

Real Zero Alternative

Environmental Justice Advisory Committee
Physicians for Social Responsibility – LA



Real Zero Alternative

Overarching goal: Incorporate all relevant information pertaining to decarbonization options, including life-cycle GHG impacts and non-GHG pollutants; align assumptions with State-wide goals

Carbon Neutral by 2045

80% - 92% GHG reductions by 2045*

Transportation

Overarching modeling asks: 1) Align transportation targets with Mobile Source Strategy (determine ZEVs trajectory required to achieve health-based air standards); 2) Include full GHG impacts of FCEVs, including risk of hydrogen leaks; 3) Incorporate grid flexibility offered by BEVs and additional electricity demand created by FCEVs for production of hydrogen; 4) Limit hydrogen to green electrolytic hydrogen and exclude blue hydrogen.

VMT	VMT per capita reduced 25% below 2019 levels by 2030, and 30% below 2019 levels by 2035
LDV ZEVs	100% LDV sales are ZEV by 2035, and at least 75% LDV sales are ZEV by 2030
Truck Heavy-Duty ZEVs	100% of MD/HDV sales are ZEV by 2035; Limit HFCVs to 15% of M/HD vehicles; 100% of all transit buses ZEV by 2030
Port Operations	100% of drayage trucks are zero emission by 2030; 100% of cargo handling equipment is zero-emission by 2030
Vehicle Early Retirements	HDV: ~131,000 13 - 18 yr. old trucks

Fossil Fuels

Overarching modeling asks: 1) Include estimates for non-GHG pollutants (monetized, where applicable); 2) Include energy requirements for CCS and associated emissions; 3) While disclosing what was previously used, eliminate refinery CCS

Oil & Gas Extraction	Phase out operations by 2035
Petroleum Refining	Phase out production by 2045
Petroleum Refining Remaining	2035: Proportional based on planning 2045: 0%
Total CCS Needs (Industrial & Refining)	2035: <1 MMT 2045: <1 MMT

Electricity

Overarching modeling asks: 1) Include full GHG footprint of hydrogen CTs (accounting for leaks); 2) Include full GHG footprint of residual gas emissions (accounting for methane leaks upstream); 3) Include non-GHG pollutants, especially those associated with starts and stops (cycling) of fossil generators; 4) Clarify regional (WECC-wide) assumptions underpinning electricity modeling in RESOLVE

Electricity Generation	GHG target of 0 MMTCO ₂ e 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: 6 GW Wind: 1.5 GW Battery: 4 GW

Building Decarb

Existing Residential Buildings	100% of appliance sales are electric by 2030; Establish and fully fund programs for no/little up 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 end uses retired by 2045
Residential Early Retirements	No recommendation

Industry and Agriculture

Agriculture Energy Use	No recommendation
Low Carbon Fuels for Buildings & Industry	No RNG use and no hydrogen blending for use in buildings
Non-Combustion Methane Emissions	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

Overarching modeling asks: 1) Include energy requirements associated with CDR and associated emissions; 2) Include expected value of emissions release from leaks by considering a non-zero probability of leaks

Residual Carbon Emissions	2035: 0 MMT 2045: X for residual MMT
Current global DAC 0.01MT/year	The most ambitious pathway in the Carbon Neutrality Report estimated a remainder of 33 MMT CO ₂ e by 2045, representing a 92% reduction in gross emissions relative to 1990 levels.

*The majority of our recommendations are based on most ambitious scenario in E3's 2020 Achieving Carbon Neutrality Report, which if implemented would result in 80-92% statewide GHG emissions reduction from 1990 levels by 2045. We note below policy measures that were recommended in that report.