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State Of WASH.  
UTIL. AND TRANSP.  
COMMISSION



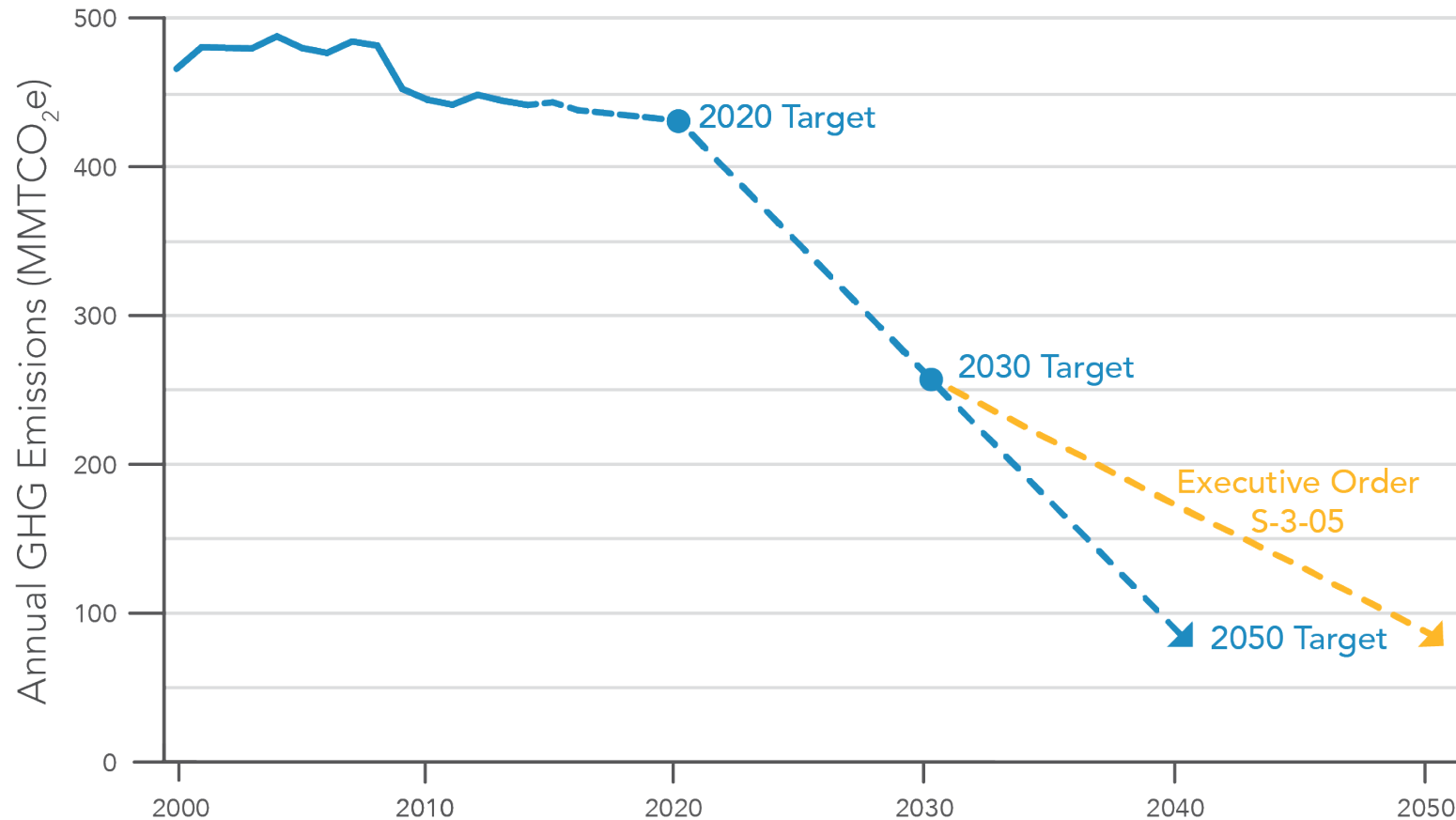
# Imported Electricity in California's Cap-and-Trade Program

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ABAJH SINGH

SEPTEMBER 2021

# CA GHG Reduction Targets



Source: CARB, 2017

# CARB's Climate Portfolio for 2030 Target

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Double building efficiency



60% renewable power



More clean, renewable fuels



Slash potent "super-pollutants" from dairies, landfills and refrigerants



Cleaner zero or near-zero emission cars, trucks, and buses



Cap emissions from transportation, industry, natural gas, and electricity



Walkable/bikeable communities with transit



Invest in communities to reduce emissions



Cleaner freight and goods movement



Protect and manage natural and working lands

# Cap-and-Trade Program Background & Goals



- Critical part of State strategy to achieve AB 32 and SB 32 GHG reduction targets
  - Ensure GHG reduction targets are realized through a strict limit
  - 2017 Scoping Plan that includes Cap-and-Trade is four times less costly than alternatives
- Works in concert with other complementary air quality and climate policies
  - Program designated in AB 398 to reduce GHG emissions for oil and gas extraction and refinery sectors
  - Provide compliance flexibility to achieve cost-effective reductions
  - Facilitate integration of regional, national, and international GHG reduction programs
- Emissions data is provided by the Mandatory Reporting Regulation (MRR) Program established by AB32

# Cap-and-Trade: Facts and Figures

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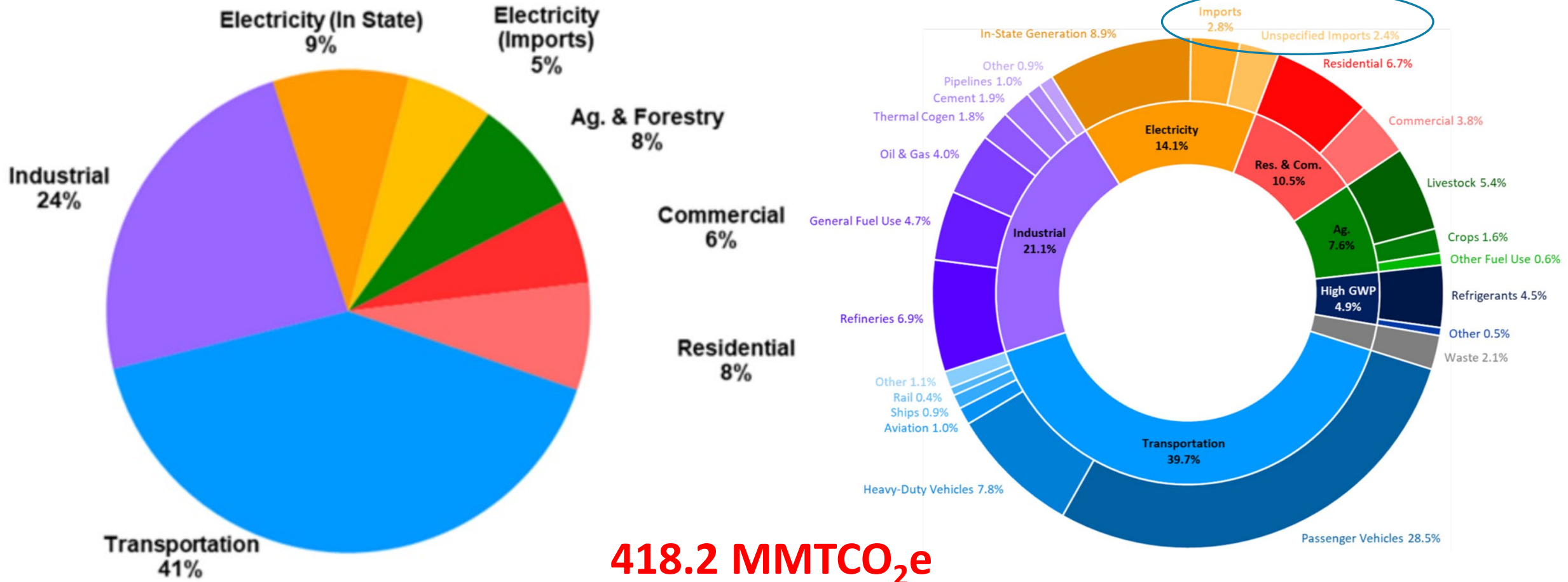
- Covers ~80% of State's emissions
- ~450 covered entities in the Program
  - Large industrial sources & electricity generators with emissions  $\geq 25,000$  MTCO<sub>2</sub>e per year
  - Electricity importers, natural gas suppliers, and transportation fuel suppliers
- 36 auctions held to-date (28 joint-auctions)
  - First joint auction with Québec was held in November 2014
- \$16.9 billion generated for California Climate Investments
  - Over 50% benefiting disadvantaged communities

# Electricity in Cap-and-Trade

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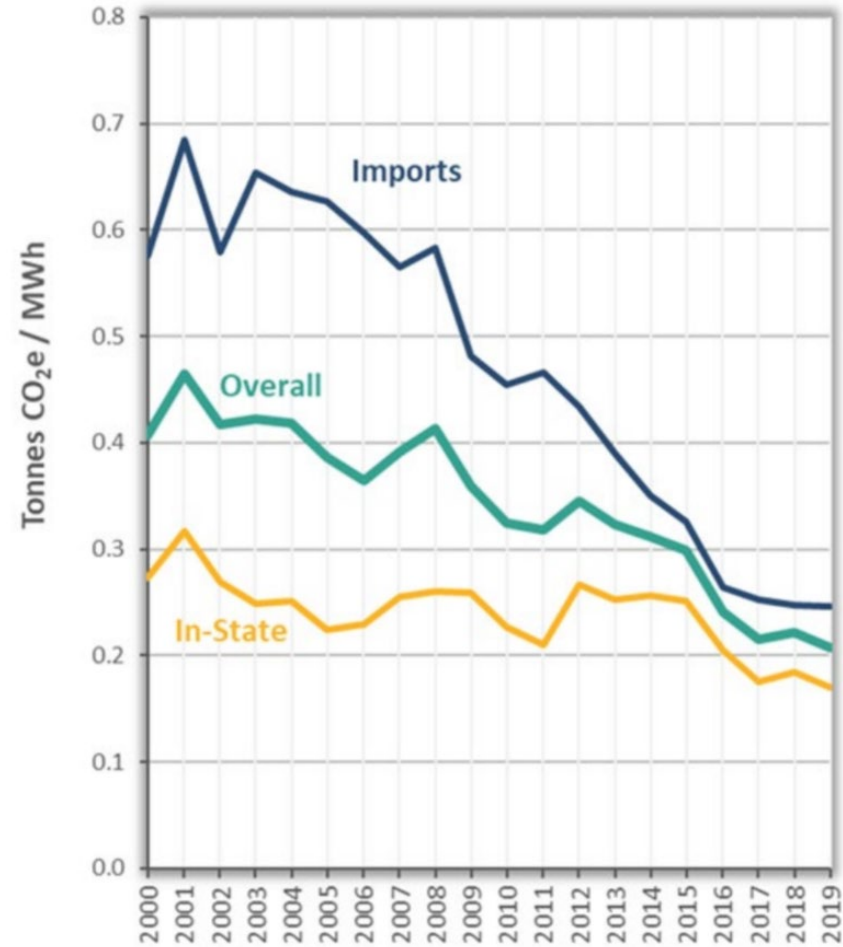
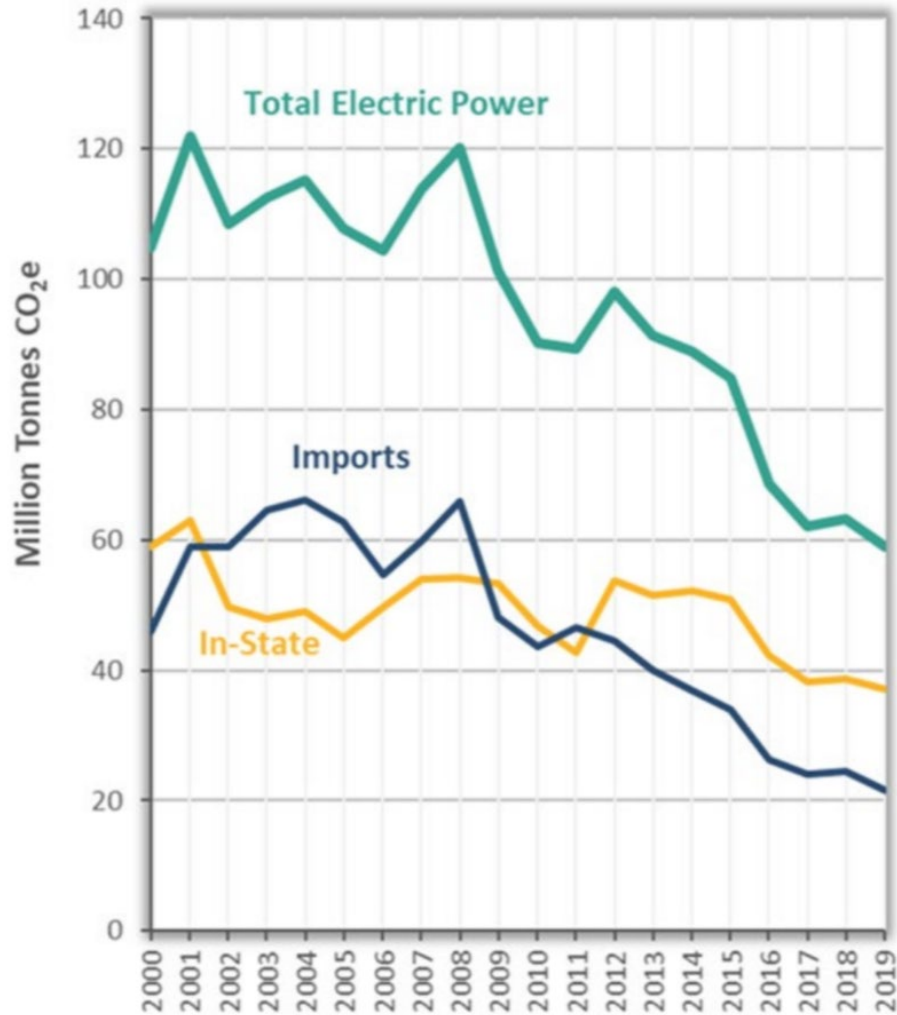
- AB 32 requires capture of emissions associated with all CA energy consumption
  - In-state power generation
  - Imported electricity
- Limits emissions leakage by avoiding incentive to locate generators out-of-state or unnecessarily increasing imports

# 2019 California's GHG Emissions



CARB 2000-2019 GHG Emissions Trends Report: Figures 20a & 4

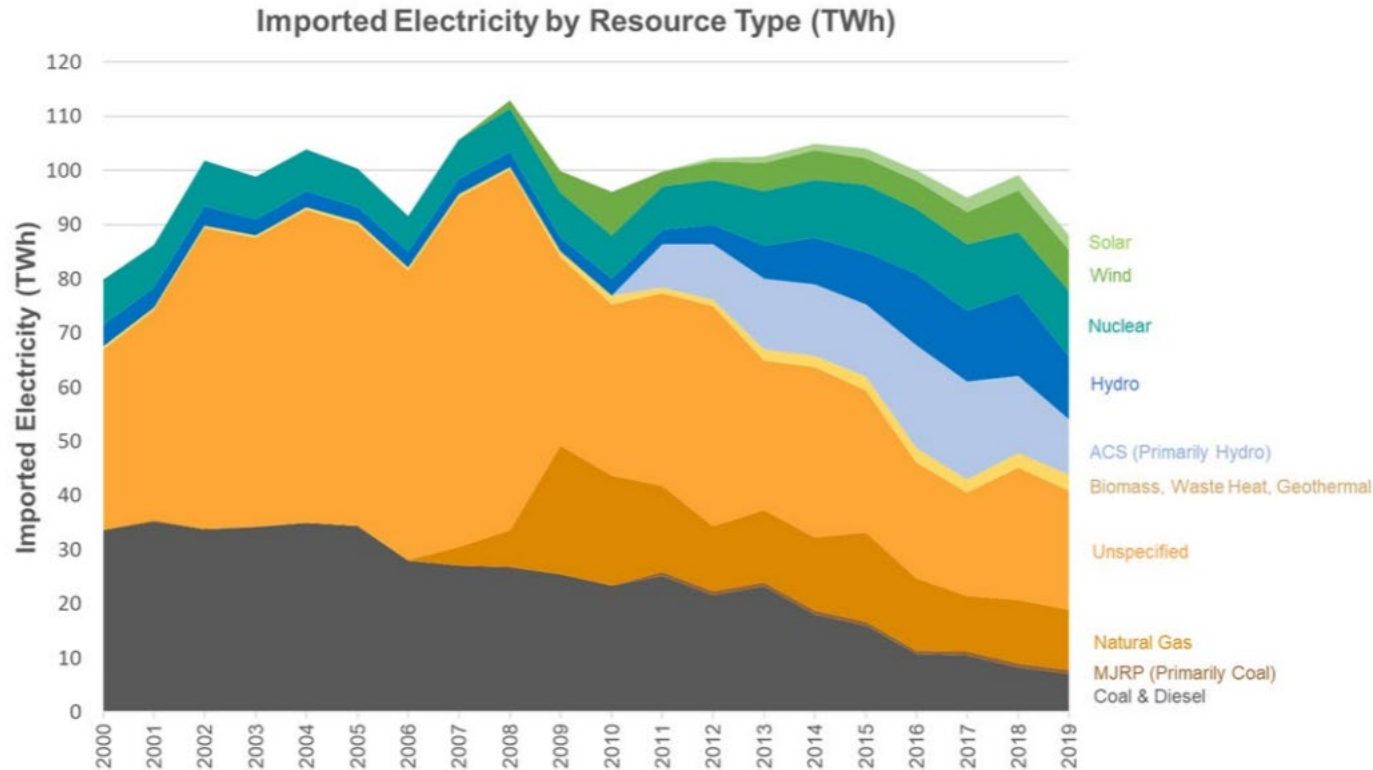
# GHG Intensity of California Electricity 2000-2019



CARB 2000-2019 GHG Emissions Trends Report: Figures 8 & 9



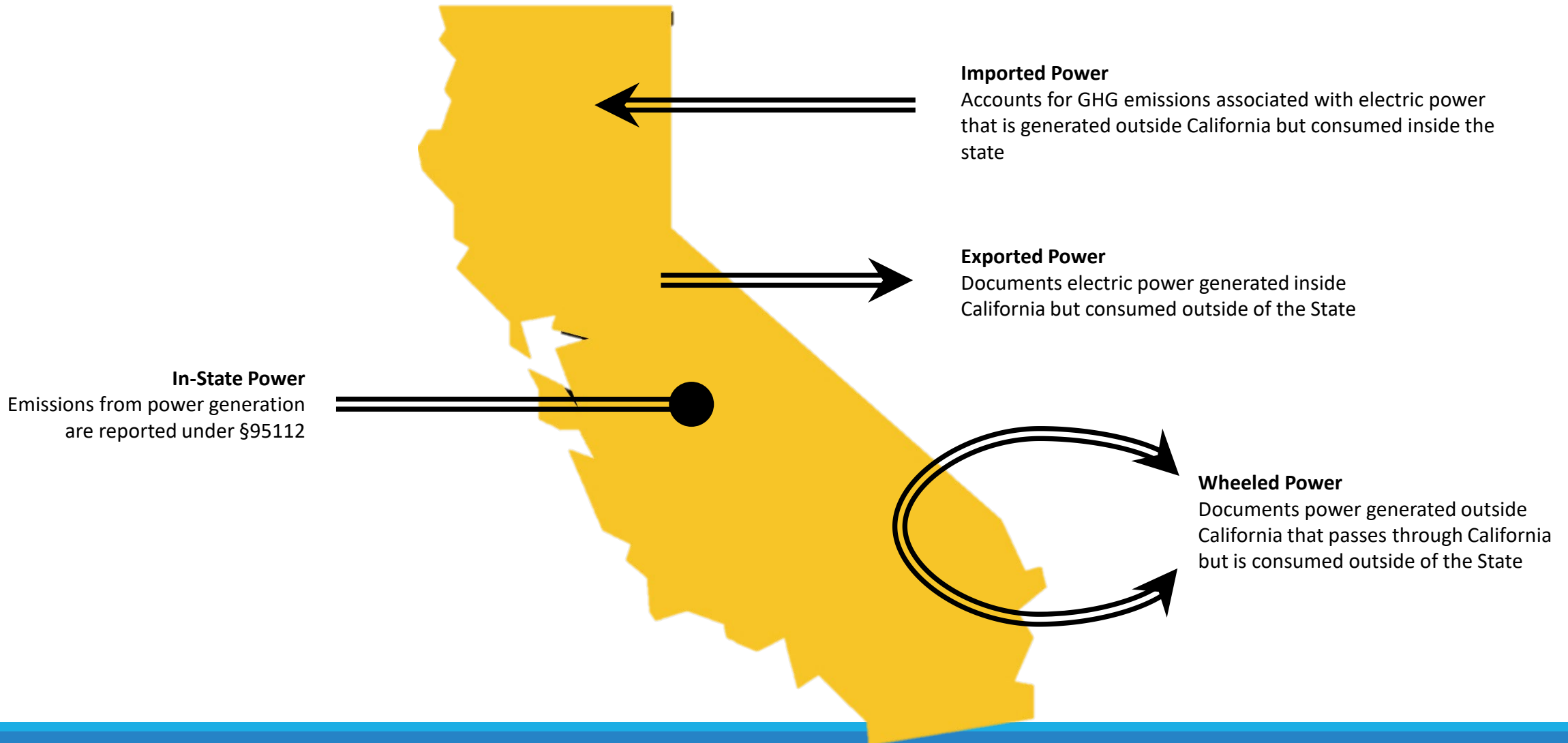
# Electricity Imports by Source



- Emission profiles are public:
  - By reporter:
    - <https://ww2.arb.ca.gov/mrr-data>
  - By emission source:
    - <https://ww2.arb.ca.gov/ghg-inventory-data>

# Electricity Transactions Reported Under MRR

[§95111]



# Examples of Electric Power Entities [§95102(a)]

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- Point of regulation is transacting electricity across California border.
- Entities required to report under MRR include:
  - Electric corporations, Investor-Owned Utilities (IOU)
  - Electric service providers (ESP)
  - Local publicly owned electric utilities (POU)
  - Community choice aggregators (CCA)
  - Western Area Power Administration (WAPA, Federal)
  - Marketers - Purchasing-selling entities (PSE) that deliver electricity (Marketers)

# Specified and Unspecified Import Sources

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- The difference between specified and unspecified source electricity is in the contract
- Specified source electricity is contingent upon delivery of power from a particular facility, unit, or ACS system designated at the time the transaction is executed [§95102(a)]
- Applicable to written or verbal contracts
- Buyer and Seller must both agree on the source or its unspecified

# Specified Sources

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- Types of Specified Sources [§95852(b)(3)]
  - A single facility or unit which is permitted to be claimed as the source of electricity delivered
  - An ACS supplying electricity from a fleet of generation sources that is assigned an emission factor by CARB
  - Multiple dams, if one project for FERC hydroelectric licensing purposes
  - Source owned/controlled - generation-providing entity (GPE)
- Each specified source has an emission factor calculated by CARB based on US EPA (Part 98 data) and/or EIA (Form EIA 923) data (one-year lag)
- Specified source electricity must be “directly delivered,” i.e., the power is verified as having actually come into CA and sunk here [§95111(g)(3)]

# Unspecified Sources

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- Unspecified source of electricity means a source of electricity that is not a specified source at the time of entry into the transaction to procure the electricity [§95102(a)]
- Default Emission Factor for Unspecified Electricity Imports [§95111(b)(1)]
  - 0.428 MT CO<sub>2</sub>e/MWh\*
  - Calculated by CARB and Western Climate Initiative (WCI)
  - Modeled to approximate the marginal generation that would be needed for an additional MWh of electricity imported to California

\*<http://www.arb.ca.gov/regact/2010/ghg2010/ghgisor.pdf>, pg. 167-169

# Reporting

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- Imported electricity (specified and unspecified) must be reported by:
  - Purchasing-Selling Entity (PSE) on last segment into California on e-Tag Physical Path
  - Retail providers must report electricity imported on their behalf to serve their load [§95111(c)]
- Exported electricity reported by:
  - PSE on last segment out of California on e-Tag Physical Path
- Wheeled electricity reported by:
  - PSE on last segment out of California on e-Tag Physical Path
  - Only EPEs report wheels – having only wheels does not an EPE make!

# Asset-Controlling Suppliers

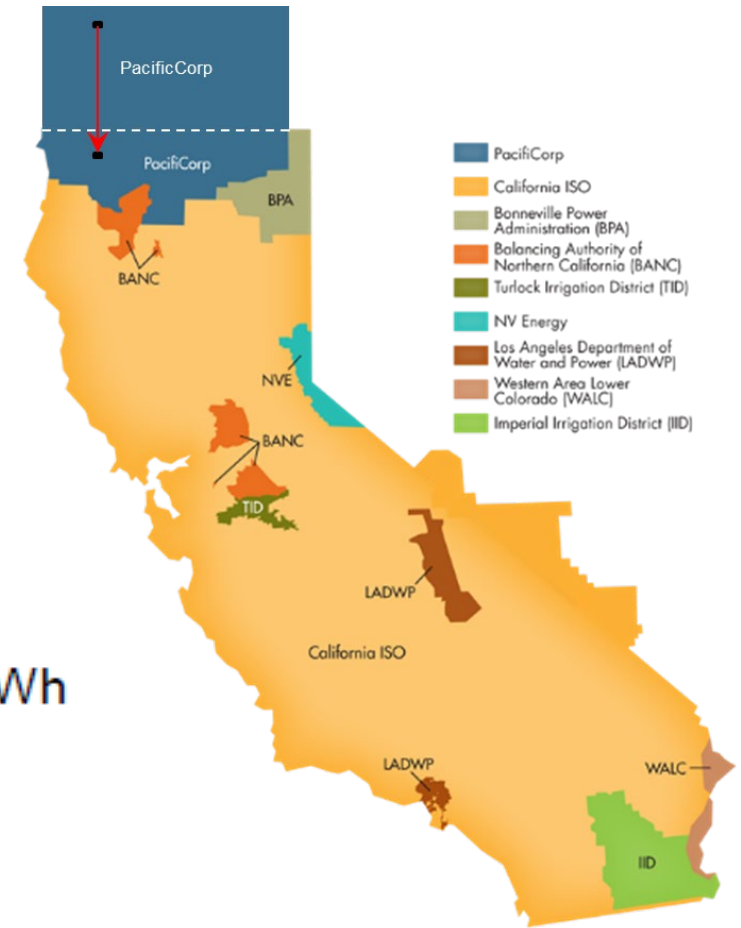
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- Specific type of EPE registered and approved by CARB
  - Owns or operates interconnected electricity generating facilities, or serves as an exclusive marketer for those facilities
  - Assigned a supplier-specific identification number by CARB
  - Assigned a system emission factor (EF) by CARB
  - ACS are considered specified sources
  - Currently two ACS entities: BPA & Tacoma Power



# Multi-Jurisdictional Retail Providers

- MJRP provides electricity to CA consumers and one or more other states from a common power system
- Emissions from MJRP imports are based on specific emission factor calculated from total MJRP system emissions and sales
- Similar to ACS concept, but not opt-in
- Currently only PacifiCorp



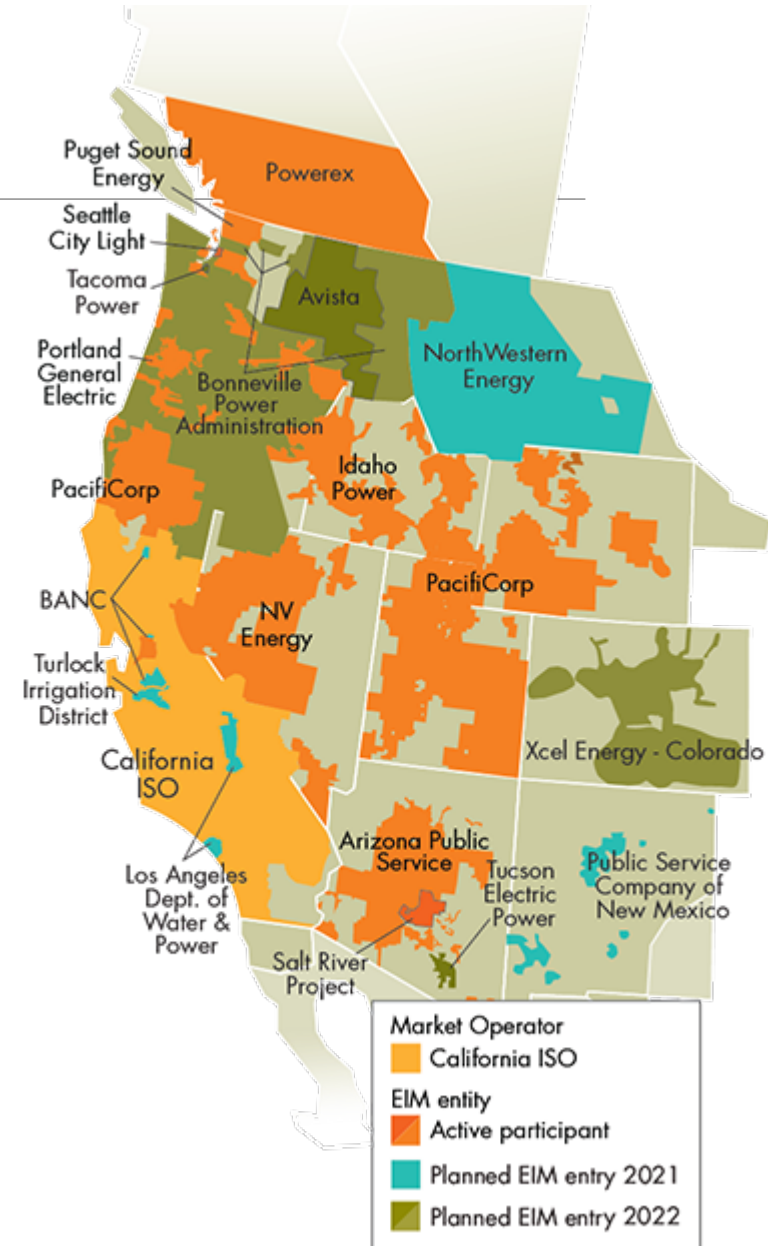
$$EF_{ACS} = \text{Sum of System Emissions MT of CO}_2\text{e} / \text{Sum of System MWh}$$

$$\text{Sum of System Emissions, MT of CO}_2\text{e} = \Sigma E_{asp} + \Sigma (PE_{sp} * EF_{sp}) + \Sigma (PE_{unsp} * EF_{unsp}) - \Sigma (SE_{sp} * EF_{sp})$$

$$\text{Sum of System MWh} = \Sigma EG_{asp} + \Sigma PE_{sp} + \Sigma PE_{unsp} - \Sigma SE_{sp}$$

# CAISO EIM

- EIM is a real-time energy market that identifies lowest-cost power to serve demand
- EIM participants include “GHG bid adder” for resources that may be “deemed” by CAISO algorithm to come to California
- Deemed imports into California provided to EPEs via CMRI
  - CAISO Market Results Interface (CMRI) contains confidential market results info
  - e-Tags are not used for deemed imports
- Same reporting and verification requirements as other EPEs
- Like other specified imports, emissions calculated based on emissions profile of generation resource



Source: westerneim.com

# Cap-and-Trade vs. Renewable Portfolio Standard

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- Programs are complementary; each has separate requirements
- Cap-and-Trade Program compliance is based on allowances retired
  - 1 allowance = permit to emit 1 MTCO<sub>2</sub>e
- RPS compliance is based on Renewable Energy Credits (REC) generated and retired
  - 1 REC = 1 MWh of renewable electricity
  - RECs may be bundled or unbundled, but always includes the “environmental attributes”
- For Cap-and-Trade, reporting specified imports from eligible renewable requires reporting REC serial numbers
- The reporting of zero emission renewables does not constitute a claim on the environmental attributes and does not require the retirement of the REC
  - In a capped program, no emissions are “avoided” by the generation of the renewable electricity

# Questions?

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- **Abajh Singh**

- MRR Verification Lead Staff, Electric Power Entities
- [Abajh.Singh@arb.ca.gov](mailto:Abajh.Singh@arb.ca.gov)

- **Tess McDermott**

- MRR Reporting Lead Staff, Electric Power Entities
- [Tess.Mcdermott@arb.ca.gov](mailto:Tess.Mcdermott@arb.ca.gov)

