

Environmental Justice Advisory Committee

Draft Scoping Plan Recommendations

California Air Resources Board

Scoping Plan 2022 Update

June 23, 2022

There is a Better Path

The Scoping Plan is fundamentally flawed & will not meet the baseline 2030 statutory target or the 2045 goal.

Adopt the 'Real Zero' Alternative.



Fossil Fuel Phaseout

Refineries

Phaseout and GHG cuts will not happen automatically

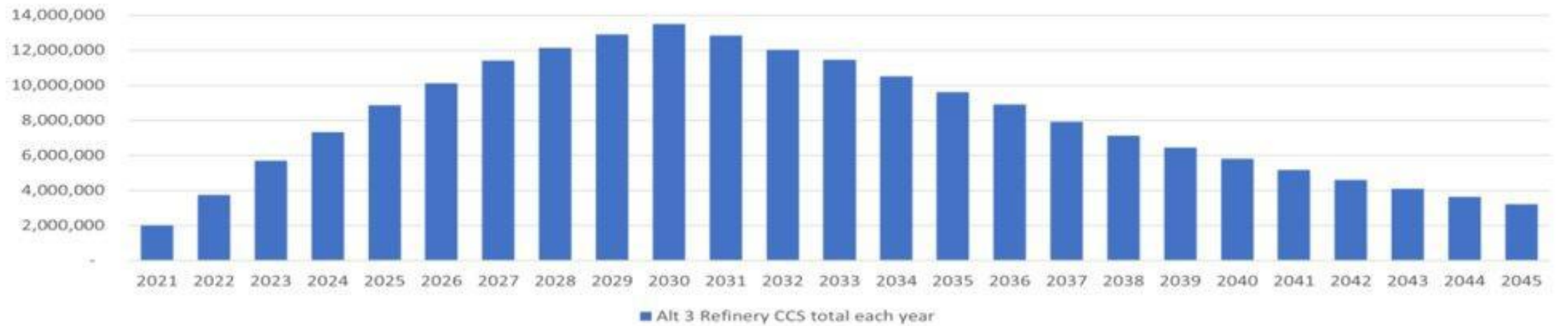
“By 2024, in **close collaboration with refinery workers and communities**, CalEPA should lead the adoption of an interagency plan to **manage the decline** of California oil refinery production of gasoline, diesel, and other fossil fuels.” - *EJAC Recommendation NF2B*

- **Lack of a phase-out plan means California will fail to meet GHG goals and continue refinery harms in EJ communities**— including regular explosions, flaring, and continuous emissions of smog-precursors and toxic and hazardous air contaminants— leading to **high rates of asthma and cancer**.
- **California needs an immediate, robust safety net for fuel workers and communities.**



Instead of starting a long-term refinery phase out planning process, the Draft Scoping Plan relies heavily on *unrealistic and dangerous* Refinery Carbon Capture & Sequestration (CCS)

- Scoping Plan modeling assumed refinery emission cuts from CCS could happen immediately. Yet CCS does not yet exist in any California refinery system.
 - *Projected 2 million tons cut starting last year with 13 million tons cut by 2030*
- CARB staff now acknowledge CCS in refineries could not happen so quickly.
- But CARB should not assume any CCS in refineries in this Scoping Plan at all.



Refineries

Planned Phase-out by 2045 is Essential to California's Future

- In addition to risk from CO2 pipeline leakage, CCS is dangerous *inside* refineries.
- SCAQMD rulemaking found all SoCal refineries studied are space-constrained. Addition of extensive equipment **introduces hazards & can compromise maintenance.**



(Google Earth video courtesy CBE)

Draft Scoping Plan Language:



Sector	Action
Oil & Gas Extraction	Phase out operations by 2045

Draft Scoping Plan, p. 59, Table 2-2: Actions for the Proposed Scenario: AB 32 GHG Inventory sectors

“To avoid leakage, as called for in AB 32, and meet that remaining demand for petroleum fuel, a **complete phaseout of oil and gas extraction and refining is not possible by 2045.**” - Draft Scoping Plan, p. 78

The Draft Scoping Plan’s proposed actions for Oil and Gas Extraction are inconsistent.

Oil Extraction

Must be phased out in California by 2035

Los Angeles Times

L.A. County takes first steps to end urban oil drilling

Oil extraction emits substantial GHGs including methane, smog-precursors, and toxic emissions, *heavily concentrated in EJ communities.*

- **CARB must modify the Plan to include a clear commitment to phase out Oil Drilling by 2035.**
- This is consistent with local municipal plans, such as the County of Los Angeles declaring **oil extraction to be an incompatible land use.**



Carbon Dioxide Removal (Direct Air Capture) & Point Source CCUS



Opportunity Cost

Engineered CO₂ Removal v. Equitable Investments, Renewable Energy & Ecological Restoration





Carbon Dioxide Removal

- These strategies are all uncertain in their future commercialization potential and cost, meaning that relying on them is risky
- Additionally, direct air capture in particular requires **significant amounts of energy**, with ~500 MW of solar nameplate capacity required if solar is the energy source



Any increased solar capacity should *directly* power California's communities and economy to phase out fossil fuels, not to power Direct Air Capture.



Draft Scoping Plan Language:

“Carbon capture and sequestration (CCS) will be a necessary tool to reduce GHG emissions and mitigate climate change while minimizing leakage.”

— *Draft Scoping Plan p. 66*

“Point-source CCS is *not* a negative emissions technology and **releases more carbon** into the atmosphere than it removes.”

—*Sekera, Lichtenberger, 2020*

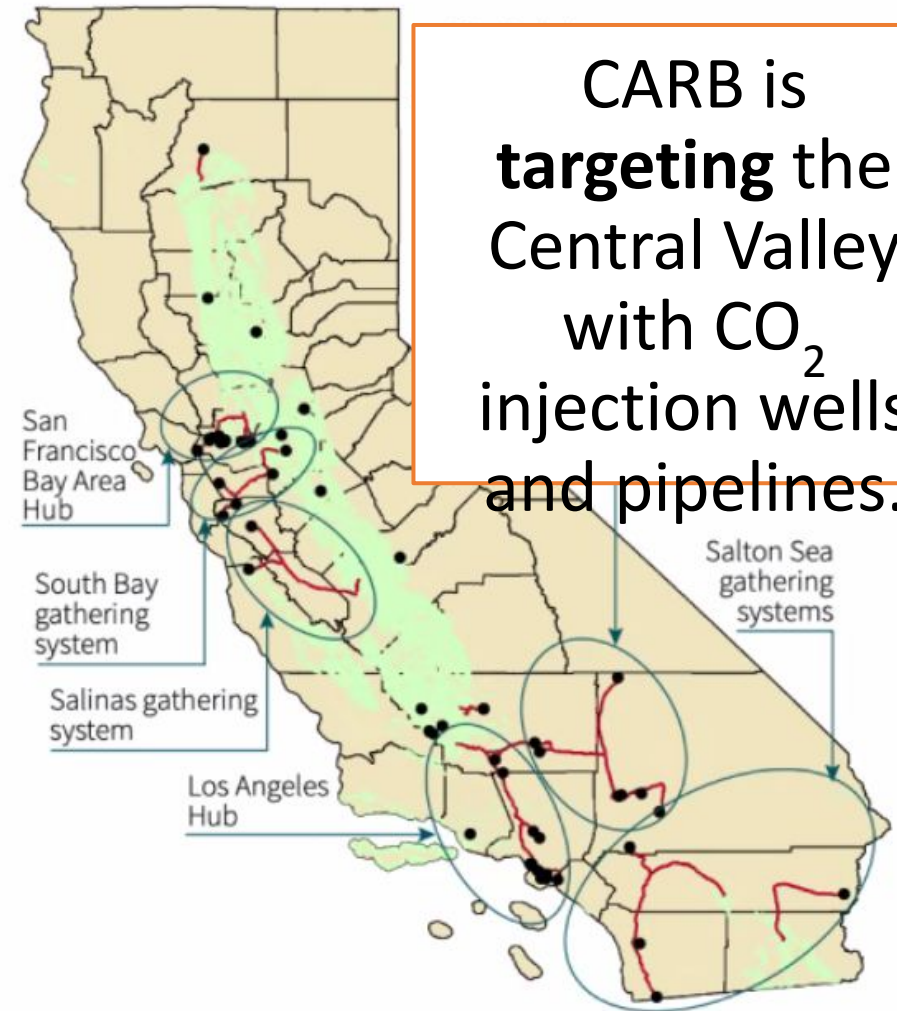
Draft Scoping Plan Language:

“California’s deep sedimentary rock formations in the Central Valley represent *world-class CO₂ storage sites* that would meet the highest standards, with storage capacities of at least 17 billion tons of CO₂.”

— *Draft Scoping Plan p. 67*

FIGURE S-5

CCS PROJECT DEVELOPMENT OPPORTUNITIES



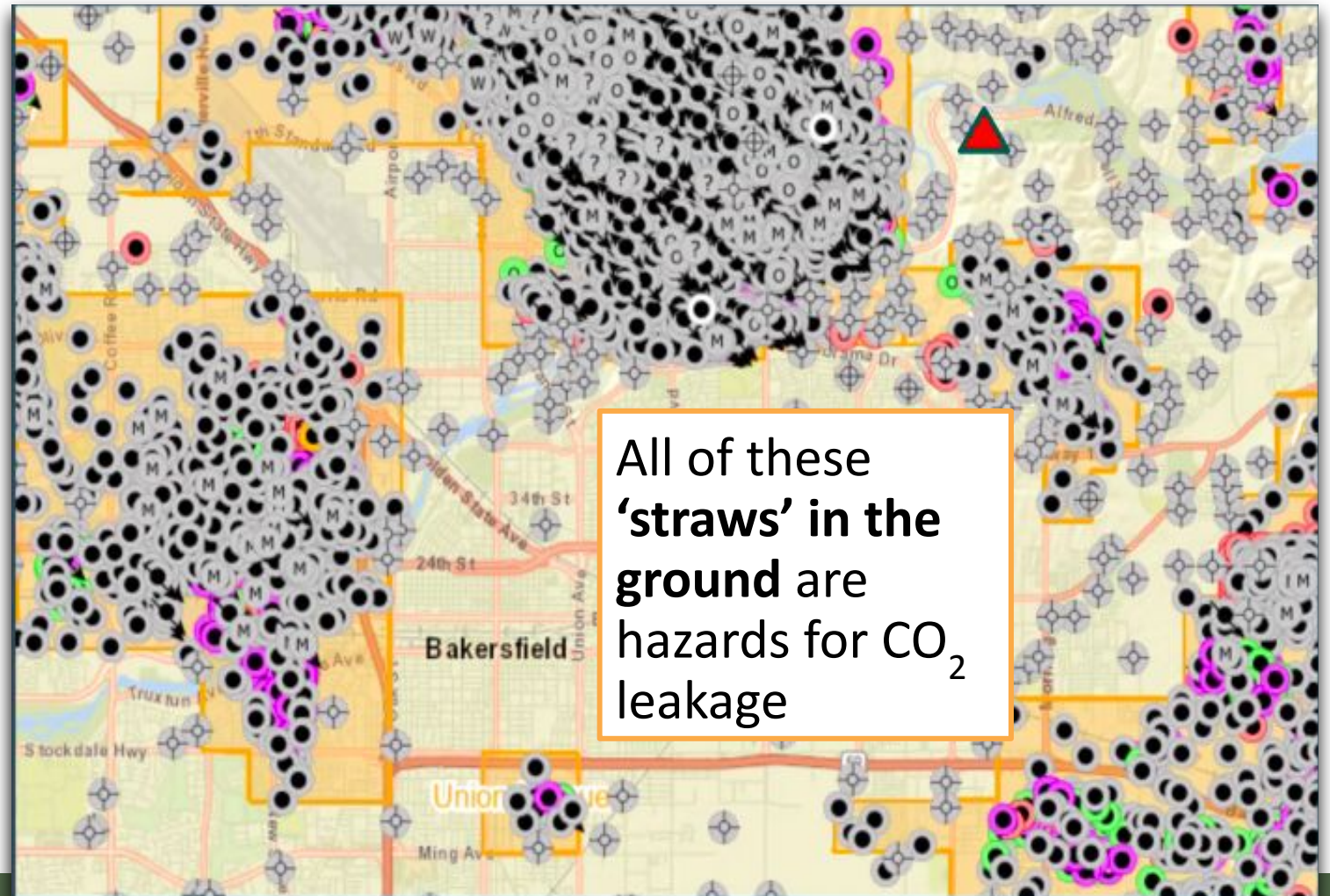
CARB is **targeting** the Central Valley with CO₂ injection wells and pipelines.

Impacts on EJ Communities

The Central Valley should not be targeted for even more pollution and harm.

CCS use poses *numerous* threats to human health and the environment including *increases* to:

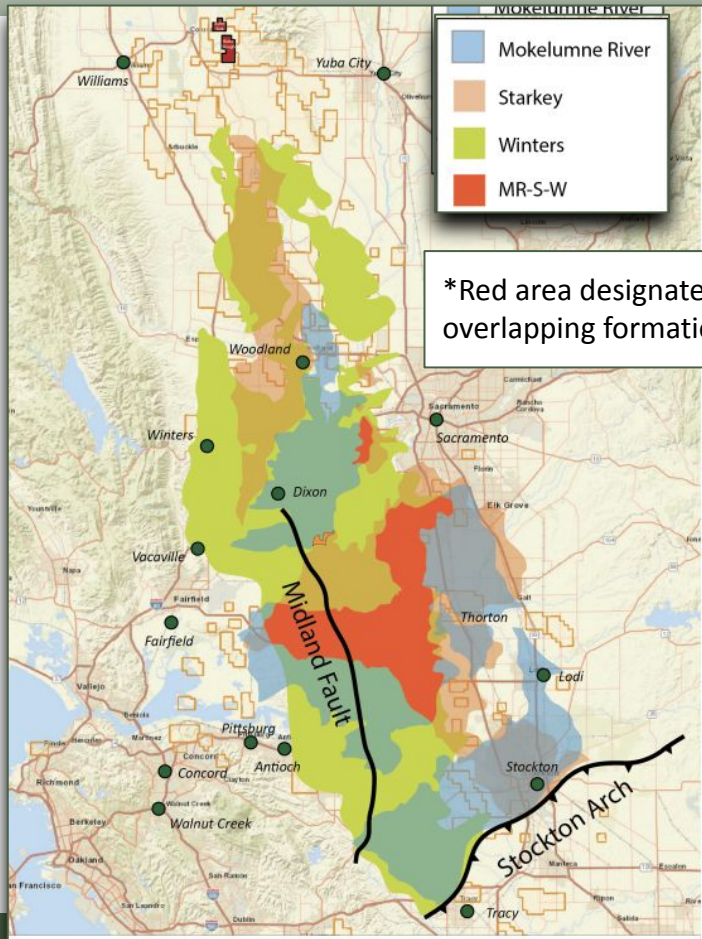
- Air pollution
- Waste (solid and wastewater)
- Water use



CO2 Pipeline Safety

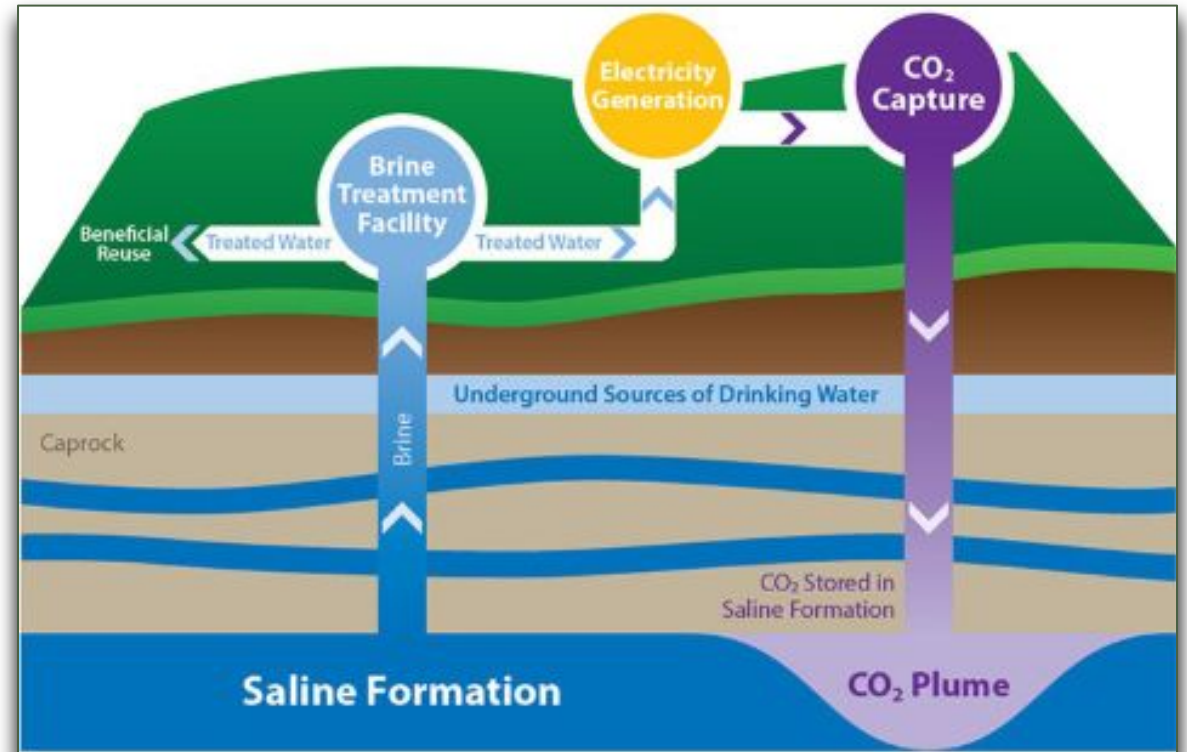
Further Risks of CO₂ Leakage

Geologic CO₂ injection also poses threat of earthquakes...



*Red area designates overlapping formations

...and risks contaminating drinking water from CO₂ plumes.



Cap & Trade

Cap & Trade: Accounting Tricks



Livestock Methane

Livestock Methane

The Draft Scoping Plan recommends building an additional 380 costly dairy digesters by 2030.

– *Appendix H, pgs. 21-28*



California will not achieve the minimum methane reduction requirements by 2030

- Dairy biomethane has a similar environmental impact as fossil fuels when burned.
- Methane is 80x more potent as a GHG than CO₂.
- Digesters do not address enteric emissions
- Accumulation of manure creates significant air and water pollution

CARB must include **direct regulation of livestock methane** as a critical strategy for achieving necessary methane reductions.

Transportation Justice

Transportation Justice

More affordable, reliable & accessible Mass Transit

- 30% reduction in vehicle miles traveled (VMT) by 2035
= 11% statewide mode share for transit*
not a 22% VMT reduction by 2045



Rapid transition to Heavy-Duty Zero-Emission Vehicles (ZEV)

- 100% ZEV sales for medium-duty & heavy-duty vehicles by 2035, *not 2040*
- 100% all drayage trucks ZEV by 2030 *not 2035* and 100% of all transit buses ZEV by 2030, *not 2040*



Transportation Justice for California's Most Transit-Dependent Residents



Electric Vehicle Charging Infrastructure

CARB

“Private investment in reliable, affordable and ubiquitous refueling infrastructure must drive the transition as the business case for ZEVs continues to strengthen.”

EJAC

“CARB must increase accessibility to low-income communities and communities of color to EV charging infrastructure in key locations that are frequently used.” (EJAC Rec NF6)



Transportation Justice Success Stories

1. Reduced fares = increased ridership
2. Green Raiteros in Huron
3. Port of San Diego 100% ZEV by 2030
4. Youth Opportunity Pass: ride for free



Building Decarbonization & Energy Justice

Draft Scoping Plan Proposed Scenario

Energy Efficiency

Energy efficiency aligned with the mid-high (electric) and mid-mid (gas) scenarios from the 2019 Integrated Energy Policy Report;

New Construction

New construction would be zero-emission starting in 2026 for residential buildings and 2029 for commercial buildings through alignment of state and local authorities;

New Appliances

All new appliances sold in California would be zero-emission by 2035 for installation in homes and by 2045 for installation in commercial buildings.”

This set of policy goals does not *maximize or create* benefits for EJ communities.

EJAC Recommendations

Existing buildings are the **main contributor** to building-related emissions & **harmful indoor air quality**.

— *Draft Scoping Plan
App. F, p. 28*

'Real Zero' Alternative: Existing Residential Buildings

- Prioritize reductions of harmful indoor air quality in existing residential buildings.
- Create a statewide program to *regulate, oversee and fund* the *holistic retrofit* of existing residential buildings
 - ◆ 50% by 2035
 - ◆ 100% by 2045

Building Decarbonization: EJAC Recommendations

Maximize direct benefits to EJ communities and low-income households. — *EJAC Recs NF 31 & NF46*



Minimize existing burdens and avoid new burdens on EJ communities and low-income households.

Burdens include proximity to electricity generation sources, cost barriers to access, increased cost of electricity, cost of temporary relocation, and risk of permanent displacement

Quality Union Jobs & Equitable Workforce Development

- **Job training for contractors** in partnership with unions, community colleges and green jobs training centers
- **Job access for under-represented local & priority populations:**
 - Formerly incarcerated people
 - Youth with barriers to employment
 - Women & minority-owned business enterprises
 - Communities of Color
- **Community Workforce Agreements**
- **Supportive job placement pathways**
- **Just Transition** for former fossil fuel workers in related fields in the renewable economy.

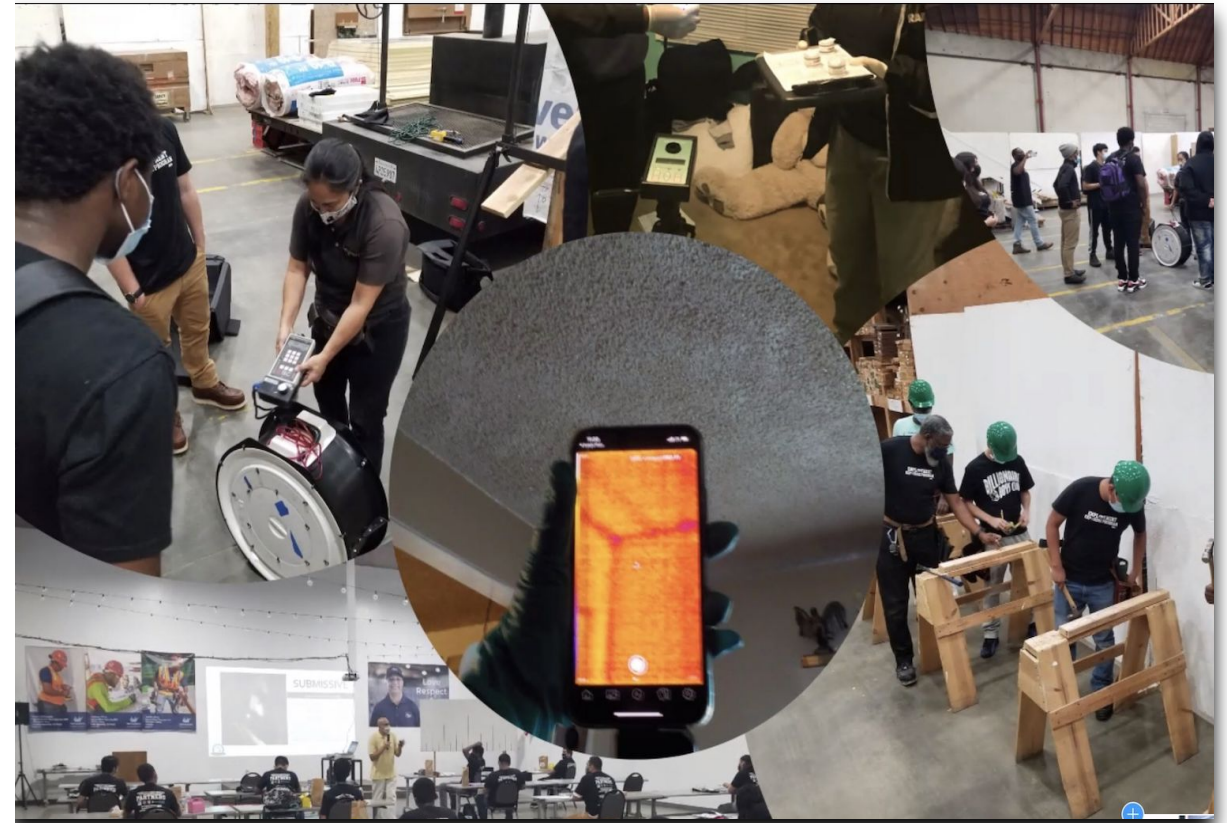


Photo: Cypress Mandela Contractor Training Center, Oakland, CA

Draft Scoping Plan:

“... within this document, zero-emission appliances are those that do not directly utilize combustion.”

– *Draft Scoping Plan, Appendix F, p.2*

“Zero-emissions” appliances **utilize combustion indirectly** because the energy sources aren’t clean and renewable.

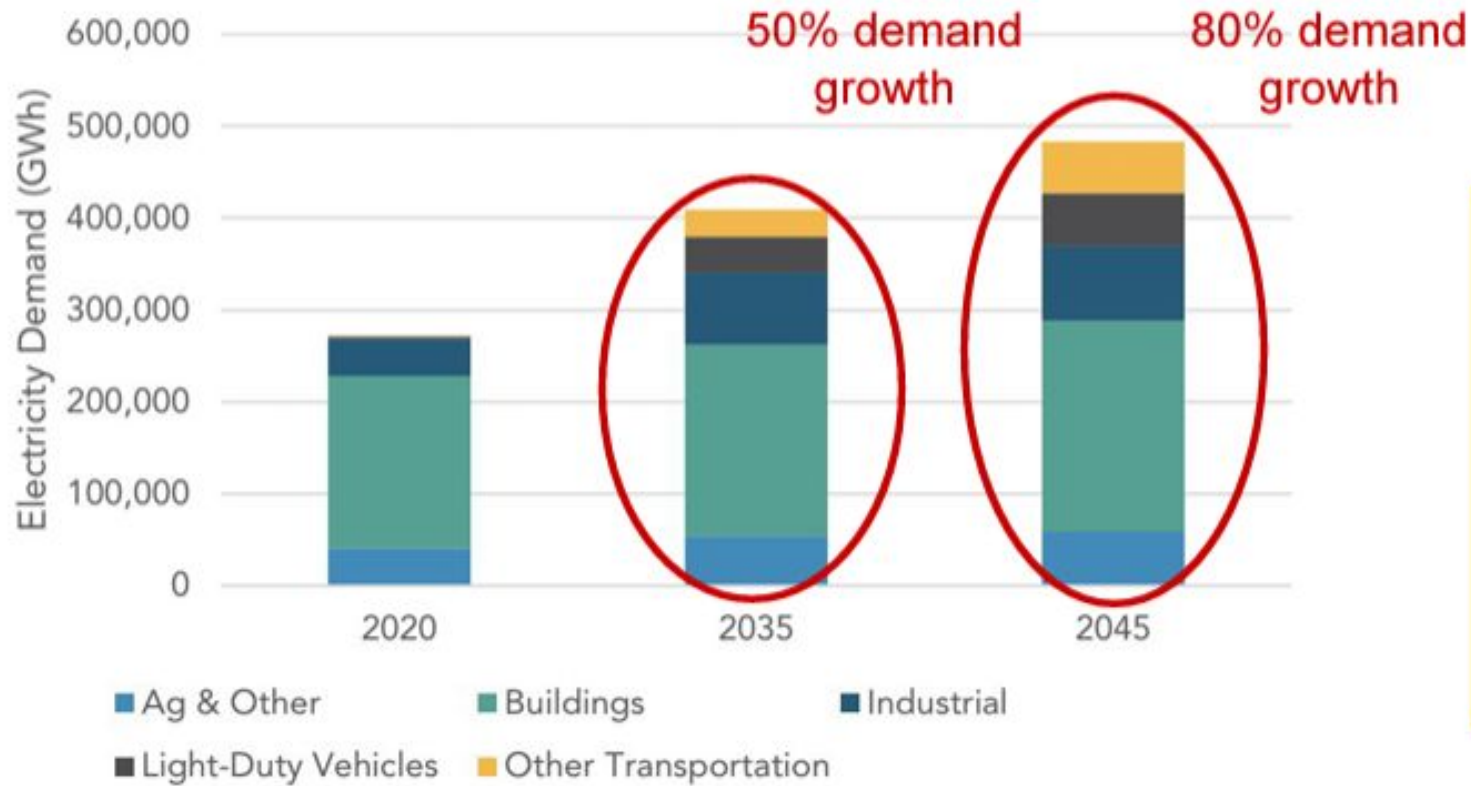


Electricity Generation

Decarbonized Electricity is Necessary for a Decarbonized Economy

Electrification of other sectors means increased electricity demand

Figure 4-6: Electric loads in 2020, 2035 and 2045 for the Proposed Scenario²⁹⁷



Electrification in other sectors must be matched by decarbonization & non-combustion resources in the electricity sector

Draft Scoping Plan Proposed Scenario

Sector	Action	Statutes, Executive Orders, Outcome
Electricity Generation	Sector GHG target of 38 MMTCO _{2e} in 2030 and 30 MMTCO _{2e} ¹⁰⁹ in 2045 Retail sales load coverage ¹¹⁰	SB 350 and SB 100: reduce GHGs and improve air quality AB 197: direct emissions reductions for sources covered by the AB 32 Inventory

Draft Scoping Plan, Page 60

Never reaches zero emissions

Draft Scoping Plan:

“...hydrogen and renewable natural gas must remain options as we transition away from fossil fuels.”

– p. 156-157

“In the near term, fossil gas generation will continue to play a critical role in grid reliability until other clean, dispatchable alternatives are available and can be deployed.”

– p. 158

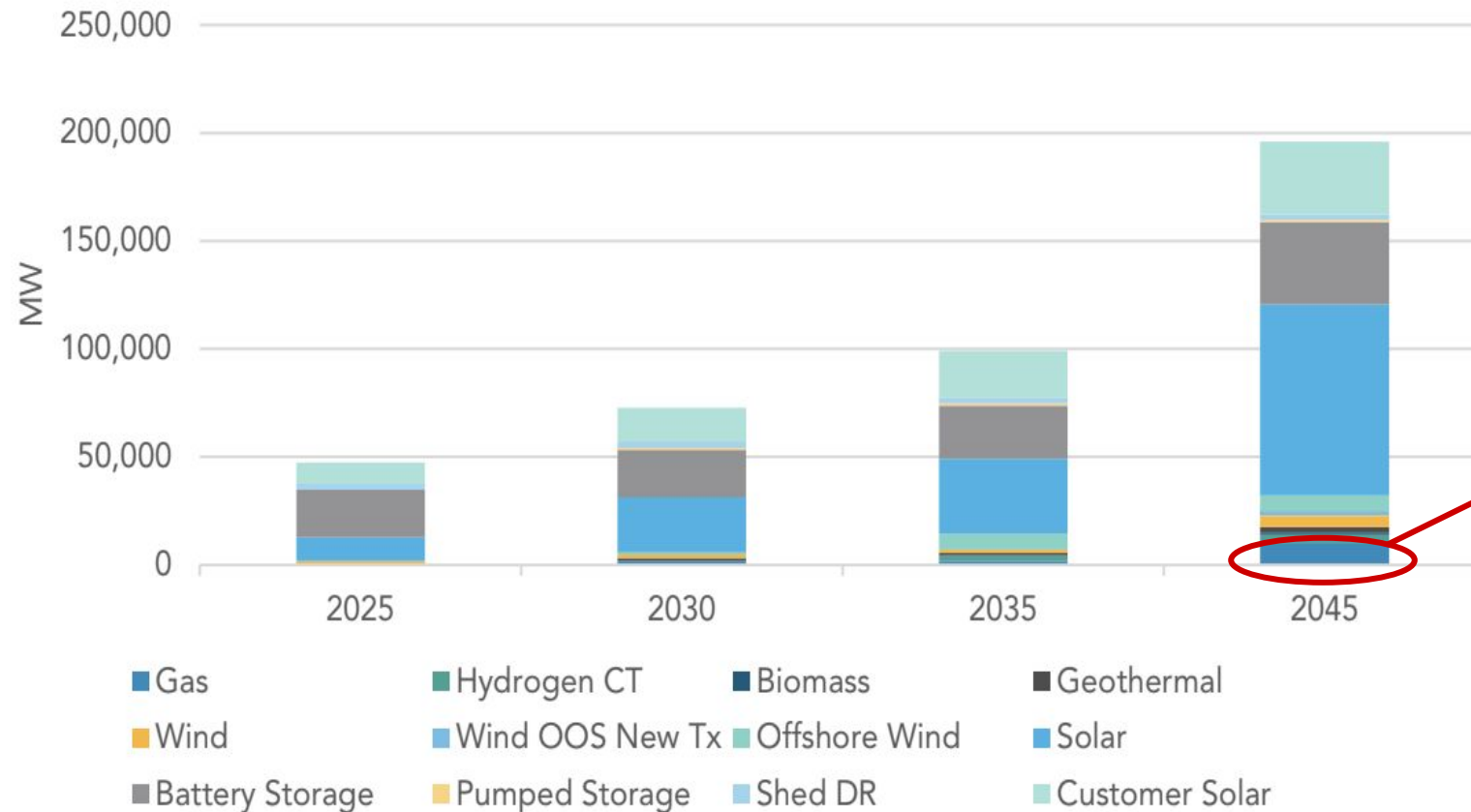


Grey and blue hydrogen are **more polluting than** burning fossil fuels and RNG harms Central Valley communities & environment.

Improve grid reliability by **investing in renewable energy**, which is **more affordable and cost-effective** than natural gas.

Draft Scoping Plan Proposed Scenario

Figure 4-5: Projected electricity resources needed by 2045 in the Proposed Scenario

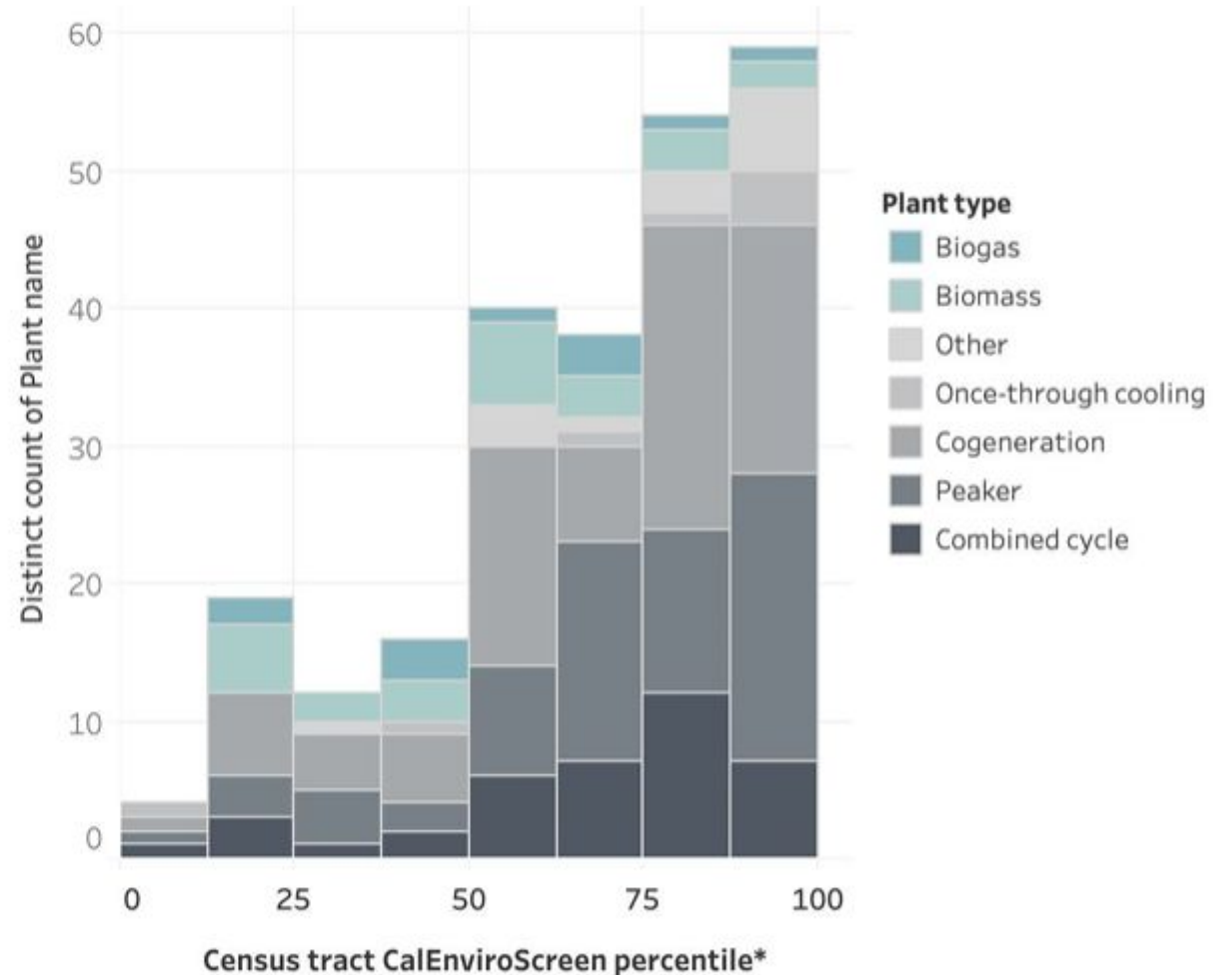


Keeps all existing gas online; adds 10 GW of **new gas**

What does this mean for EJ Communities?

- 10 GW of new gas capacity means **more pollution in EJ communities**, regardless of how often they run
- Gas plant expansion **shifts pollution burden** of the entire state toward DACs
- Peaker plants are notoriously **significant polluters and very inefficient** for the energy they produce

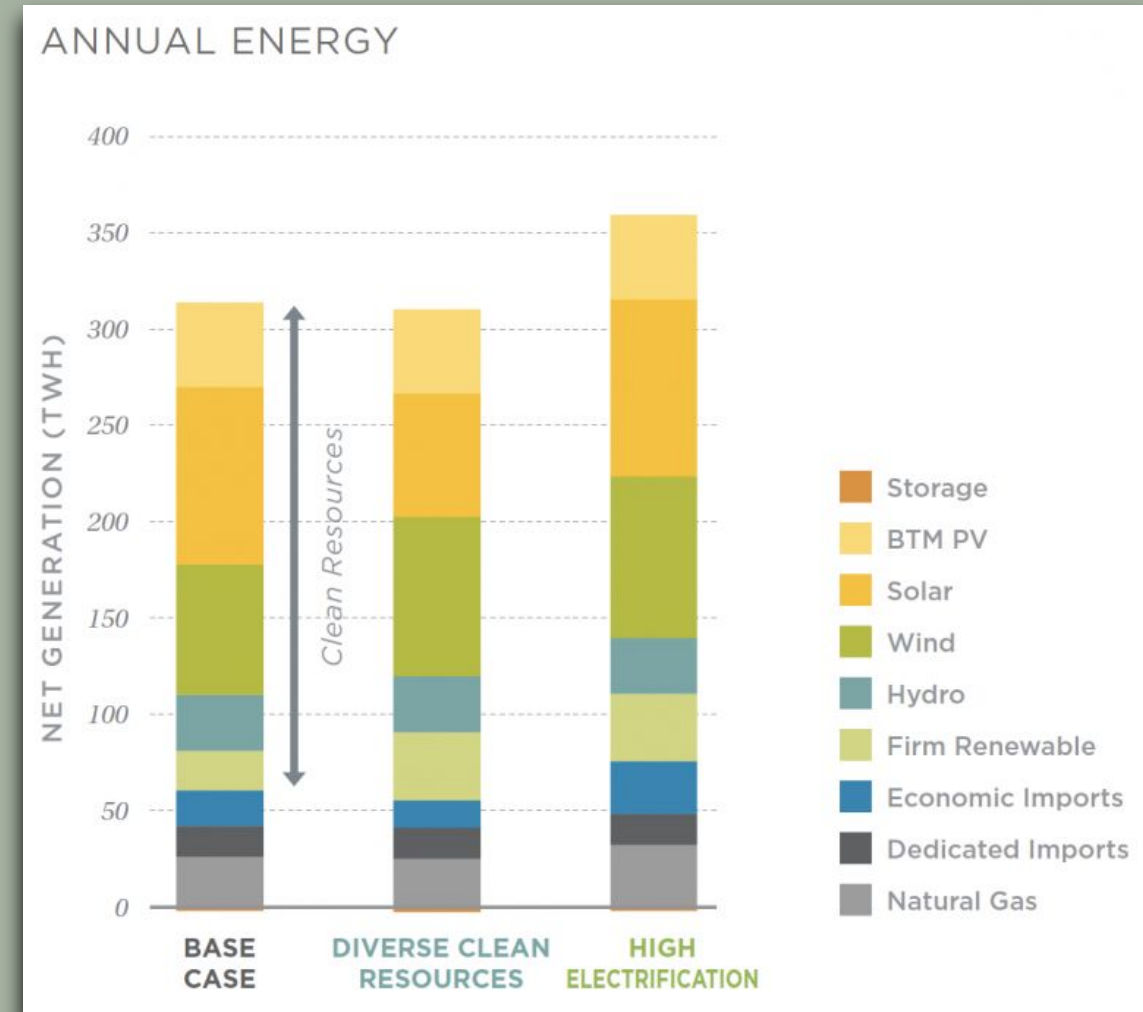
Distribution of plants by CalEnviroScreen percentile



Reaching a 100% clean energy grid is feasible and reliable.

- The [Energy Innovation report](#): we can reach 85% clean by 2030.
- The [SB 100 study's "no combustion"](#) alternative for 2045 shows **this is possible** with only *slight increases* in electricity rates.
- Existing renewable energy technologies **are cheaper than unproven CCS** and polluting fossil fuel infrastructure.
- CARB should set a 100% clean energy target and model the pathway to get there.

Reliably Reaching California's Clean Electricity Targets: Stress Testing Accelerated 2030 Clean Portfolios



Adopt the 'Real Zero' Alternative Scenario for the Electricity Sector

'Real Zero' Scenario Goals

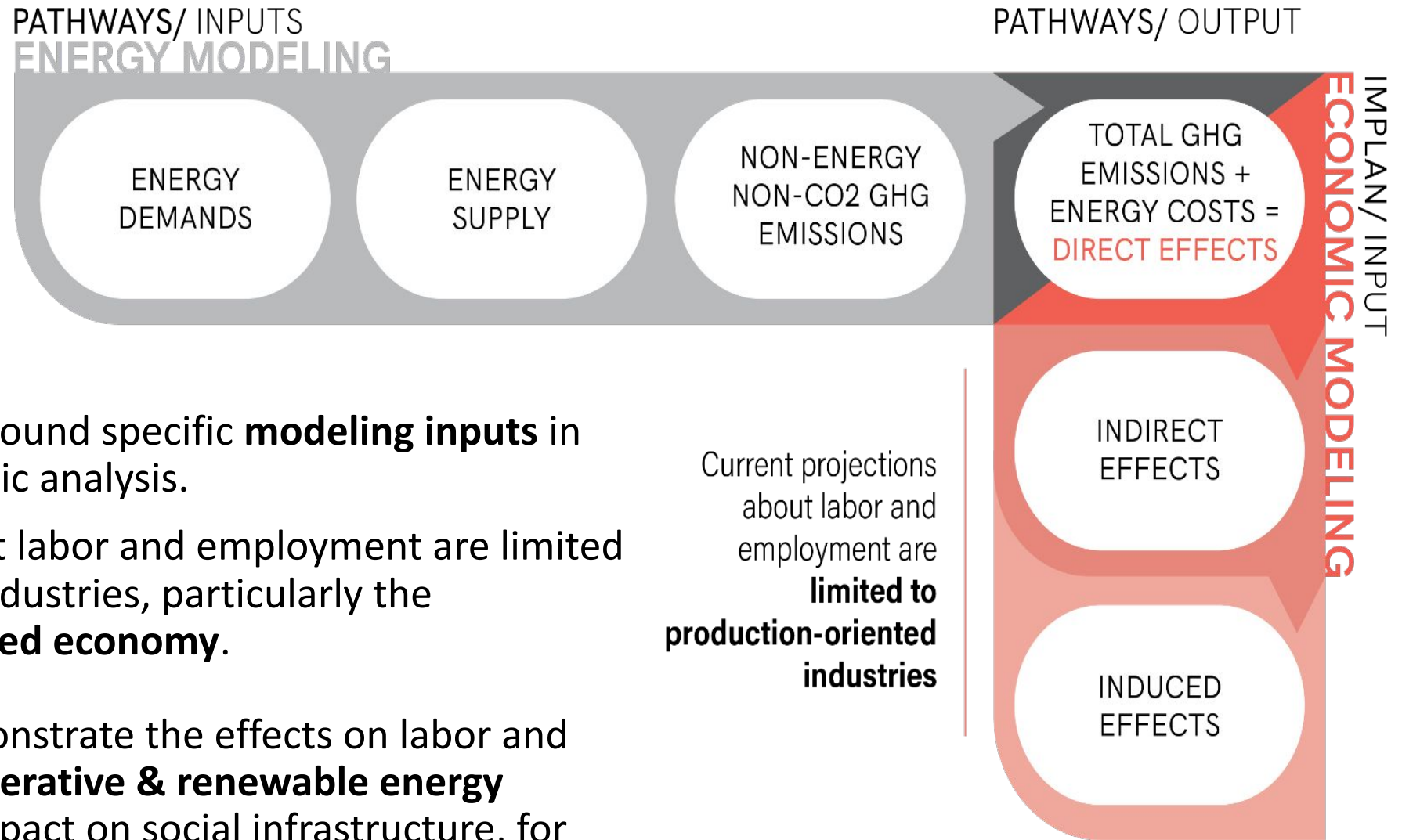
- Sector Emissions Target: **0 MMT greenhouse gases by 2035**
- **No new gas** build or expansion
- 100% Renewable Portfolio Standard (RPS)-eligible and zero carbon resource generation
- Scale up **peak shaving measures**
- No CDR/CCS in electric sector
- Begin phase out of gas power plants, starting in DACs

Amended Modeling Needs

- Model realistic increases in availability of **behind-the-meter storage, vehicle-to-grid technologies, and demand-side programs** approved by the CPUC
- Appropriately model the costs of renewable energy vs. gas-fired generation and CCS-CDR required to meet neutrality
- **Include line losses** in “retail sales” interpretation of SB100
- Model aggregate health impacts (2022-2045) and social costs of co-pollutants on DACs

Economic & Health Modeling

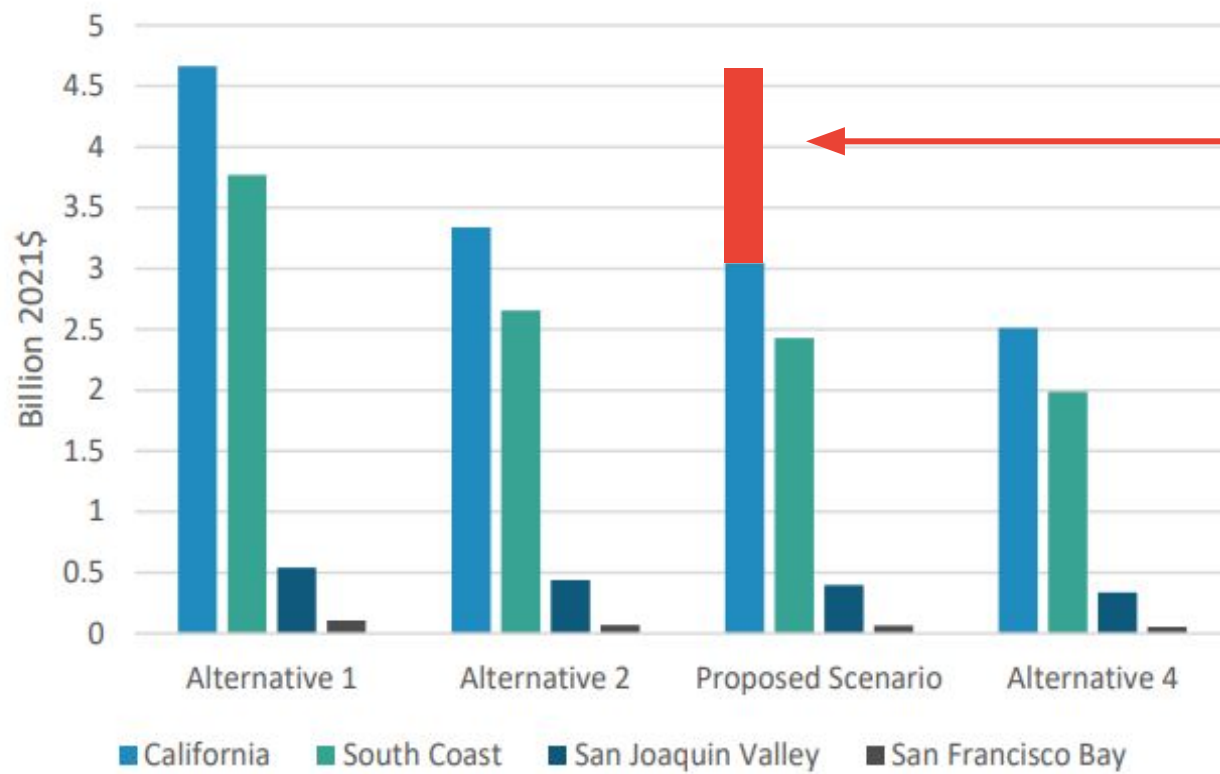
Flawed Economic Modeling



- We need **transparency** around specific **modeling inputs** in order to have robust public analysis.
- Current projections about labor and employment are limited to production-oriented industries, particularly the **extractive, fossil fuel-based economy**.
- Modeling must also demonstrate the effects on labor and employment in the **regenerative & renewable energy sectors** and assess the impact on social infrastructure, for example, employment data for community health workers, green jobs training and education.

Public Health Modeling: Opportunity Costs

Figure 3-7: Disadvantaged community health benefits in July and January 2045 relative to the Reference Scenario for the Proposed Scenario and Alternatives (AB 32 GHG Inventory sectors)



Proposed Scenario Alternative 3 results in roughly **\$1.5B less in community health benefits** than Alternative 1.

Lithium

Lithium

- Lithium extraction will increase because it is a metal used for batteries in phones, laptops, and **electric vehicles**.
- Lithium Extraction Environmental & Health Impacts:
 - Leached chemicals contaminate water
 - Takes water allotments from Tribes, farmers and general population.
 - Displacement of local communities & Indigenous Peoples



Credit: Talison Lithium



Credit: Euronews.com

Lithium

LITHIUM MINING IS EXPANDING HERE TO MAKE ELECTRIC VEHICLE BATTERIES AND OTHER SO-CALLED "RENEWABLE" ENERGY STORAGE INFRASTRUCTURE.



IN FACT, INVESTORS AND PROSPECTORS CALL LITHIUM "WHITE GOLD."



BUT TO INDIGENOUS PEOPLES AROUND THE WORLD, GOLD RUSHES HAVE MEANT GENOCIDE AND ECOCIDE.

“Now, we need to ensure our actions allow these communities to ~~not only~~ have a seat at the table, ~~but also~~ by informing and shaping the policies to ensure their communities thrive.” – *Draft Scoping Plan p.221*

- Informed Prior Consent- EJ Communities **must have a seat at the decision-making table**; meaningful *power to shape policies* on Lithium extraction.
- Lithium extracted beyond California for California EV's exports EJ sacrifice zones to Indigenous communities in the southwest US and Global South.

Natural & Working Lands

EJAC Recommendations

Natural & Working Lands

109 Federally Recognized Tribes in California

- Can you name 10 of them?
- What are the impacts of Scoping Plan proposals on Tribes and on Tribal Lands?

Executive Orders B-10-11 and N-15-19, **requiring government-to-government consultation** with California Native American tribes regarding policies that may affect tribal communities, ***have not been followed*** in the course of drafting the Scoping Plan to date.

- What are CARB's plans to follow the law?



Natural & Working Lands

EJAC Recommendations

“Seek non-traditional technical input, including traditional ecological knowledge, such as cultural burning, with Free Prior and Informed Consent per United Nations Declaration on the Rights of Indigenous Peoples (DRIP)”
—EJAC Recommendations N1, N6



EJAC Recommendations

'Real Zero' Alternative

Include an ambitious pesticide reduction target

- **Reduce synthetic pesticide use** by 50% by 2030
- Reduce hazardous pesticides use by 75% by 2030
 - Start with organophosphates, fumigants, paraquat, and neonicotinoids

Include organic farming in all Scoping Plan scenarios

- Restructure scenarios to model progressive percentage increases in the adoption of all proposed agricultural management strategies
- **Organic agriculture** should make up **30% of total agricultural acreage by 2030 or 80% by 2045**



The Proposed Scenario is not on the right path.

Table 2-1: AB 32 GHG Inventory sector alternatives key metric ranking¹⁰⁵

	Alternative 1	Alternative 2	Proposed Scenario	Alternative 4
Reduction in Fossil Fuel Demand in 2045	*	*	*	*
GHG Reductions without CDR in 2045	*	*	*	*
Social Cost of Carbon (avoided damages 2045)	*	*	*	*
Health Benefit Savings in 2045	*	*	*	*
Direct Costs in 2045	*	*	*	*
Slowing of GDP in 2045	*	*	*	*
Slowing of Employment in 2045	**	**	*	*
Feasibility/Implementation Risk in 2035	*	*	*	*
Legend	*highest	*mid high	*mid low	*lowest

Real Zero Alternative - June 2022

Sector	Alt 1	Alt 3	Alt Zero Emissions	
	Carbon Neutral by 2035	Carbon Neutral by 2045	Carbon Neutral by 2045 80% - 92% GHG reductions by 2045* <small>*The majority of our recommendations are based on most ambitious scenario in 2023 2020 Achieving Carbon Neutrality Report, which if implemented would result in 80-92% statewide GHG emissions reduction from 1990 levels by 2045. We note zero policy measures that were recommended in that report.</small>	
Tr	Port Operations	100% of cargo handling equipment (CHE) is zero-emission by 2030 100% of drayage trucks are zero emission by 2030	100% of drayage trucks are zero emission by 2030* 100% of cargo handling equipment (CHE) is zero-emission by 2030*	
	Vehicle Early Retirements	LDV: 16M 5 - 16 yr. old MHDV: 1.4M 5-16 yr. old	N/A	HCV: -131,000 13 -18 yr. old trucks*
Fossil Fuels	Oil & Gas Extraction	Phase out operations by 2035	Phase out operations by 2035	
	Petroleum Refining	Phase out production by 2035 in line with petroleum demand	CCS on majority of operations by 2030. Production reduced in line with petroleum demand	Phase out production by 2045†
	Petroleum Refining Remaining	2035: 0% 2045: 0%	2035: 33% * 2045: 13% *	2035: Proportional based on planning? 2045: 0%?
	Total CCS Needs Industrial & Refining	2035: <1MMT 2045: <1MMT	2035: 10MMT 2045: 4MMT	2035: <1 MMT 2045: <1 MMT
Electricity	Electricity Generation	Sector GHG target of 23 MMTCO2e in 2030 and 0 MMTCO2e in 2035	GHG target of 38 MMTCO2e in 2030 24 MMTCO2e in 2045	Sector GHG target of 0 MMTCO2e in 2035. Total load coverage; Renewable Portfolio Standard (RFS)-eligible and zero carbon resource generation, and no new gas build or expansion – instead, scale up peak shaving measures; no CDR/CCS in electric sector.
	Annual Build Rates	Solar: 10GW Battery: 5GW	Solar: 7GW Battery: 2GW	Solar: 6 GW Wind: 1.5 GW Battery: 4 GW
Building Decarb	Existing Residential Buildings	80% of appliance sales are electric by 2025 100% of appliance sales are electric by 2030 All buildings retrofitted to electric appliances by 2035	80% of appliance sales are electric by 2030 100% of appliance sales are electric by 2035 Appliances are replaced at end of life	100% of appliance sales are electric by 2030† Establish and fully fund programs for no/low front cost retrofits (weatherization, efficiency, conservation, demand management / load shifting, efficient electric appliances) for low-income communities by 2025. Retrofit 50% of all existing residential buildings (replace gas-fired space heating, A/C and water heaters with efficient electric heat pump appliances) by 2035. 100% of existing residential buildings retrofitted by 2045. All gas and uses should be retired by 2045†
	Residential Early Retirements	7M electric homes. Appliances 5-16 yr old	N/A	No recommendation
Industry and Agriculture	Agriculture Energy Use	50% energy demand electrified by 2030 and 100% by 2035	25% energy demand electrified by 2030 and 75% electrified by 2045	No recommendation.
	Low Carbon Fuels for Buildings & Industry	RNG directed to Cement facilities by 2035	In 2030s RNG blended in pipeline Renewable Hydrogen blended in natural gas pipeline at 7% energy (~30% by volume), ramping up between 2030 and 2040	No RNG use and no hydrogen blending for use in buildings
	Non-Combustion Methane Emissions	No additional landfill or dairy digester methane capture Rate of dairy herd size reduction increases compared to historic levels	Increase landfill and dairy digester methane capture Moderate adoption of enteric strategies by 2030	Directly regulate and enforce necessary decreases in livestock methane emissions to achieve 40% reduction target set forth in SB 1383. Accelerate alternative, sustainable farming models that will also help sustain farm production, starting 2024. Remove incentives for dairy biogas.* Discontinue dairy digester program and retire dairy digesters at latest by 2030. Redirect millions in funding to further develop regenerative, agroecological programs. Significantly reduce density of the California's dairy herd, which is necessary to support manure management techniques that do not incentivize methane production. Limit alternative manure management projects to only those that reduce methane production at the source.
Residual Carbon Emissions <small>Current global DAC 0.9-1.0T/year</small>	2035: 48MMT 2045: 37MMT	2035: 0MMT 2045: 100MMT	2035: 0 MMT 2045: X for residual MMT† <small>†The most ambitious pathway in the Carbon Neutrality Report estimated a remainder of 23 MMT CO2e by 2045, representing a 22% reduction in gross emissions relative to</small>	

There is a better path.

Adopt the 'Real Zero' Alternative.