Type of Activity
<i>“CARB should” is implied at the start of every recommendation.</i>		
P1	Promote public health high road jobs.	Action
P2	Work with Cal/OSHA to address the worker health and safety concerns of high road jobs.	Action
P3	Ensure the Scoping Plan incorporates strategies to reduce use of GHG producing pesticides.	Action
P4	Never rely on any GHG reducing policies that increase pollution in EJ communities.	Action
P5	Seek the maximum feasible and achievable technology and identify zero emission technologies that would prevent the need for mitigation technologies.	Action
P6	Design and implement the Scoping Plan to maximize emission reductions, health benefits, increased equity, and good paying union jobs that support families, as it transforms the energy infrastructure to achieve climate goals.	Action
P7	Design and implement the scoping plan to ensure that emissions are reduced first and fastest in disadvantaged communities.	Action
P8	Design and implement the Scoping Plan to avoid creating new types of harmful industries such as combustion of wastes or CCS.	Action
P9	Direct the same level of effort given to reducing emissions at ports to the emissions on the U.S./Mexico border.	Action
P10	Provide access to the main database with the most localized data available.	Transparency and Access
P11	Improve accessibility for criteria pollutant and air toxics emissions data, and add finer scale criteria pollutant and air toxics emissions data for the oil and gas sector.	Transparency and Access
P12	Provide both qualitative and quantitative health and cost data on health impacts.	Transparency and Access
P13	Provide a publicly accessible online tool for the data sources used for the health impact analysis.	Transparency and Access
P14	Increase the transparency in offset entity information by clearly linking specific carbon offset projects with specific polluting entities.	Transparency and Access
P15	Share analyses done from previous Scoping Plans that advance Environmental Justice regarding the fuel industry, in addition to phasing out fossil fuel production by 2035.	Transparency and Access
P16	Share publicly the available research of CARB research staff involved with the Scoping Plan.	Transparency and Access
P17	Detail how Border emissions are calculated, counted, and integrated into the Scoping Plan.	Transparency and Access
P18	Ensure transparency for the EJAC and the public for: data resources, monitoring and assessment activities by CARB and its permittees, monitoring and modeling approaches, assessment methods and results, and specific data products or results.	Transparency and Access
P19	Account for emissions from California’s wildfires in the Scoping Plan.	Analysis
P20	If CARB relies on CCUS, it must demonstrate the safety and impact on local air pollution of CCUS projects.	Analysis
P21	Design localized health impacts into the Scoping Plan modeling.	Analysis
P22	Have a third party conduct a racial equity impact analysis of the Scoping Plan before it is approved by the Board. See, for example, the Racial Equity Impact Assessment and Implementation Guide for the Oakland 2030 Equitable Climate Action Plan, developed by Environmental / Justice Solutions: https://cao-94612.s3.amazonaws.com/documents/FINAL_Complete_EF-Racial-Equity-Impact-Assessment_7.3.2020_v2.pdf .	Analysis
P23	Have a third party conduct a health impact analysis, including a full life cycle assessment of CCS, and identify what it would look like if CARB relies on carbon capture and storage	Analysis

	(CCS) in the Scoping Plan. CARB should compare the health impacts of CCS to direct emissions reduction strategies.	
P24	CARB and CDPH should have a third party conduct a health impact assessment (HIA) of CCS as soon as possible, and before May 2022. Present it to the EJAC and the Board, and ensure that the data are accessible and understandable to all stakeholders, as is done with CalEnviroScreen. In 2010 an HIA of the Cap and Trade program was funded by CARB ⁶	Analysis
P25	Implement a statewide data standard for all emission sources that would collect more granular, community-level data for mobile and stationary sources.	New Data and Partners
P26	By the end of 2023, have the CDPH Office of Health Equity create a data sharing partnership with clinics and other health providers in disadvantaged communities to get more granular health data for use in a more robust health impact analyses. Ensure the funding level supports a robust process.	New Data and Partners
P27	Incorporate into the scoping plan a long-term partnership with the EJAC that would assure the following: <ul style="list-style-type: none"> • EJAC review of an annual agenda of proposed activities by CARB, supported by quarterly updates • Meaningful EJAC review of directions for research funded or conducted by CARB or its partners or funding recipients, as well as specific research topics and proposals • A collaborative process for CARB technical staff and leadership to engage with EJAC and communities on specific projects and activities 	New Data and Partners
P28	Develop data sources and metrics to track progress under the Scoping Plan and related actions to achieve projected results using a collaborative approach, supported by an online dashboard and including ground truthing.	New Data and Partners
P29	Incorporate community knowledge and data sources from EJ communities to inform Scoping Plan work with the EJAC to develop Participatory Action Research projects in the development and evaluation of Scoping plan measures.	New Data and Partners
P30	Create environmental and health equity metrics tracking and benchmarks for EJ communities, disaggregated by race/ethnicity.	Ongoing Assessment and Evaluation
P31	Share how the health impact analysis will be used to evaluate Scoping Plan measures, and consult with the EJAC to improve the methodology.	Ongoing Assessment and Evaluation
P32	Provide all available data used to characterize conditions and for assessments, to ensure transparency, including full life cycle analyses. Incorporate principles of life cycle analyses to consider the full impacts of key elements of the plan and policies. Provide the data and results of such analyses.	Ongoing Assessment and Evaluation
P33	Promote education about pesticides, including the application and identification of petrochemicals used in pesticides, including those in pesticides manufactured outside of California but purchased for use in California.	Education

⁶ CDPH. 2010. Health Impact Assessment of Cap-and-Trade in California. https://ww2.arb.ca.gov/sites/default/files/2020-08/cdph_hia.pdf.

Natural and Working Lands		Type of Activity
<i>“CARB should” is implied at the start of every recommendation.</i>		
N1	Collaborate with Native Nations (use State’s language [B-10-11] rather than <i>Native Nations</i>) for traditional land practices. Prescribed cultural burning as a continuation of traditional land management practices, for example, should be allowed to prevent extreme wildfires. Such collaboration includes rematriation of land to tribal stewardship.	Action
N2	Consult with CNRA, CAL FIRE, and the Ocean Protection Council to fully understand and represent the sequestration potential of desert, montane, urban forests, and blue carbon ecosystems. For example, while the potential of the Sacramento-San Joaquin Delta is included in the Scoping Plan, the significant and scientifically verifiable carbon sequestered and stored in the State’s coastal wetlands is omitted from current modeling. Evaluate and estimate the offshore capacity of healthy aquatic systems to complement terrestrial systems to ecologically sequester carbon without relying on carbon offsets. Acknowledge that Tribes rely on subsistence fishing and harvesting; assess the barriers and opportunities to ecologically sequester carbon and produce a healthy aquatic system and subsistence fishing, including Tribal ecological knowledge.	Action
N3	<p>Use qualitative targets for carbon reductions (e.g., urban greening, healthy soils practices) rather than a quantifiable target for carbon sequestration. This will help to spur transition to agroecology and diversified organic agriculture, increasing land access to more diverse populations and expanding more innovative and inclusive measures.</p> <p>We recommend including quantitative and qualitative targets around agricultural practices that would build environmental justice while addressing climate change. Prioritize the following targets, goals and actions within the revised Scoping Plan:</p> <ul style="list-style-type: none"> • Organic agriculture should make up 30% of the total agricultural acreage by 2030 and 80% by 2045. • To help ensure healthier communities, use actual, trackable pesticide reductions as a metric, as they are measurable and verifiable by the California Department of Pesticide Regulation. Reduce synthetic pesticide use by 50% by 2030, and reduce the use of hazardous pesticides (such as organophosphates, fumigants, paraquat, neonicotinoids, and sulfuryl fluoride) by 75% by 2030. • Exclude herbicide (and any other pesticide) applications from the Scoping Plan as a climate-friendly management strategy for all land sectors. • Reduce synthetic nitrogen (N) fertilizer use by 50% by 2030 through increasing N use efficiency and improving the use and distribution of compost, thus significantly reducing a major source of N in ground and surface waters, including drinking water sources, and methane emissions from landfills. 	Action
N4	Adopt organic farming in all Scoping Plan scenarios. Include an ambitious pesticide reduction target to (1) reduce the use of synthetic pesticides by 50% by 2030 and (2) reduce the use of hazardous pesticides by 75% by 2030, starting with organophosphates, fumigants, paraquat, and neonicotinoids. Restructure scenarios to model progressive percentage increases in the adoption of all proposed agricultural management strategies. Adopt a more ambitious target for organic agriculture; organic agriculture should make up 30% of total agricultural acreage by 2030 or 70%–80% by 2045.	Action

N5	Share the improvements the previous EJAC asked for. From the 2008 EJAC Recommendations: "Recommendation to Protect Farmland: The Committee recommends that ARB encourage land use planning and development that protects farmland. ARB should also encourage organic and other sustainable farming practices that reduce greenhouse gas emissions from fertilizers and pesticides."	Action
N6	Seek nontraditional technical input, including traditional ecological knowledge with Free Prior and Informed Consent per United Nations Declaration on the Rights of Indigenous Peoples (DRIP) and other State agencies working with Tribal communities on regional water boards' triannual water plans.	Action
N7	Transition large-scale and smaller scale, resource-intensive, mono-cropping, and polluting factory farms to agroecological models. Provide support for smaller farming operations to transition from polluting methods and non-sustainable methods like mono-cropping to agroecological farming methods without the use of fertilizers and pesticides.	Action
N8	Respond to how environmental justice communities support the creation and development of more natural land development, protecting natural land from development or restoring developed land to its natural state in reciprocal Free Prior & Informed Consent with Tribal nations using traditional ecological knowledge (TEK). For example, removing invasive species and restoring native species, and preventing suburban sprawl.	Transparency and Access
N9	Describe commonalities and differences of the Scoping Plan with the state's 30 x 30 goals. State's Truth and Healing Council—looking at historical engagement between State agencies & Tribes. CARB should add this EO to the list of EOs.	Transparency and Access
N10	Work with relevant water and policy agencies to find co-benefits and impacts to ecosystems for Tribes and communities. For example, do not incentivize the expansion of dairies due to negative water impacts or allow for expansion and continuance of dams and water diversions. Endangered species such as salmon need dams to come down as soon as possible.	New Data and Partners / Interagency Coordination
N11	Evaluate public health and equity outcomes for all NWL and energy management strategies, in addition to carbon, model methane and nitrous oxide emissions from NWL and hydroelectric dams. Model the full life cycle GHG and public health impacts of fumigant pesticides and synthetic fertilizers.	Analysis
N12	Include a negative carbon subregion as a goal.	Analysis
N13	Assess and report on the impacts of past and future Scoping Plan activities on tribal lands and state lands such as state parks.	Analysis
N14	Evaluate public health and equity resulting from poor air quality conditions; for example, communities with repeated wildfire smoke exposure or the San Joaquin Valley.	Analysis
N15	Develop a protocol for updating the plan as new information is gathered and approaches identified, as statute proposes the need to have more frequent climate policy planning. AB 32 states that "The state board shall update its plan for achieving the maximum technologically feasible and cost-effective reductions of greenhouse gas emissions at least once every five years." In this critical decade, California's climate policy must be adaptive and responsive to the latest science and needs on the ground. This flexibility is particularly important for sectors, such as NWL, that are underdeveloped in the current draft.	Action
N16	Work on a government-to-government basis to ensure free, prior and informed consent of tribal nations. CARB must consult with and fully support a tribal-led process of shaping and informing Natural and Working Lands (NWL) targets, pathways, and actions to be supported by the State of California. Conduct a comprehensive analysis of the tribal and climate justice impacts (positive and negative) of proposed NWL sector targets, scenarios, and pathways currently outlined in the SPU. In addition, this analysis should assess and report on impacts to Tribal and state lands. Such an analysis should be significantly informed by tribal communities and their partners that bring on-the-ground expertise, including traditional ecological knowledge.	Transparency and Access / Investment / Action / Analysis

N17	Collaborate with Native Nations (use State’s language [B-10-11] rather than Native Nations) for traditional land practices. Prescribed cultural burning as a continuation of traditional land management practices, for example, should be allowed to prevent extreme wildfires. Such collaboration includes rematriation of land to tribal stewardship. Prioritize Indigenous cultural burning over that of agricultural burning.	Action / Transparency and Access / Action
N18	Develop a thorough and specific process for tribal consultation. Ensure that tribal consultation complies with AB 52 and that funds are provided to enable tribes to fully participate in consultation.	Action / Transparency and Access / Investment
N19	When working with the Interagency working group to recommend measures in relation to tribes, use an economic development analysis to identify business endeavors in which tribes are engaged and the economic and equity impacts of the proposed measures on those businesses. Ensure that recommendations are in line with each tribe’s traditional practices (e.g., cultural burning) in the area where they are intended to be applied.	Analysis / Action
N20	Convene an Advisory Committee (including EJAC and other environmental justice representation) to partner with the Department of Pesticide Regulation, California Natural Resources Agency (CNRA), California Department of Food and Agriculture (CDFA), Department of Conservation (DoC), and other key natural resource agencies to develop NWL targets, pathways, priority actions, and programs. This Committee should focus its attention on significant reshaping of current NWL modeling and development of new analyses to support the recommendations contained herein. Analyses should include unique opportunities for structural changes that may dramatically increase their carbon sequestration capacity; from various natural and/or protected lands. Separate analyses should be conducted for agricultural, urban, forest, estuaries, wetlands, deserts, and suburban sectors.	Action / Interagency Coordination / Analysis
N21	Use the term “diversified organic agriculture” in the Scoping Plan rather than “carbon farming,” “regenerative agriculture,” or “climate smart agriculture” since those terms do not have agreed-upon definitions and are not verifiable or certifiable. “Organic” agriculture has a specific definition from the National Organic Standards Board (NOSB).	Action
N22	<p>Use qualitative targets for carbon reductions (e.g., urban greening, healthy soils practices) rather than a quantifiable target for carbon sequestration. This will help to spur transition to agroecology and diversified organic agriculture, increasing land access to more diverse populations and expanding more innovative and inclusive measures.</p> <p>We recommend including quantitative and qualitative targets around agricultural practices that would build environmental justice while addressing climate change. Prioritize the following targets, goals and actions within the revised Scoping Plan:</p> <ul style="list-style-type: none"> • Organic agriculture should make up 30% of the total agricultural acreage by 2030 and 80% by 2045. • To help ensure healthier communities, use actual, trackable pesticide reductions as a metric, as they are measurable and verifiable by the California Department of Pesticide Regulation. Reduce synthetic pesticide use by 50% by 2030, and reduce the use of hazardous pesticides (such as organophosphates, fumigants, paraquat, neonicotinoids, and sulfuryl fluoride) by 75% by 2030. • Exclude herbicide (and any other pesticide) applications from the Scoping Plan as a climate-friendly management strategy for all land sectors. • Reduce synthetic nitrogen (N) fertilizer use by 50% by 2030 through increasing N use efficiency and improving the use and distribution of compost, thus significantly 	Action

	reducing a major source of N in ground and surface waters, including drinking water sources, and methane emissions from landfills.	
N23	Remove any form of Carbon Capture, Use, and Storage (CCUS) or Direct Air Capture (DAC) within the NWL sector, including in any planning, implementation, and GHG accounting frameworks.	Action
N24	Increase coordination and interagency consultation with natural resources agencies, including DPR, CNRA, CDFA, CALFIRE, and other agencies that manage NWL programs, including the U.S. Department of Agriculture and Department of Interior.	Interagency Coordination /
N25	Projects and actions developed to meet the NWL sector targets, goals, and priority actions shall not create credits for the purposes of market-based compliance mechanisms and shall not be used by a state or private entity to offset a statutory or regulatory obligation to reduce emissions.	Action
N26	The Scoping Plan should reflect conservation best practices and ensure assumptions align with the state's goal to conserve 30% of public lands by 2030.	Action
N27	Encourage land use planning and development that protects farmland.	Action

Community Engagement		Type of Activity
<i>“CARB should” is implied at the start of every recommendation.</i>		
CE1	Provide adequate opportunity and time for meaningful Tribal and Indigenous engagement.	Action / Investment / Transparency and Access
CE2	Thoroughly incorporate Tribal and Indigenous recommendations into updated modeling and drafts.	Action
CE3	Co-design with the EJAC a model for the Scoping Plan process that promotes cooperative, equitable decision-making and ensures meaningful engagement of, environmental justice and Tribal communities, and responsiveness to their concerns.	Action / Transparency and Access / Investment
CE4	Work with the EJAC to develop methods to evaluate the effectiveness of measures in the Scoping Plan, including previous Scoping Plan measures, and have a third-party evaluator conduct the evaluation.	Action / Analysis
CE5	Work with OEHHA, and in consultation with the EJAC, to develop and adapt methods to conduct a robust, detailed, and high-resolution public health and equity analysis of the Scoping Plan proposals. Complete a health impact assessment before the next Scoping Plan process begins to provide a baseline for the EJAC at the beginning of the Scoping Plan process. Repeat these assessments before the update of every Scoping Plan as an ongoing assessment of public health.	Action / Analysis / Transparency and Access
CE6	Fund community engagement outreach at the level and within timeframes necessary to ensure widespread statewide engagement for meaningful input into rulemakings and regulatory processes including the Scoping Plan, both with Tribal communities and Environmental Justice communities. Provide additional staff and resources that enable the EJAC to function at the level necessary to inform this process.	Investment / Action
CE7	Establish Language Justice practices and practices that enable consistent, equitable participation by people who speak languages other than English or with disabilities. Timing adjustments must be made to allow full review of the Scoping Plan by these stakeholders.	Action
CE8	Create opportunities for ongoing community engagement and more equitable implementation through a permanent EJAC, with outreach particularly to environmental justice communities from	Action / Investment

	inception to implementation. Potential resource from Office of Planning and Research: https://opr.ca.gov/ocpsc/	
CE9	Ensure the commitment to make EJAC permanent is met with requests for adequate staffing and financial support, particularly for community engagement and for the Office of Environmental Justice. Invest in the EJAC to build and maintain the lines of communication for meaningful participation.	Action / Investment

Just Transition		Type of Activity
<i>“CARB should” is implied at the start of every recommendation.</i>		
JT1	Be innovative in exploring alternative options.	Action
JT2	Ground-truth the Scoping Plan—the reality is on the ground.	Action
JT3	Share CARB’s perspective on high road jobs.	Action
JT4	Consider cooperatives and other business models for the public to be able to own the infrastructure we are investing in.	Action
JT5	Ensure that the Scoping Plan process focuses on investments that can create positive change in communities that bear a disproportionate burden of environmental impacts.	Investment
JT6	Identify the communities that are most neglected and develop guidelines to ensure that investments and programs match the communities where they are the most needed before any funding is released.	Investment / Action
JT7	Triage the communities that are most neglected.	Action
JT8	Enforcement needs to be added in the recommendations and include an evaluation of sectors and subsectors where Cap & Trade has obviously underperformed and/or failed. The industry sectors or specific corporations with those sectors could benefit from a hybrid model.	Action / Investment
JT9	Go beyond the status quo, especially where the science to support that exists, including looking at models in other nations.	Action
JT10	Ensure a just transition for workers. Transitioning refineries, for example when internal combustion engine is phased out, will require years of permitting; that process has to begin now.	Action
JT11	Meet climate goals as justly as possible but also in a way that minimizes the damage to our economy. We need to ensure economies will survive through the end of fossil fuels; workers need to maintain their livelihoods and the tax flow needs to continue to support local economies.	Action
JT12	Start transitioning to alternatives now, including just transitions.	Action
JT13	Implement incremental industrial electrification to reach 100% clean energy sources (such as high industry electrification via renewables and direct hydrogen combustion via dedicated clean hydrogen pipelines) by 2045.	Action
JT14	Apply the best available control technologies to reduce pollution in the interim until 100% zero-emissions facilities are achieved.	Action
JT15	Start transitions in disadvantaged communities first.	Action
JT16	Acknowledge and strive for union jobs in this sector.	Action
JT17	Discuss the overlaps between sectors (manufacturing, SLCP, fuels, energy, NWL, etc.)	Action
JT18	Develop a publicly accessible clearinghouse of technology options and their technology readiness levels, to help stakeholders identify viable options.	Action
JT19	Invest in education and infrastructure development in disadvantaged and rural communities (including Border communities) to enable them to access high road jobs, rather than assuming those jobs are only available in Silicon Valley. Ensure jobs are mutually beneficial, not extractive.	Investment

JT20	Ensure the NWL interagency workgroup explores state and federal funding for workforce development and investment in disadvantaged communities.	Investment / Action / Education
JT21	Prioritize the development of local and regional capacity, partnerships, and plans to implement NWL actions (with targeted co-benefits) across California, with a focus on investments and capacity building in tribal, environmental justice, and resource-dependent low-to-moderate income communities.	Action / Investment
JT22	Support robust expansion of workforce training and high roads employment to support planning, implementation, and adaptive management of California's NWL, with emphasis on tribal, environmental justice, immigrant, and low-to-moderate income communities.	Action / Investment
JT23	Provide annual, ongoing state funding to Tribal governments and/or natural resource organizations, including Tribal Resource Conservation Districts, Resource Conservation Districts, and the University of California Cooperative Extension focused on organic, ecologically focused agriculture. Such efforts should prioritize serving farmers of color, and secondarily on small-to-mid scale farmers (particularly those who have already begun to develop and implement organic and agroecology farming practices).	Investment / Action
JT24	Significantly increase access to land, finance, and technical assistance to enable land managers of color (including new farmers, ranchers, foresters, and harvesters) and tribal communities to represent a significant component of the State's investments in the NWL sector.	Action / Investment
JT25	Integrate worker protections and empower workers to shape and lead priority actions within the NWL sector (especially in the agricultural and forestry sectors) more comprehensively in the Scoping Plan.	Action

Enforcement		Type of Activity
<i>"CARB should" is implied at the start of every recommendation.</i>		
E1	<p>Ensure regular compliance inspections of major emissions sources. These should include the following:</p> <ul style="list-style-type: none"> For all GHG emissions regulations, establish a public database and system that informs the public of how well that regulation is achieving its goals; a record of related investigations, findings and violations from CARB and the Air Districts; if and whether the regulated parties are in compliance; and a mechanism to prompt questions to the public in order to collect information upon which investigations may be initiated. Expedited Best Available Retrofit Control Technology (BARCT): For industries or facilities that are major or are expected to grow, inform the public about how well they are controlled and how much the source itself utilizes programs like Cap and Trade to address criteria emissions and community impacts. Establish an enforcement taskforce that addresses multiple sources of pollution. Conduct audits on enforcement programs of all air districts' enforcement, conditional use, and permitting programs every two years, and publish those findings. Reassess if/when authority should be joint/interagency. Right now, for example, the methane rule is delegated to air districts through Memorandum of Understanding (MOU), which is problematic for regions with Air Districts that are not responsive to community needs or do not have the appropriate capacity, expertise, and internal investigation-enforcement protocols. Consult with the Attorney General's Bureau of Environmental Justice on how to substantively integrate equity into monitoring, investigation, and enforcement practices across CARB regulations. 	Action / Analysis / Interagency Coordination

	<ul style="list-style-type: none"> • Conduct staff training and capacity building, in consultation with the Office of the Attorney General. • Identify any self-reporting and self-monitoring regulations that do not require regular submission of information to CARB and regular CARB review of compliance data. Self reporting privileges should only be given to outstanding operators without a record of violations, if at all. Preferably, self-reporting should be phased out. • Expand the enforcement program and expand the office of criminal investigations beyond toxics to cover GHGs across Boards, Departments, and Offices (BDOs) and Natural Resources. 	
E2	<p>Review and incorporate guidance from the federal government where federal rules are stronger than state guidelines on incorporating EJ into enforcement activities. This includes, but is not limited to, increased frequency of inspections in EJ neighborhoods, consideration of cumulative impacts into permitting and enforcement, community engagement, and trauma-informed enforcement activities.</p> <ul style="list-style-type: none"> • For example, see the U.S. EPA's Environmental Justice in Enforcement and Compliance Assurance: <ul style="list-style-type: none"> ○ https://www.epa.gov/enforcement/environmental-justice-enforcement-and-compliance-assurance 	Action / Analysis / Interagency Coordination
E3	<p>Permanent EJAC and environmental justice community based organizations (CBOs) should inform enforcement, and should be collaborative when possible.</p>	Action / Analysis / Interagency Coordination
E4	<p>Assess and enhance the ability of the public to report and file enforcement complaints, building from models like the Identifying Violations Affecting Neighborhoods (IVAN) network.</p>	Action / Analysis
E5	<p>Assess and enhance the ability of Air District staff, including lawyers, to bring enforcement actions.</p> <ul style="list-style-type: none"> • Consult with the Attorney General's Bureau of Environmental Justice on how to substantively integrate equity into monitoring, investigation, and enforcement practices at Air Districts. • Provide support to Air Districts to conduct staff training and capacity building, in consultation with the Office of the Attorney General. 	Action / Analysis / Interagency Coordination

Also included as part of the EJAC's recommendations are those in the table in Appendix A: Table Summary of Direct Emission Reduction Strategies, from the March 9, 2020, letter from a group of environmental justice organizations to CARB Board Chair Liane Randolph, titled "Environmental Justice Recommendations for 2022 Scoping Plan." This table is provided below.

Appendix A: Table Summary of Direct Emission Reduction Strategies

Note: these numbers are estimates based on CARB GHG inventory data and E3 Achieving Carbon Neutrality report and some may be underestimated, but demonstrate significant reductions for each of these sectors and identify the clean energy replacements necessary

Sector	Relevant Statutes	Proposed Policy	Direct Emissions Reductions (% or MMT)	Equitable Implementation of Policy
Transportation	AB 32, AB 197, SB 375	100% light-duty vehicle sales are ZEV by 2035. 100% medium- and heavy-duty vehicle sales are ZEV by 2035. 100% drayage trucks ZEV by 2030 30% VMT reductions by 2035 to get to 11% transit ridership. Increase MPO GHG reduction target to 25% by 2035.	28.5% GHGs from light-duty vehicles cut. 7.8% of State GHGs from heavy-duty vehicles cut.	Policy signals for transit investments to implement CAPTI and CTP. Increased funding for ZEV equity programs for disadvantaged communities. Increased SB 375 targets. Increased VMT reduction targets with policy signals to help with accountability. Ensure equity throughout the Advanced Clean Fleet rulemaking. Mandate truck retirement after a vehicle's useful life, and encourage fleets to transition trucks voluntarily even sooner.
Refineries	AB 197, SB 32, AB 32	Direct the state to plan, coordinate, and manage the phase down of oil refining by 2045.	7% of state GHGs cut.	By 2024, in collaboration with impacted workers and communities, adopt an interagency plan with regular milestones to manage the decline of California oil refinery production of gasoline, diesel, and other fossil fuels, reflecting California's plans to decarbonize transportation. Create a robust multi-year safety net for fossil fuel workers and impacted communities.
Oil & gas Extraction	AB 32, AB 398, AB 197, SB 32	Direct the state to phase out oil and gas extraction by 2035.	4% of state GHGs cut.	Adopt statewide comprehensive health and safety setbacks of at least 3200ft. for new and existing wells. Facilitate a mandated, managed phased decline of extraction. Ban rework permits & consider policies such as severance taxes to facilitate phase out.
Industrial	AB 197, SB 32, SB 596	Prioritize investments in clean innovative technologies to reduce process emissions and material emissions to reach at minimum 72% electrification & green hydrogen sources combined.	SB 596 calls for cuts in GHG emissions to at least 40 percent below the 2019 average levels by December 31, 2035 for the cement sector.	Channel investments into Research & Development, pilot programs, etc. to reduce maximum levels of emissions directly from both materials used and from the manufacturing process. Facilitate incremental industrial electrification to reach 100% clean energy sources by 2045, including through industry electrification via renewables and direct hydrogen combustion via dedicated clean Hydrogen pipelines (not biomass or RNG based). Ensure any switched fuels and new technologies/materials used do not increase local air pollution in disproportionately burdened communities. Apply best available control technologies to reduce pollution in the interim until 100% zero-emissions facilities are achieved. Start this transition in disadvantaged communities first.
Electricity	SB 100, SB 350, PUC	The Scoping Plan should support a target	17% of State GHGs cut.	The Scoping Plan should strongly support the CPUC and CAISO in locationally-targeted planning and procurement now to retire emitting resources, with priority for disadvantaged communities and those

Sector	Relevant Statutes	Proposed Policy	Direct Emissions Reductions (% or MMT)	Equitable Implementation of Policy
	454.51(a), E.O. B-55-18	of no more than 30 MMT, as referenced in the CPUC's RESOLVE sensitivity analysis. The Scoping Plan should encourage additional analyses of deeper decarbonization such as a 15 MMT target.		adjacent, such as the Los Angeles Basin and the San Joaquin Valley.
Agriculture (incl. Pesticides)	AB 32	<p>Directly reduce emissions from pesticides and their application, especially those chemicals identified by Californians for Pesticide Reform and Pesticide Action Network as priority.⁷</p> <p>Transition large-scale, resource-intensive, and polluting factory farms to agroecological models.</p>	8% of state GHGs cut.	<p>Emissions reductions from energy consumed by California's agricultural sector, including post-harvest processing, use of tractors and other farm equipment, and water import and irrigation. There should be no energy created from agricultural waste that creates additional greenhouse gasses or toxic emissions, such as with dairy digesters and bioenergy plants.</p> <p>Include an ambitious pesticide reduction target to 1) reduce the use of synthetic pesticides by 50% by 2030 and 2) reduce the use of hazardous pesticides by 75% by 2030, starting with organophosphates, fumigants, paraquat and neonicotinoids.</p>
Buildings (Residential & Commercial)	SB 350, AB 197, SB 32	<p>Transformative and comprehensive energy efficiency upgrades, prioritizing low-income communities and disadvantaged communities.</p> <p>100% sales of electric appliances by 2030.</p> <p>All gas end uses</p>	11% of state GHGs cut.	Ensure that the Building Energy, Equity and Power (BEEP) Coalition's Energy Justice Framework

⁷ Pesticide Action Network and Californians for Pesticide Reform comment letter to CARB for 2022 Scoping Plan Update Natural and Working Lands Scenarios Technical Workshop. https://www.arb.ca.gov/lispub/comm2/bccomdisp.php?listname=nwl-2021-scen-ws&comment_num=70&virt_num=69.

Sector	Relevant Statutes	Proposed Policy	Direct Emissions Reductions (% or MMT)	Equitable Implementation of Policy
		should be retired by 2045.		<p>statement⁸ & Listening Sessions report's recommendations⁹ & comment letters¹⁰ are incorporated into the Scoping Plan.</p> <p>Ensure the \$922 million proposed in the Governor's January budget is adopted to go toward a new CEC Equitable Building Decarbonization program for incentives and a direct install program targeted toward low-income residents to provide heat pumps for cooling, energy efficiency, and building insulation and sealing. This program must enable holistic building upgrades, offer inclusive household eligibility by prioritizing those most vulnerable, engage in community partnerships and effective state and local coordination, and include strong tenant protections and anti-displacement measures in order to be just and equitable. Furthermore, this program should be connected to other clean energy and efficiency programs where possible, such as the Low-Income Weatherization Program (LIWP), in addition to existing and emerging bill protections plans to ensure that low-income residents do not see even higher utility bills due to any home upgrades.</p>
All Sectors	N/A	N/A	Total state GHG cut directly (not including Industrial) = 83.3%	N/A

⁸ Building Energy, Equity and Power (BEEP) Coalition, *Energy Justice Framework statement*, https://docs.google.com/document/d/1iSN-_TSSjKd9-9yXi7xNkvYgEC0-XDs4heDXTEmQs30/edit.

⁹ Building Energy, Equity and Power (BEEP) Coalition Report and Recommendations to CARB, March 1, 2022 https://ww2.arb.ca.gov/sites/default/files/2022-03/BEEP%20Letter%20and%20Report_Equitable%20Decarb%20March%202022.pdf.

¹⁰ See Miller, Colin's comment letter responding to CARB's Decarbonization workshop on December 13, 2021, submitted on behalf of BEEP Coalition. <https://www.arb.ca.gov/lispub/comm2/bccommlog.php?listname=sp22-buildings-ws>.