



# APPENDIX E

## Greenhouse Gas Reduction Targets.

# Memo



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To: City of Irvine – CAAP Project Team

From: Andrew Beecher and Poonam Boparai

Subject: Irvine Climate Action and Adaptation Plan: Greenhouse Gas Reduction Targets

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This memorandum summarizes the establishment of greenhouse gas (GHG) emissions reduction targets (GHG reduction targets) for 2030 and 2040 for the City of Irvine's (City's) Climate Action and Adaptation Plan (CAAP) that are in alignment with State plans and laws. The City's GHG reduction targets are informed by the State's GHG reduction targets, but the City intends to accelerate the timeline for achieving the long-term target.

## ESTABLISHING GHG EMISSIONS REDUCTION TARGETS FOR 2030 AND 2040

The GHG reduction targets for 2030 and 2040 were developed in alignment with the California Climate Crisis Act (Assembly Bill 1279, 2022) and the California Air Resources Board's (CARB's) *2022 Scoping Plan for Achieving Carbon Neutrality* (2022 Scoping Plan). The Irvine City Council also adopted a resolution in 2021 referencing a zero-carbon local economy that is consistent with 2030 targets based on the most recent climate science. In June 2024, the Irvine City Council directed staff to incorporate a 2040 goal of zero emissions into the CAAP.

## THE CALIFORNIA CLIMATE CRISIS ACT, AB 1279

Assembly Bill (AB) 1279 (Muratsuchi, 2022) makes it the policy of the State to do both of the following:

- Achieve net zero GHG emissions as soon as possible, but no later than 2045, and to achieve and maintain net negative emissions thereafter; and
- Ensure that by 2045, statewide anthropogenic GHG emissions are reduced to at least 85 percent below 1990 levels.

This statute defines net zero GHG emissions as a state in which GHG emissions released into the atmosphere are balanced by removals of GHG emissions over a period of time.

## 2022 SCOPING PLAN FOR ACHIEVING CARBON NEUTRALITY

The 2022 Scoping Plan addresses the emissions limits of AB 1279 by identifying a technologically feasible, cost-effective scenario to achieve statewide carbon neutrality by 2045 and a reduction in anthropogenic emissions by 85 percent below 1990 levels. It also identifies a path to keep California on track to meet its SB 32 GHG reduction target of at least 40 percent below 1990 emissions by 2030, but concludes that additional reductions are needed by 2030 – to 48 percent below 1990 levels – for the state to stay on track to achieve net zero GHG emissions no later than 2045 pursuant to AB 1279.

A draft version of the 2022 Scoping Plan (May 2022) considered two alternative scenarios that would achieve statewide carbon neutrality by 2035 (referred to as Alternatives 1 and 2); ultimately CARB adopted the final 2022 Scoping Plan using the Proposed Scenario, which identifies a statewide pathway to carbon neutrality by 2045. CARB ultimately concluded that the Proposed Scenario for 2045 carbon neutrality is more cost effective and technologically feasible than the 2035 carbon neutrality alternatives, and identified “several feasibility concerns” with 2035 carbon neutrality. CARB performed analysis demonstrating that 2035 carbon neutrality alternatives 1 and 2 would have the following outcomes relative to the proposed 2045 carbon neutrality scenario:

- 5 times and 3 times slower job growth in 2035,
- 7 times and 6 times higher direct costs in 2035, and
- 6 times and 5 times slower economic growth in 2035 (CARB 2022a).

## IRVINE ACHIEVES RESOLUTION (CITY COUNCIL RESOLUTION NO. 21-50)

In August 2021, the Irvine City Council adopted a resolution addressing climate change in Irvine’s environment, values, and energy sources (ACHIEVES). The ACHIEVES resolution, among other things, states that, “The City of Irvine will endeavor to achieve a zero-carbon local economy consistent with 2030 targets based on the most recent climate science.”

## 2022 SCOPING PLAN ALIGNED TARGETS

The City’s GHG reduction targets are intended to exceed the State’s targets, by establishing a more ambitious target to achieve carbon neutrality by 2040. To align the CAAP with the State’s framework, the City’s GHG reduction targets are also informed by the following State targets:

- Reducing emissions to 48 percent below 1990 levels by 2030 (per the 2022 Scoping Plan), and
- Reducing emissions to 85 percent below 1990 levels by 2045 (per AB 1279).

To develop community-specific targets for Irvine that align with these statewide targets, the 2022 Scoping Plan was reviewed to identify the emissions sectors in this statewide plan that are relevant and applicable to the City of Irvine. The review, summarized in Table 1, determined that the City has direct or indirect jurisdiction over activities that generate emissions and contribute to reductions in five of the eight emissions sectors included in the statewide inventory: residential and commercial, electric power, industrial, recycling and waste, and transportation.

**Table 11** 2022 Scoping Plan Emissions Sectors Applicable to the City of Irvine

Emissions Sectors – 2022 Scoping Plan	Applicable to City of Irvine?
Agriculture	No
Residential and Commercial	Yes

Emissions Sectors – 2022 Scoping Plan	Applicable to City of Irvine?
Electric Power	Yes
High Global Warming Potential (GWP) Gases	No
Industrial	Yes
Recycling and Waste	Yes
Transportation	Yes
Carbon Dioxide Removal (CDR)	No

Source: Ascent 2023.

The agriculture, high global warming potential (GWP) gases, and carbon dioxide removal (CDR) sectors are excluded for the following reasons. Minimal agricultural activity takes place in the City (relative to other emissions sources) and the City has limited to no ability to control or influence emissions of high GWP gases. The state's CDR sector identifies significant reductions from engineered strategies to remove significant levels of emissions from the atmosphere using technologies like direct air capture and carbon capture and storage, which are beyond the scope of municipal government. By excluding these sectors under this approach, community GHG reduction targets for the City can be established in proportion with statewide reductions for all sectors relevant to City jurisdiction to the extent feasible using available data. This target setting approach is consistent with the California Supreme Court decision in *Center for Biological Diversity v. California Department of Fish and Wildlife and Newhall Land and Farming (2015) 62 Cal.4th 204*, which determined that the approach of assessing a project's consistency with statewide emissions reduction goals must include a "reasoned explanation based on substantial evidence" that links the project's emissions (in this case, the project is the CAAP, which covers communitywide emission) to statewide GHG reduction goals.

The analysis uses 2019 data from the State's emission inventory and sector-level forecasted emissions in 2030 and 2040 from the 2022 Scoping Plan (CARB 2022b). These forecasted emissions are aligned with the Scoping Plan goal to reach 48 percent below statewide 1990 levels in 2030 and 85 percent below 1990 levels in 2045. In order to translate these targets to be relative to 2019, statewide emissions in future years from the applicable sectors are compared to 2019 statewide emissions from applicable sectors to determine the percentage reduction for the city. Data for 2019 are used because 1990 emissions data are not available for the city and because 2019 is the baseline year of the GHG emissions inventory used for the City's CAAP. This analysis is summarized in Table 2.

**Table 2 Application of Statewide Emissions Reductions by Sector to Applicable City Sectors**

Year	All Statewide Sectors		Statewide Sectors Applicable to City of Irvine	
	Statewide Emissions (2019 Inventory and 2022 Scoping Plan Scenario) (MMTCO <sub>2e</sub> )	Percent Below 2019 levels	Statewide Emissions (2019 Inventory and 2022 Scoping Plan Scenario) (MMTCO <sub>2e</sub> )	Percent Below 2019 levels
2019	404	-	352	-
2030	220	46%	196	44%
2045	-10	103%	41	88%

Notes: MMTCO<sub>2e</sub> = million metric tons of carbon dioxide equivalent.

Source: CARB 2022b, Ascent 2023.

Additional details on how the City of Irvine's 2030 and 2040 targets align with the 2022 Scoping Plan Scenario are provided in the following section.

## CITY OF IRVINE CLIMATE ACTION AND ADAPTATION PLAN TARGETS

With adoption of the Irvine ACHIEVES resolution, the City committed to accelerating the reduction of locally generated GHG emission by exceeding the State's timeline under AB 1279 for reducing GHG emissions. However, considering CARB's analysis of achieving net zero GHG emissions by 2035, demonstrating that a pathway may not be economically feasible, the City has established a more ambitious target for the year 2040. Table 3 demonstrates the calculation of communitywide GHG emissions levels that align with the following targets:

- Reducing emissions to 44 percent below 2019 levels by 2030 (per the 2022 Scoping Plan), and
- Reducing emissions to 90 percent below 2019 levels by 2040 (exceeding the 2022 Scoping Plan).

The GHG reduction target for the year 2030 aligns with the State's identified target trajectory for 2030, as outlined in the 2022 Scoping Plan. This target also exceeds the legislative goal for 2030 established under SB 32 (i.e., 40% below 1990 levels by 2030).

**Table 3 City of Irvine Target Emissions and Target Percent Reduction Relative to 2019 Levels**

Year	CAAP GHG Reduction Target (relative to 2019 levels)	Target Emissions Levels (MTCO <sub>2e</sub> /year)
2022	--	2,247,593
2030	44%	1,252,503
2040	90%	224,759

Notes: MTCO<sub>2e</sub> = metric tons of carbon dioxide equivalent.

Source: CARB 2022b, Ascent 2023.

## REFERENCES

California Air Resources Board. 2022a. Draft 2022 Scoping Plan Update. Available: <https://ww2.arb.ca.gov/our-work/programs/ab-32-climate-change-scoping-plan/2022-scoping-plan-documents>. Accessed April 4, 2025.

\_\_\_\_\_. 2022b. Final 2022 Scoping Plan Update. Available: <https://ww2.arb.ca.gov/our-work/programs/ab-32-climate-change-scoping-plan/2022-scoping-plan-documents>. Accessed April 4, 2025.

CARB. See California Air Resources Board.