



Preliminary Estimates of California’s 2020 and 2021 Greenhouse Gas Emissions for Budget Item 3900-001-3237

Pursuant to California State Budget Item 3900-001-3237, for three years, beginning in 2022, on or before April 1 of each year, the California Air Resources Board (CARB) shall post publicly on its website and report to the relevant policy and fiscal committees of the Legislature, a preliminary estimate of the prior-year GHG emissions based on current and historical data and an update to any prior estimate previously provided for any calendar year that is not included in the most recently published GHG emissions inventory report required pursuant to Health and Safety Code Section 39607.4. The estimate shall include estimates for GHG emissions from transportation; electric power; industrial, commercial, and residential; agriculture; high global warming potential; and recycling and solid waste sectors.

Estimates are provided in response to the Budget Item only and are not intended to be used for any policy making decisions or regulatory compliance. California’s official AB 32 GHG Inventory is published annually and available at: <https://ww2.arb.ca.gov/ghg-inventory-data>.

Results

Table 1 provides preliminary estimates of California’s 2021 GHG emissions for each Scoping Plan sector, in units of million metric tons of carbon dioxide equivalent (MMT_{CO₂e}).

Table 1. Estimated 2021 California GHG Emissions by Sector

| Sector | 2019 GHG Inventory (MMT _{CO₂e}) | Ratio of MRR Emissions 2020 to 2019 | Estimated 2020 Emissions (MMT _{CO₂e}) | Estimated 2021 Emissions (MMT _{CO₂e}) |
|----------------------------|--|-------------------------------------|--|--|
| Transportation | 166 | 0.856 | 142 | 159.2 ±15.0 |
| Electric Power | 59 | 0.984 | 58 | 60.0 ±2.7 |
| Industrial | 88 | 0.916 | 81 | 86.1 ± 4.5 |
| Residential and Commercial | 44 | 0.958 | 42 | 42.4 ±1.2 |
| Agriculture | 32 | N/A | 32 | 32.2 ±0.5 |
| High GWP | 21 | N/A | 20 | 20.3 ±0.3 |
| Recycling and Waste | 9 | N/A | 9 | 8.9 ±0.1 |
| Total | 418 | | 384 | 409.1 ±24.4 |

Methods



GHG emissions data reported under the Regulation for the Mandatory Reporting of Greenhouse Gas Emissions (MRR)¹ have not yet been completely reported for the 2021 emissions year so is not a viable source of 2021 data. Additionally, other 2021 data sources are often not available or complete in the timeframe necessary for publishing this document. Therefore, methods employing the best completely available data have been used.

The 2021 statewide GHG emissions for all sectors were estimated by averaging the 2018 and 2019 sector emissions data from CARB's statewide GHG Emissions Inventory (GHG Inventory)² and estimated 2020 GHG emissions for each sector. Details on how the estimated 2020 GHG emissions for each sector were calculated are described in detail below.

The 2020 statewide GHG emissions were estimated for the four largest sectors (Transportation, Electric Power, Industrial, Residential and Commercial) using GHG emissions data reported under MRR and sector emissions data calculated for CARB's statewide GHG Inventory. Statewide GHG emissions are calculated for the GHG Inventory using several data sources. One data source is from reports submitted to CARB pursuant to MRR. MRR requires facilities and entities with more than 10,000 metric tons CO₂e per year of combustion and process emissions, all facilities belonging to certain industries, and all electricity importers to submit an annual GHG emissions data report directly to CARB. Reports from facilities and entities that emit more than 25,000 metric tons of CO₂e per year are verified by a CARB-accredited third-party verification body. The GHG Inventory, required by AB 32,³ is the state's record of California's GHG emissions and captures the vast majority of statewide GHG emission sources.

MRR emissions data from 2020 was used to create preliminary estimates of the 2020 statewide GHG emissions for each of the four largest sectors (Transportation, Electric Power, Industrial, Residential and Commercial), by multiplying the 2019 GHG Inventory emissions for each sector by the ratio of 2020 MRR emissions to 2019 MRR emission for each sector. MRR transportation sector emissions were calculated using the total transportation fuel supplier category emissions. MRR electric power sector emissions were calculated using the sum of cogeneration, electricity importer, and in-

¹ Mandatory GHG Reporting - Reported Emissions: <https://ww2.arb.ca.gov/mrr-data>

² GHG Inventory Program page - <https://ww2.arb.ca.gov/our-work/programs/ghg-inventory-program>. All data sources used to develop the GHG Emissions Inventory are listed in supporting documentation available at www.arb.ca.gov/cc/inventory/data/data.htm.

³ https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=200520060AB32



state electricity generation category emissions. MRR industrial sector emissions were calculated using the sum of oil & gas production, refinery and hydrogen plant, and natural gas, natural gas liquids, and liquefied petroleum gas supplier emissions minus emissions from the residential and commercial sector, which overlap with natural gas supplier emissions. To calculate MRR residential and commercial sector emissions, the total natural gas (MMBTU) delivered to residential and commercial end uses, as reported by natural gas suppliers, was multiplied by natural gas default emissions factors. GHG Inventory sector emissions are referenced from Figure 3 data in the GHG Inventory's publicly available [2000-2019 GHG Emissions Trends Report Data](#).

Preliminary GHG emissions estimates for the remaining sectors (Agriculture, High GWP, Recycling and Waste) were calculated using prior year GHG Inventory emissions data. For each sector, 2020 GHG emissions were estimated by averaging 2017 through 2019 GHG Inventory emissions.