Renewable Energy Markets

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California Energy Commission

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STATE OF CALIFORNIA
ENERGY COMMISSION

CALIFORNIA ENERGY COMMISSION

The California Energy Commission is California's primary energy policy and planning agency.

Forecasting: Forecasts future energy needs and maintains historical energy data

Permitting: Permits thermal power plants 50 MW or larger

RD&D: Administers research and development programs, advancing science and technology in energy related fields

Energy Efficiency: Promotes energy efficiency by setting the state's appliance and building standards (Title 20 & 24)

Renewable Energy: Supports the development of renewables through certification of facilities and verification of generation

Contingency Planning: Plans for and directs the State's response to energy emergencies

Transportation: Supports deployment of alternative and renewable fuel sources

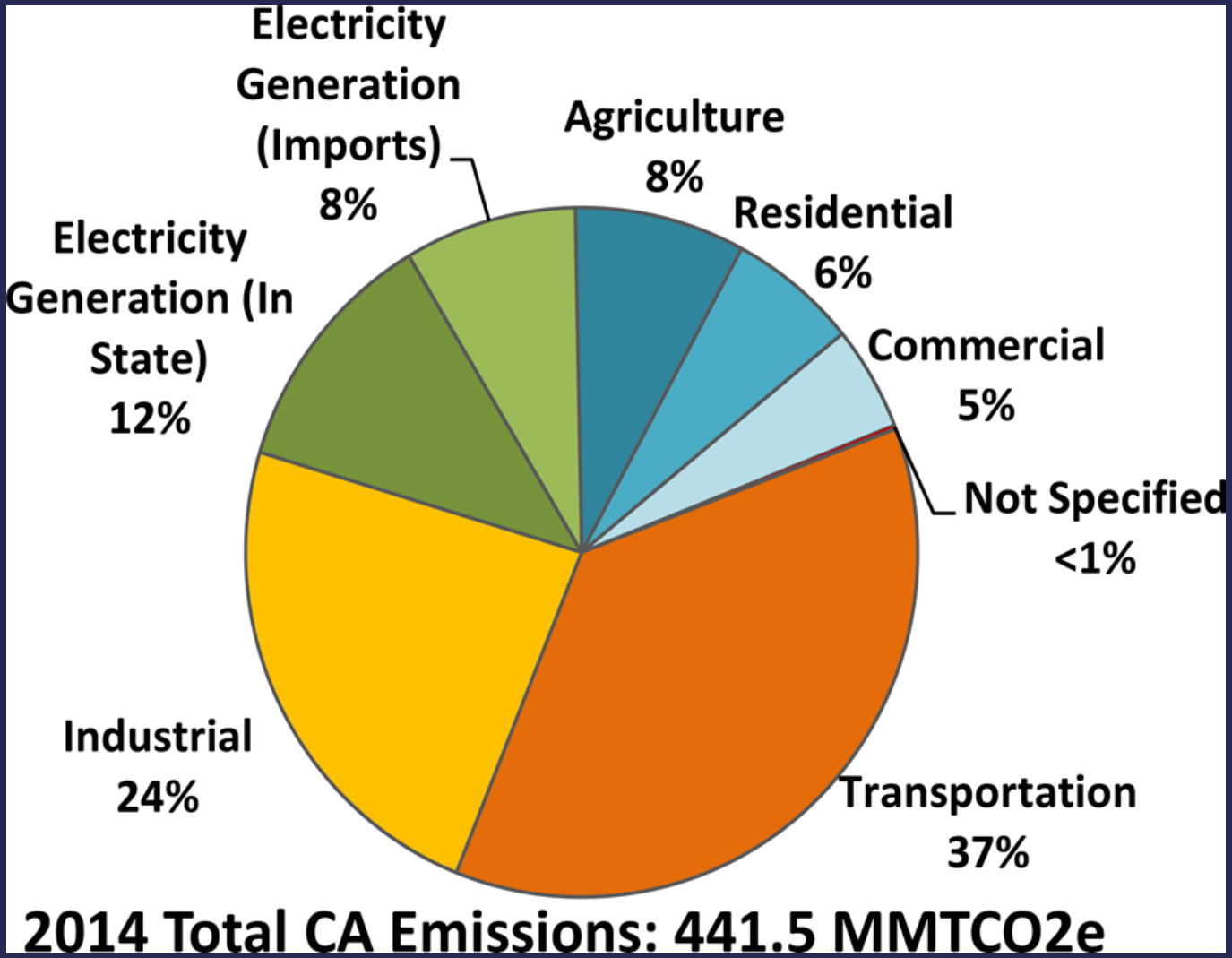
IEPR: Publishes the Integrated Energy Policy Report – the State's energy policy document

ENVIRONMENTAL PERFORMANCE REPORTS

GREENHOUSE GAS EMISSION REDUCTION GOALS

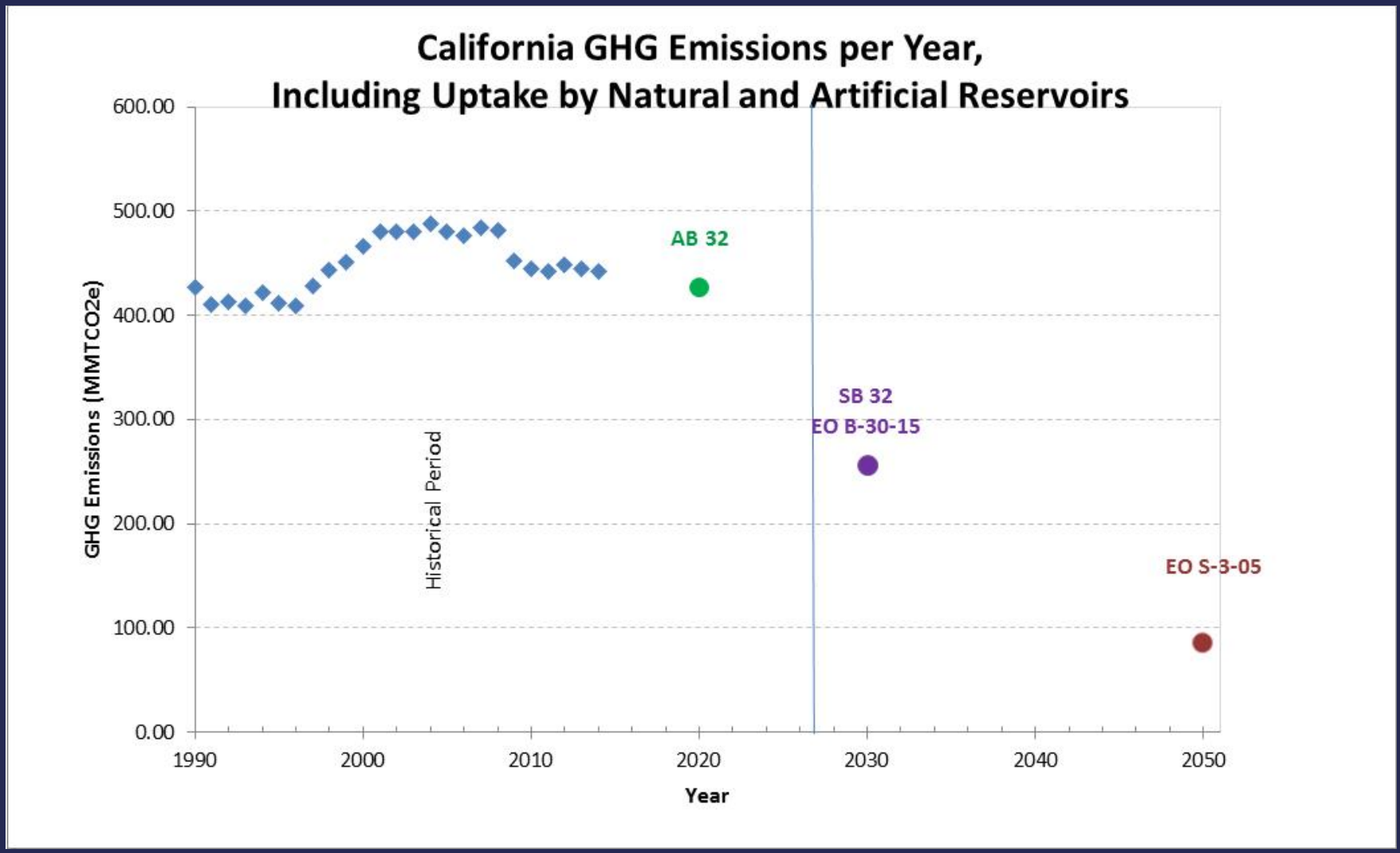
- 2020: 1990 levels
- 2030: 40% below 1990 levels
- 2050: 80% below 1990 levels

EMISSIONS CONTRIBUTION BY SECTOR



Source: ARB California GHG Emission Inventory, 2016 Edition: http://www.arb.ca.gov/cc/inventory/data/data.htm

EMISSIONS: THEN AND NOW



Source: 2015 IEPR

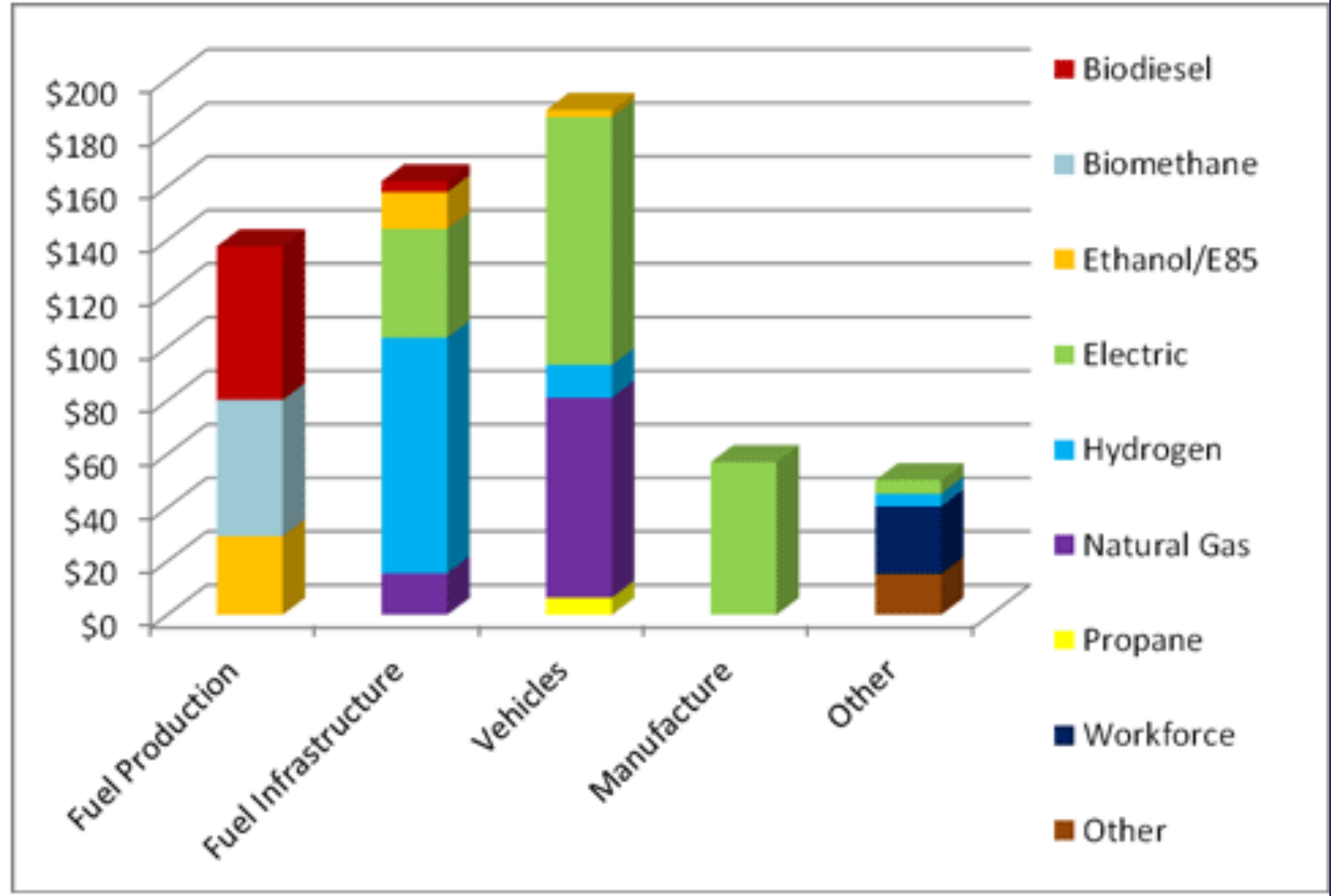
CLIMATE CHANGE ACTIONS NEEDED TO MEET GOALS

- By 2030 --
  - Double Energy Efficiency Savings in Buildings and Make Heating Fuels Cleaner by 2030
  - 50% Renewable Energy
  - Reduce Petroleum Use in Cars and Trucks by up to 50% reduction
  - Reduce Release of Short-Lived Climate Pollutants
  - Manage Farm and Rangelands, Forests and Wetlands so they can Store Carbon

DOUBLE ENERGY EFFICIENCY SAVINGS

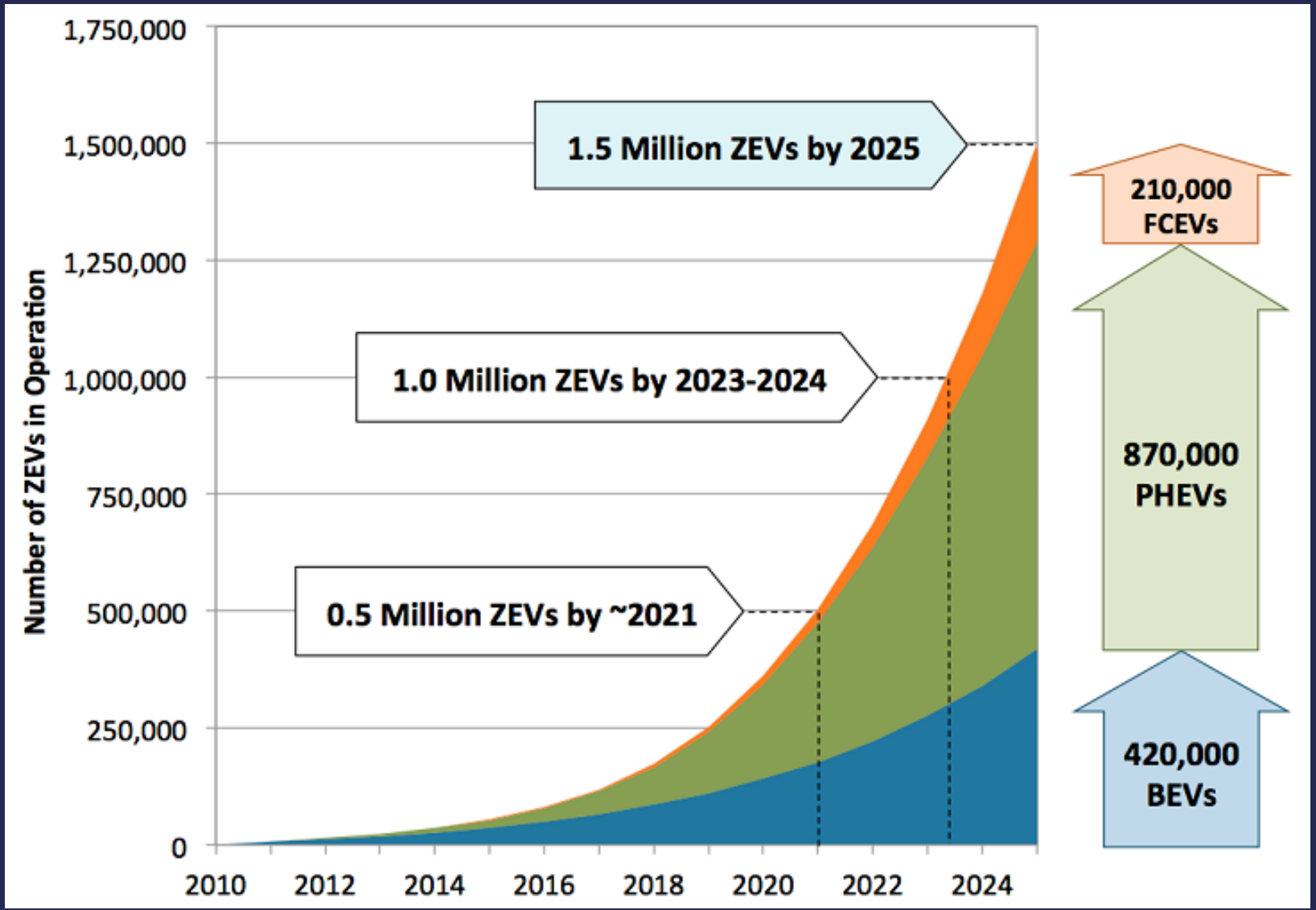
- Codes and Standards
  - Building Energy Efficiency Standards
  - Zero Net Energy Residential and Commercial Buildings
  - Local Building Code Ordinances
  - Appliance Efficiency Standards
- Existing Buildings Energy Efficiency Action Plan
- Utility Programs – Education and Incentives
- Research and Development Investments

ALTERNATIVE AND RENEWABLE FUEL AND VEHICLE TECHNOLOGY PROGRAM



Totals in Millions of Dollars

ZEV GROWTH SCENARIO TO ACHIEVE ZEV EXECUTIVE ORDER GOALS

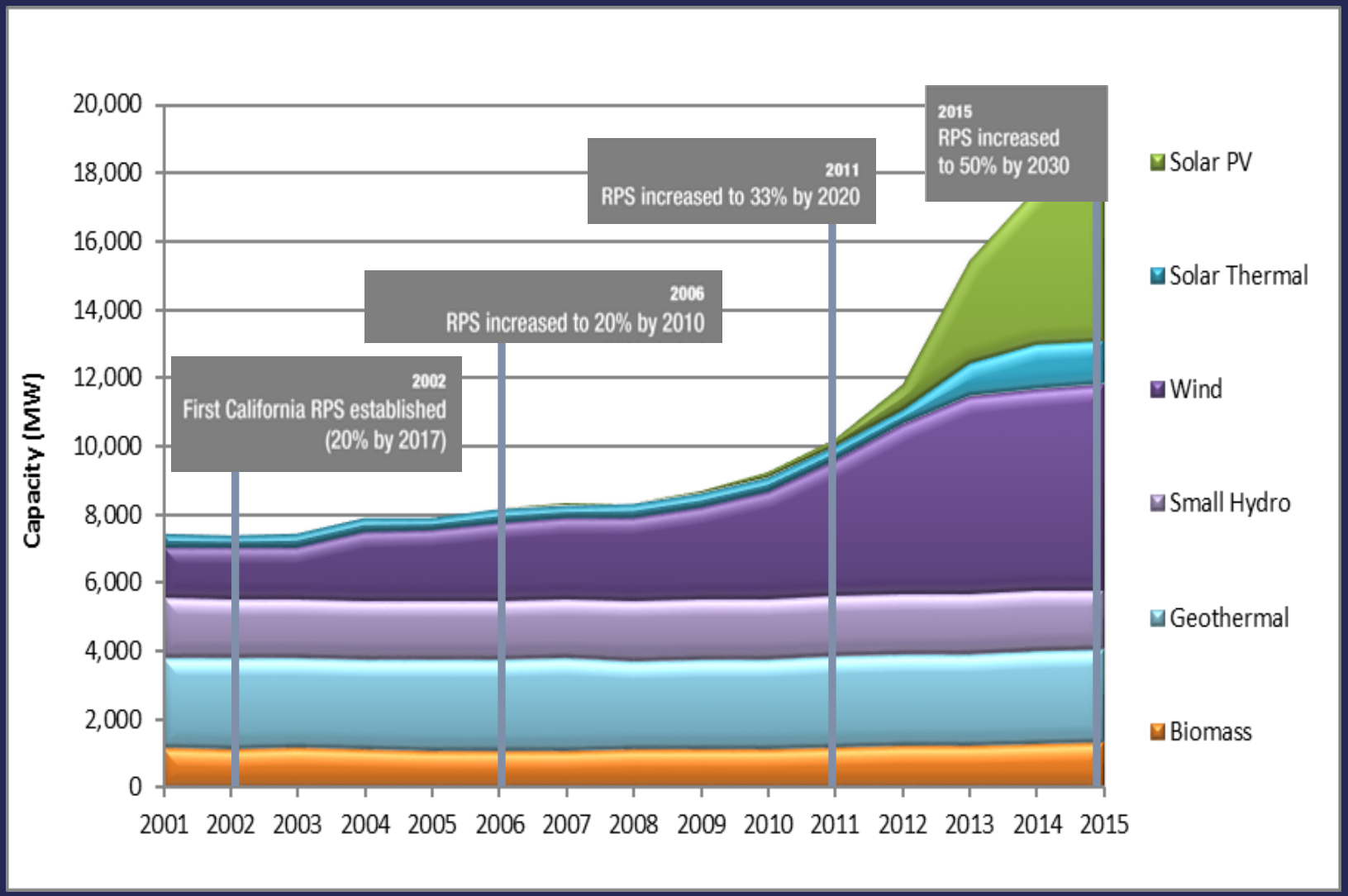


RENEWABLES PORTFOLIO STANDARD

- 20% Renewables by 2017
- 20% Renewables by 2010
- 33% Renewables by 2020
- 50% Renewables by 2030

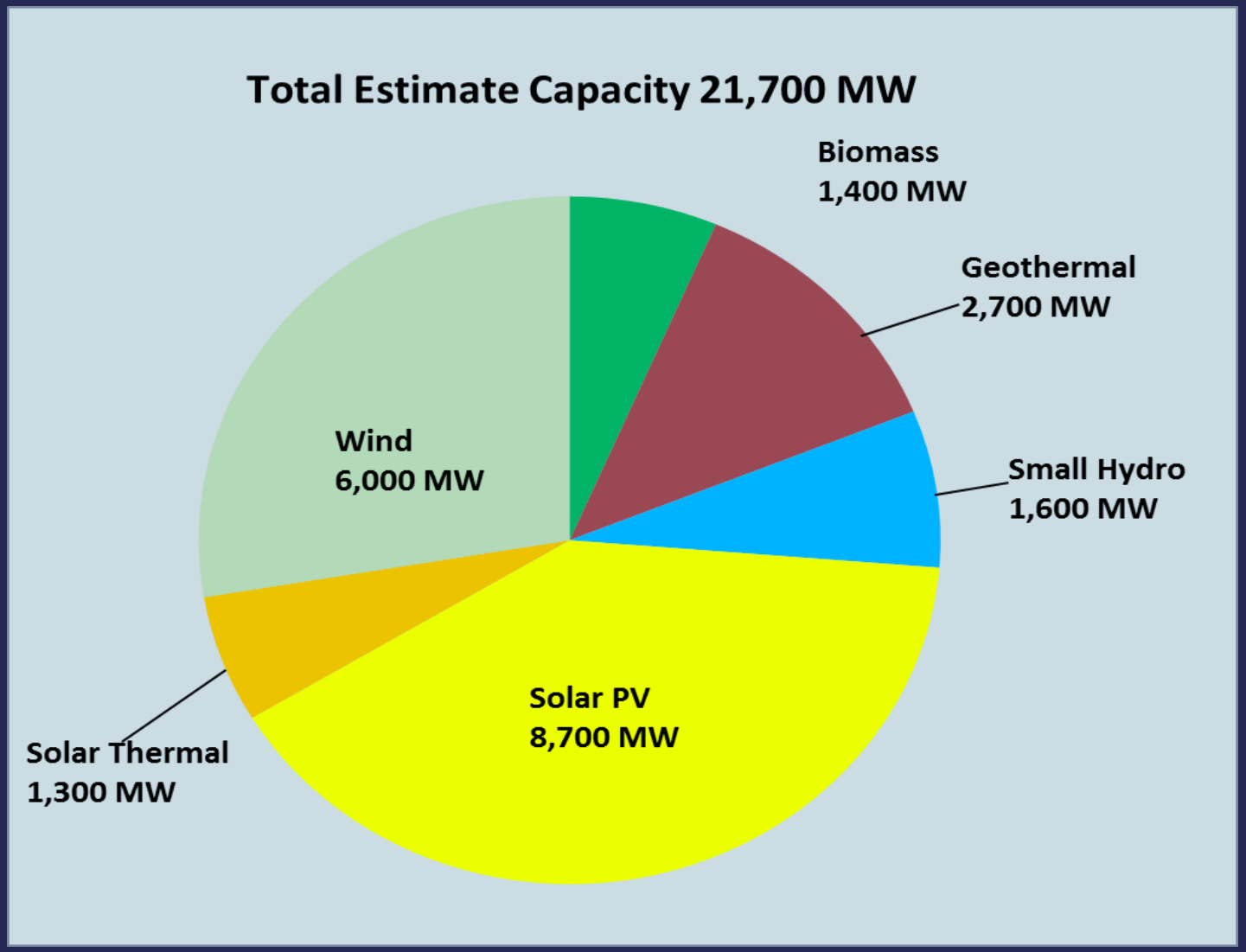
Governor Brown, Climate Summit, Paris, 2015

INSTALLED RENEWABLE CAPACITY (IN MW) BY RESOURCE TYPE



Source: California Energy Commission, 1304 Power Plant Data Reporting, Energy Assessments Division

IN-STATE RENEWABLE CAPACITY BY RESOURCE TYPE



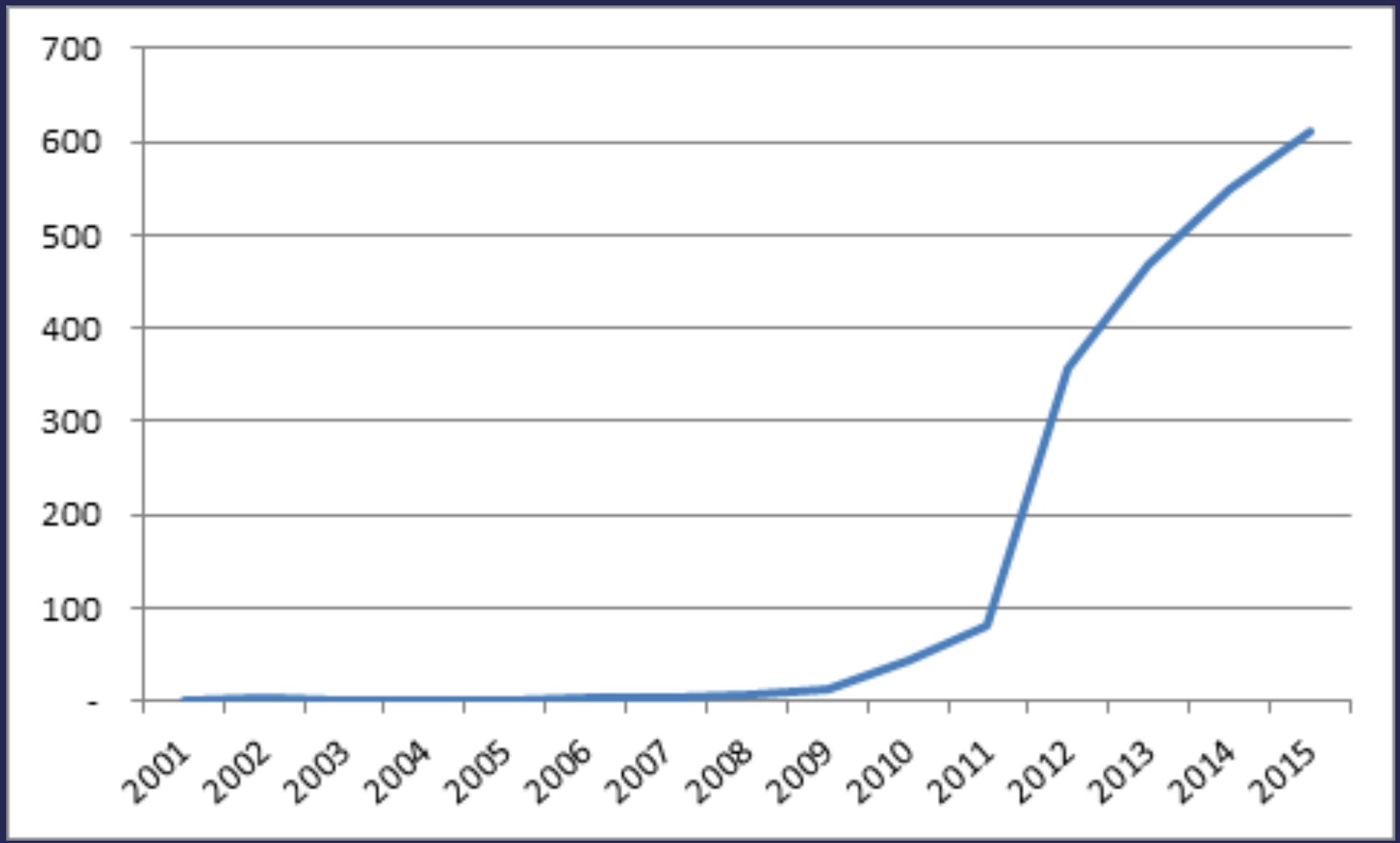
LANDSCAPE-SCALE PLANNING PROCESSES

- Desert Renewable Energy Conservation Plan
- San Joaquin Valley Least Conflict Solar
- Renewable Energy Transmission Initiative 2.0
- Offshore Renewable Energy Planning to Support the BOEM-California Task Force

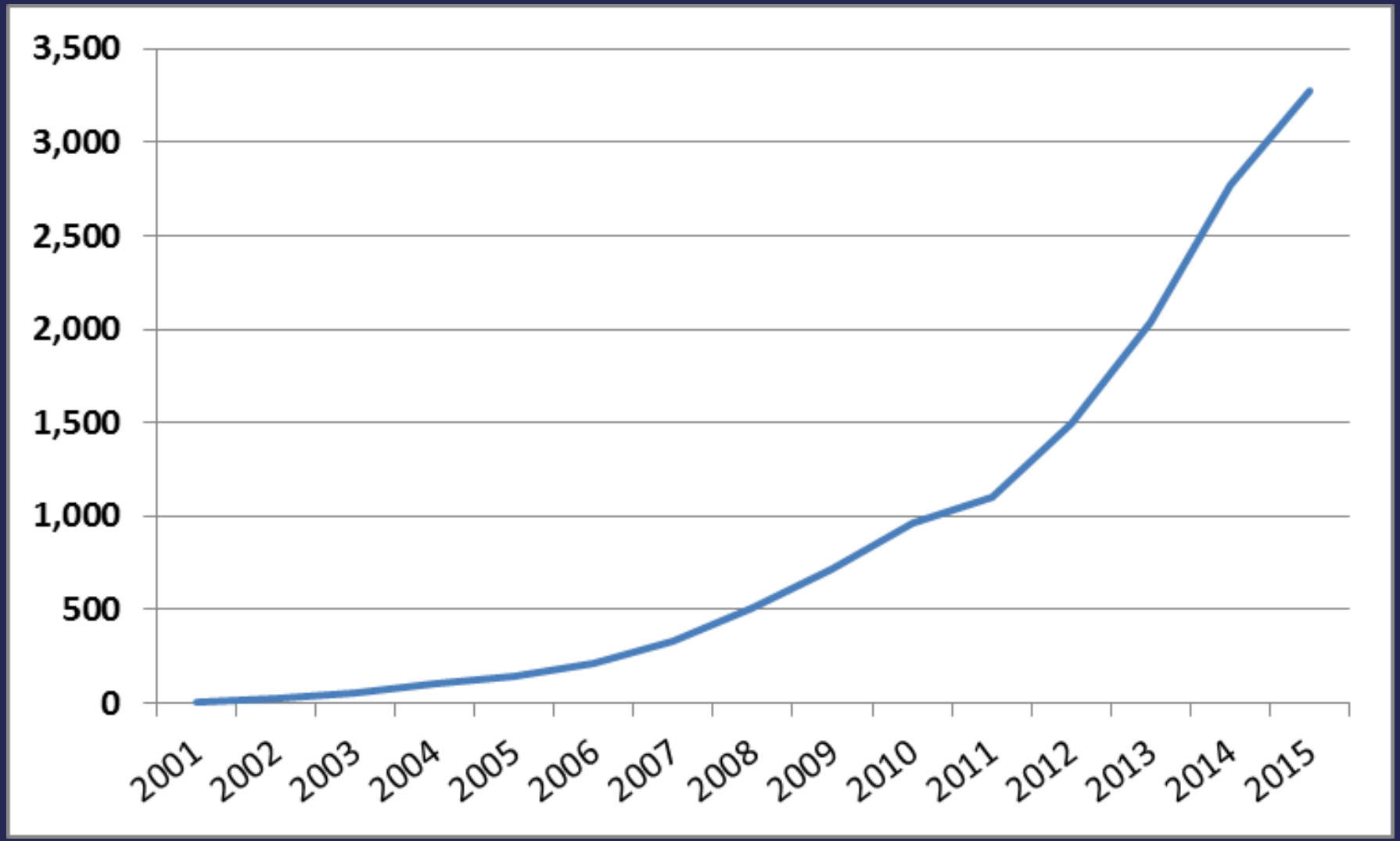
CALIFORNIA'S DISTRIBUTED GENERATION PROGRAMS

- Net Energy Metering Programs
- California Solar Initiative
  - New Solar Homes Partnership
  - CSI General Market Program
  - CSI Thermal Program
  - Multi-Family Affordable Solar Housing Program
  - Single-Family Affordable Solar Homes Program
  - Self-Generation Incentive Program
  - Publicly Owned Utilities Solar PV Incentives

SOLAR ADDITIONS IN CALIFORNIA (1-5 MW FACILITIES), 2001-2015



SOLAR ADDITIONS IN CALIFORNIA (<1 MW FACILITIES), 2001-2015



INTEGRATING RENEWABLE ENERGY INTO THE ELECTRIC GRID

- Energy Efficiency
- Demand Response
- Renewable Distributed Generation
- Energy Storage

THANK-YOU!

Thank-you!

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For more info go to:
http://www.energy.ca.gov/