Carbon Neutrality & 2022 Scoping Plan Update

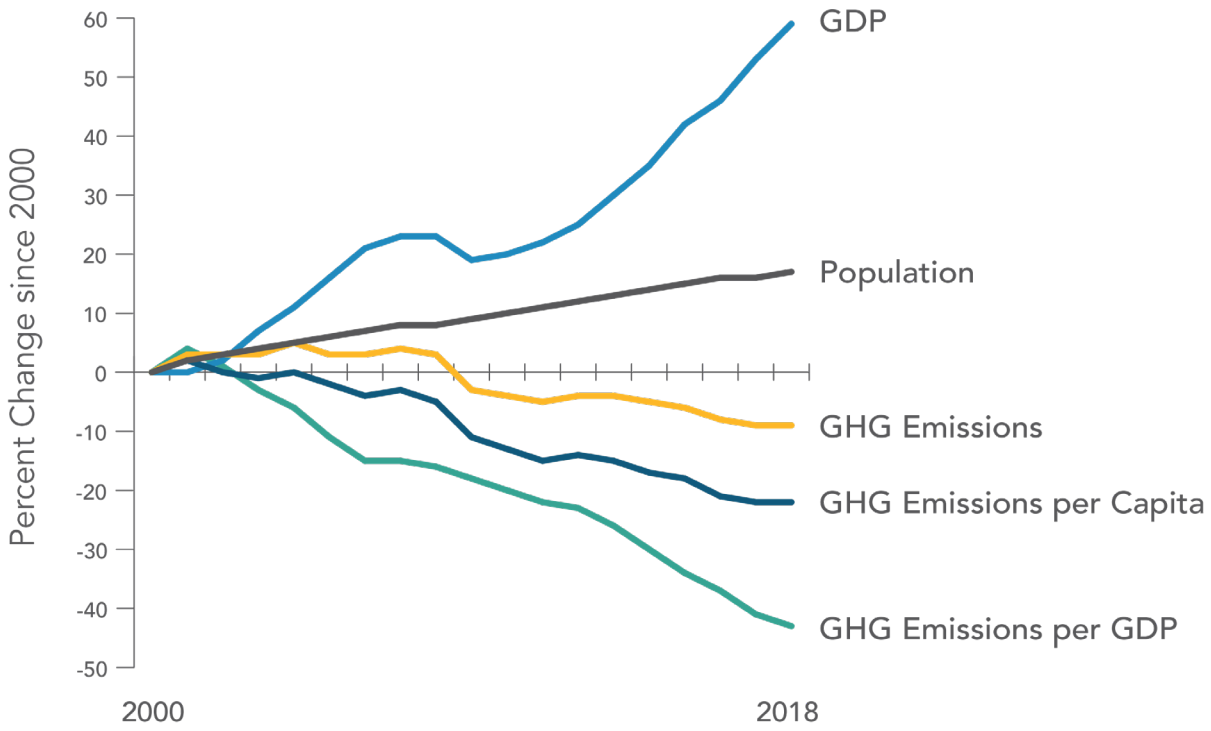
FEBRUARY 2021

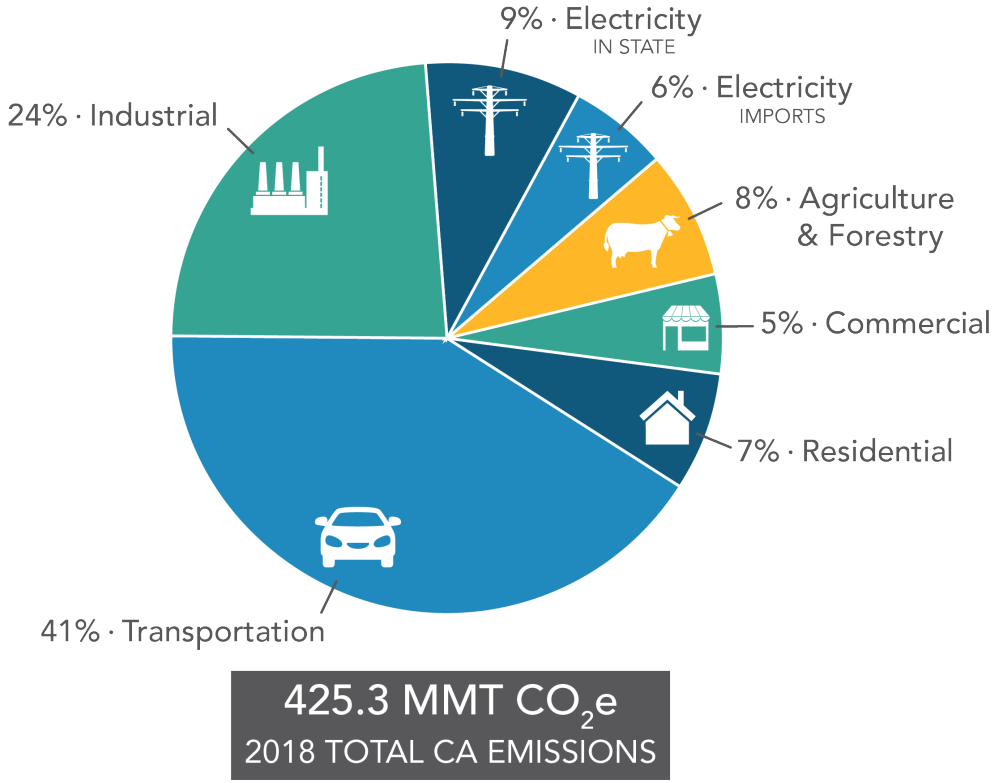
RAJINDER SAHOTA

Background: AB 32 Scoping Plan

- Scoping Plan(s) are action plans to ensure CA meets statewide GHG reduction targets
  - Scoping Plan(s) rely on a suite of climate policies to address emissions across all sectors
  - Required by AB 32 to be updated every 5 years
  - 2017 SP (most recent) – cost-effective and technologically feasible path to achieve the 2030 target
- Provide direct GHG emissions reductions and air quality co-benefits
- Minimize emissions "leakage" – increase to non-CA GHG emissions
- Facilitate sub-national and national collaboration
- Support cost-effective and flexible compliance

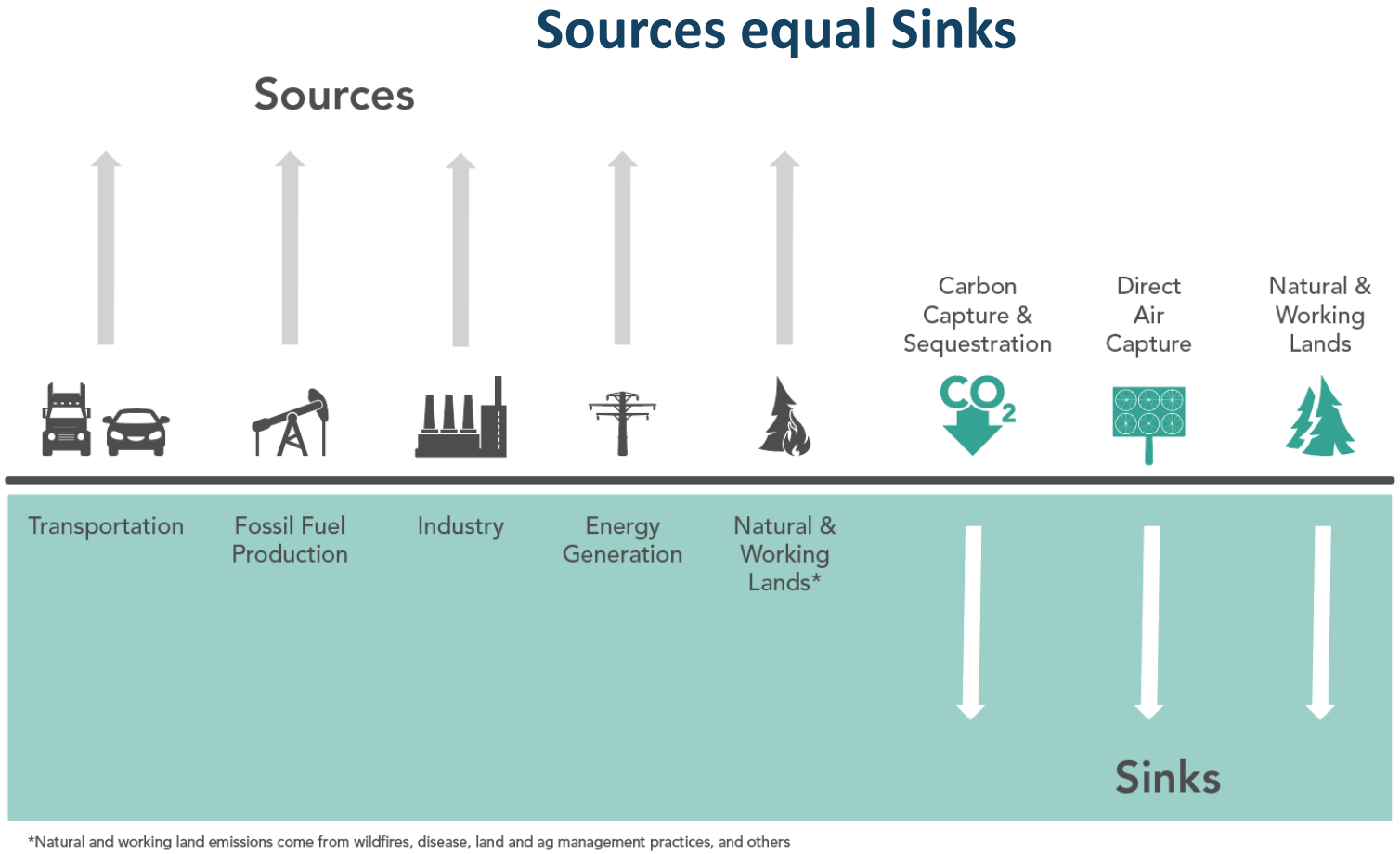
California's Trends





Source: 2020 Edition, California Greenhouse Gas Emission Inventory: 2000-2018

Science-based Target: Achieve Carbon Neutrality (CO_2e) Mid-Century



- Prioritize minimizing emissions from sources
- Maximize sinks

- ZEV Executive Order
  - 100% sales of zero emission LDV by 2035
  - 100% zero emission MDV and HDV by 2045

Illustration: Path for Deep Decarbonization

A scenario with widespread efficiency and electrification paired with zero-carbon electricity, as well as zero-carbon fuels for hard-to-decarbonize sectors

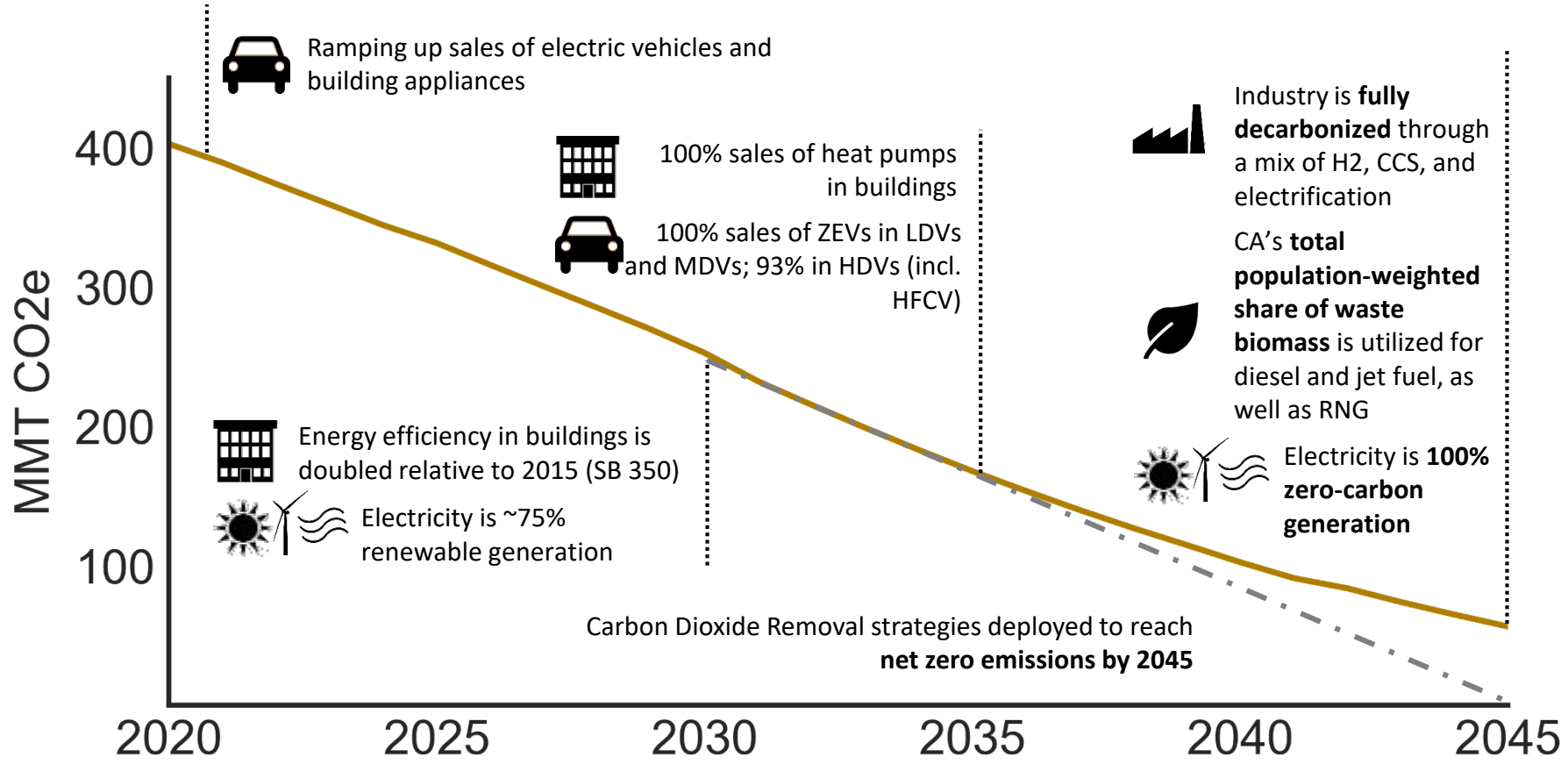


Illustration of GHG Emissions: Scenario Comparison

+ **Largest source of remaining GHG emissions in all scenarios is from high global warming potential gases (GWP), e.g. fluorinated refrigerant gases and non-combustion emissions, e.g. fugitive methane from agriculture**

AB 32 emissions: today, and in 2045 across the three scenarios

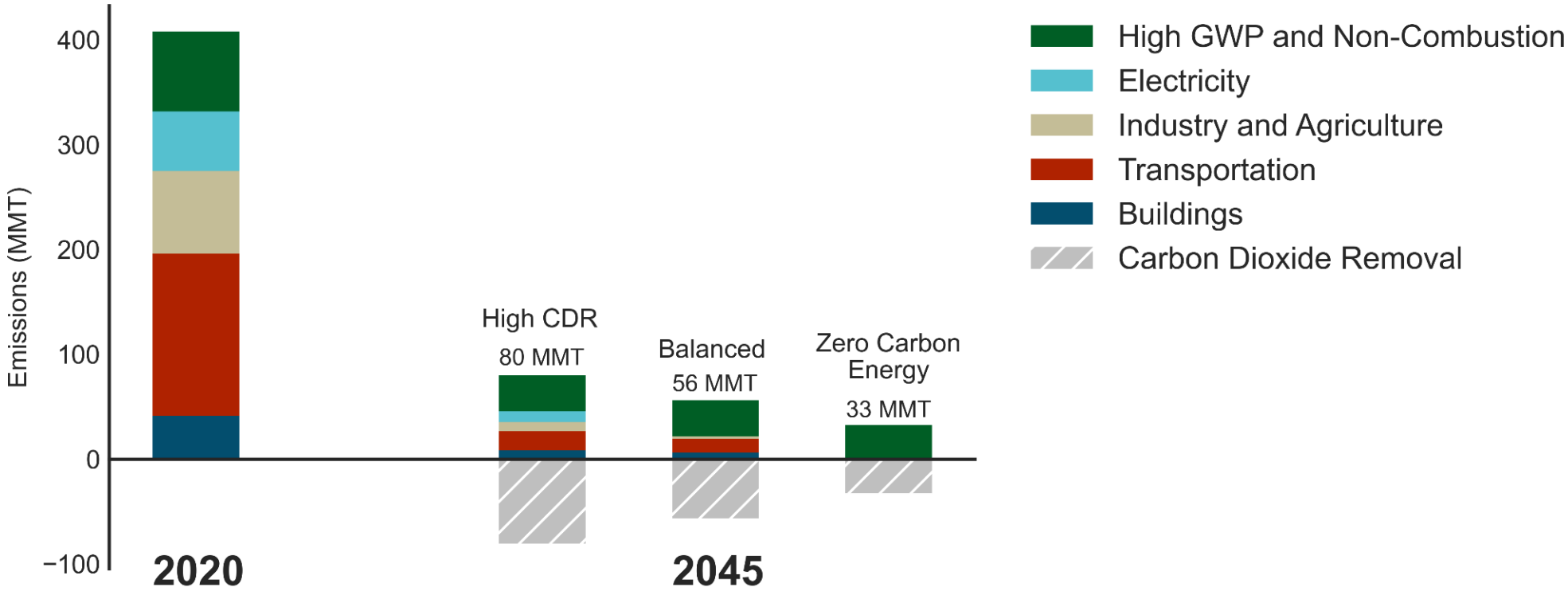
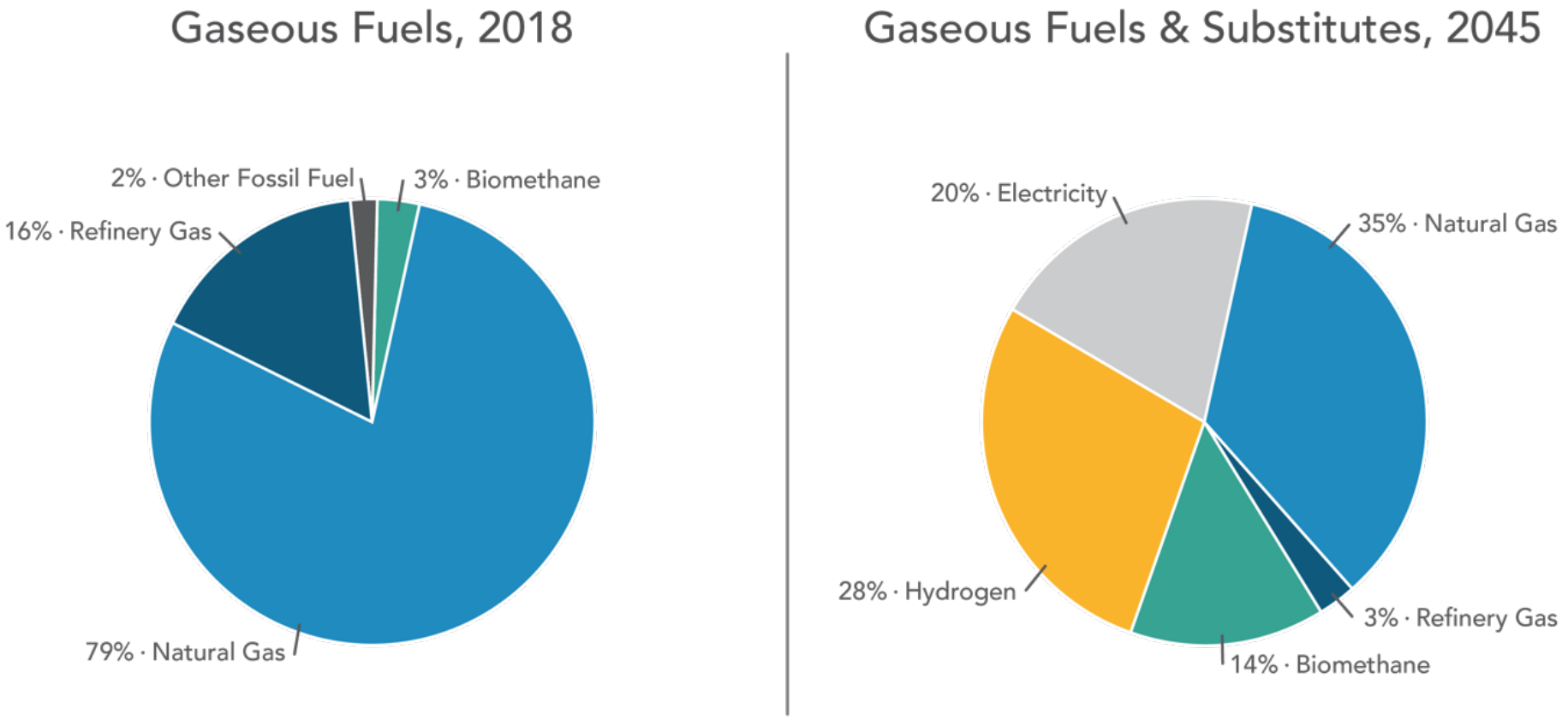


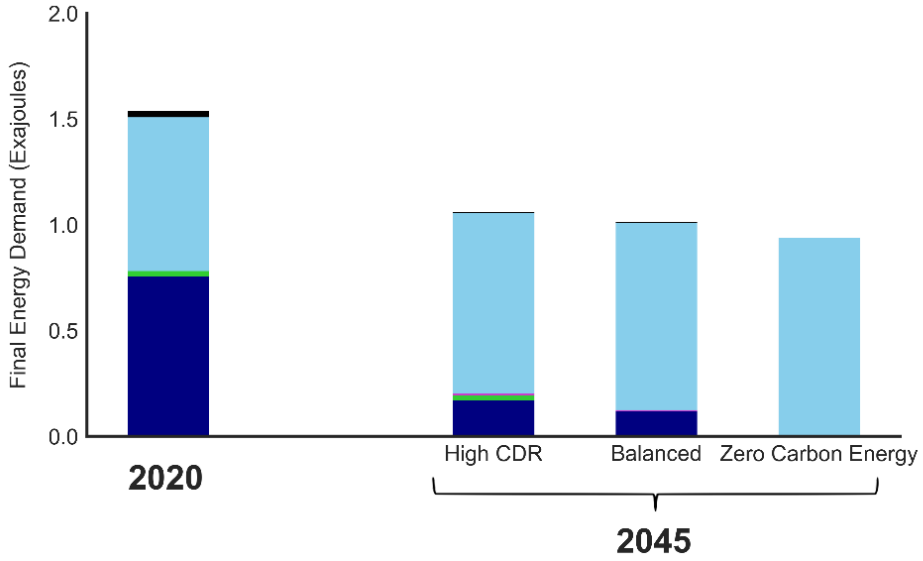
Illustration: Transition from Fossil Gas

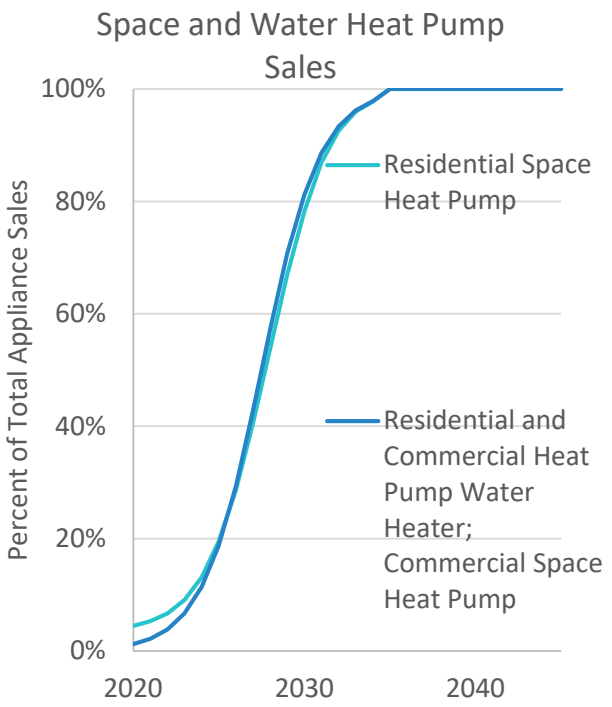


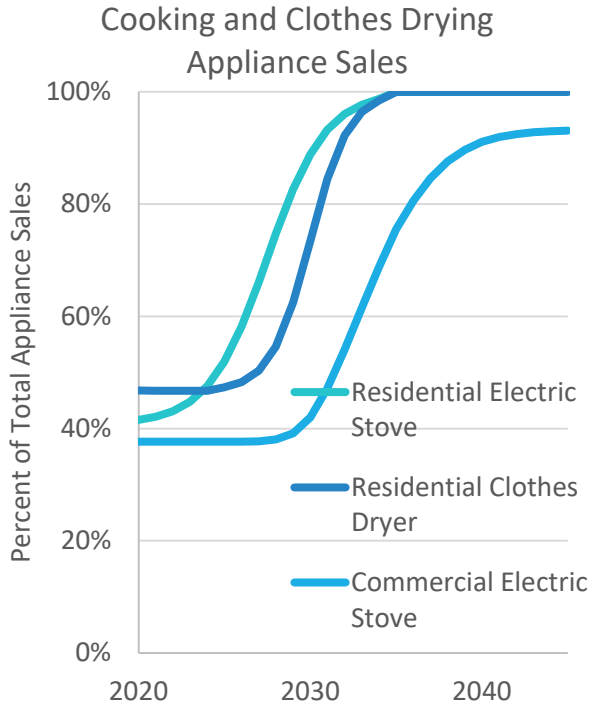
Percentage of fuel supplied, by volume

Illustration - Transformation Metrics Building Sector

Modeling shows the need to quickly transform our energy sources and end-use technology across key sectors







CN Modeling: Key findings

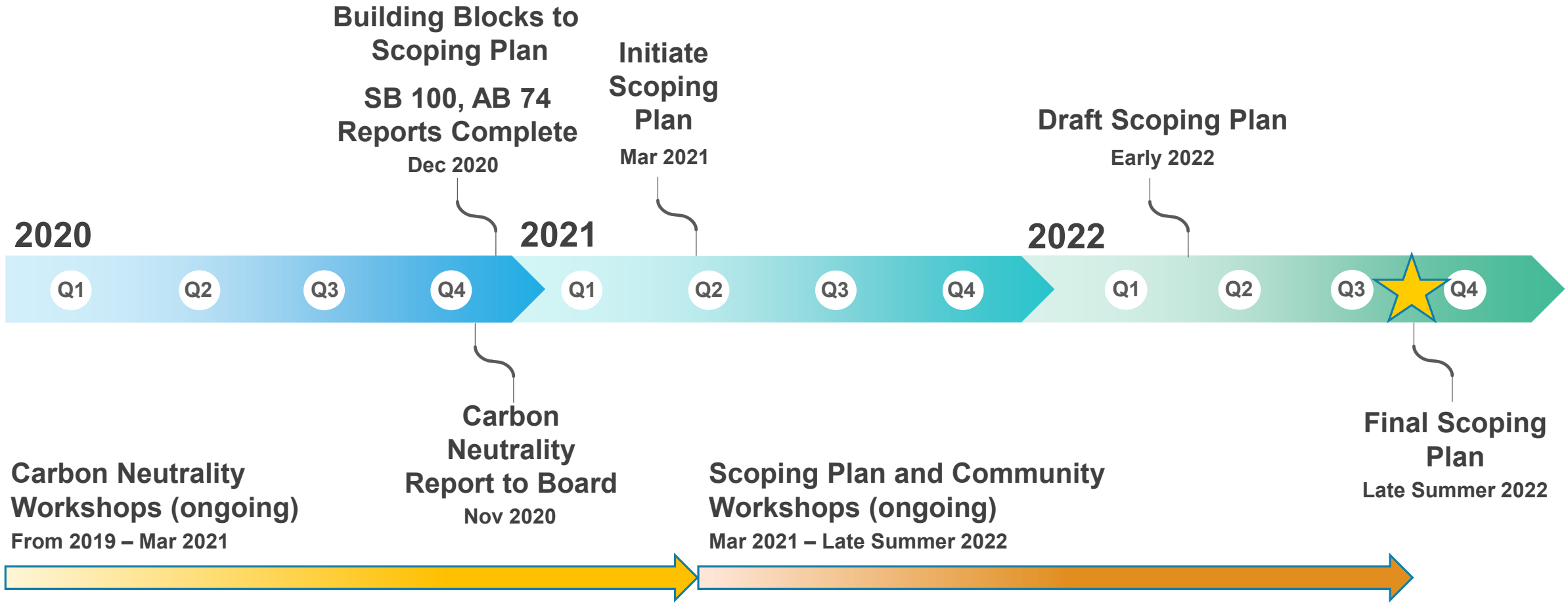
Least-regrets strategies for getting to carbon neutral include:

- Energy efficiency in buildings, industry, and agriculture
- Widespread transportation and building electrification
  - Today's new buildings are tomorrow's retrofits
- Zero-carbon electricity
- Investment in zero-carbon fuel options for hard-to-decarbonize sectors where electrification is not practical
- Pursuing reductions in non-combustion emissions
- Investment and research into carbon dioxide removal (CDR) technologies

Additional Analyses in Scoping Plan

- Cost per ton of measures (AB 197)
- Social cost of carbon (AB 197)
- Estimated air quality benefits (AB 197)
- Public health
- Environmental (CEQA)
- Economic (macro, household, jobs)

2022 Scoping Plan Update Schedule



Additional Information

Carbon Neutrality Website
https://ww2.arb.ca.gov/our-work/programs/carbon-neutrality

All Workshops
https://ww2.arb.ca.gov/our-work/programs/carbon-neutrality/carbon-neutrality-meetings-workshops

E3 Power Point and Report
https://ww2.arb.ca.gov/sites/default/files/2020-08/e3_cn_report_aug2020.pdf
https://ww2.arb.ca.gov/sites/default/files/2020-08/e3_cn_draft_report_aug2020.pdf

2017 Scoping Plan
https://ww2.arb.ca.gov/our-work/programs/ab-32-climate-change-scoping-plan