

DOCKETED

Docket Number:	19-SB-100
Project Title:	SB 100 Joint Agency Report: Charting a path to a 100% Clean Energy Future
TN #:	230339
Document Title:	SB 100 Report - Northern California Scoping Workshop
Description:	Presentations by Mary Jane Coombs (California Air Resources Board), Jason Ortego (California Public Utilities Commission), and Siva Gunda (California Energy Commission)
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Organization:	California Energy Commission
Submitter Role:	Commission Staff
Submission Date:	10/24/2019 1:47:04 PM
Docketed Date:	10/24/2019



SB 100 Report

Northern California Scoping Workshop



Agenda

Opening Video

“Leading the Way to California’s Clean Energy Future”

Welcome and Opening Comments

Agency Presentations

- CARB: California’s Climate Strategy and Carbon Neutrality
- CPUC: California Clean Electricity Programs Overview
- CEC: SB100 Joint Agency Report Process and Implementation

Stakeholder Presentations

- Jana Ganion, Blue Lake Rancheria
- Dan Beans, Redding Electric Utility
- Danielle Osborn Mills, American Wind Energy Association California Caucus
- Jim Shetler, Balancing Area of Northern California
- Delphine Hou, California Independent System Operator

Public Comment

Closing Remarks

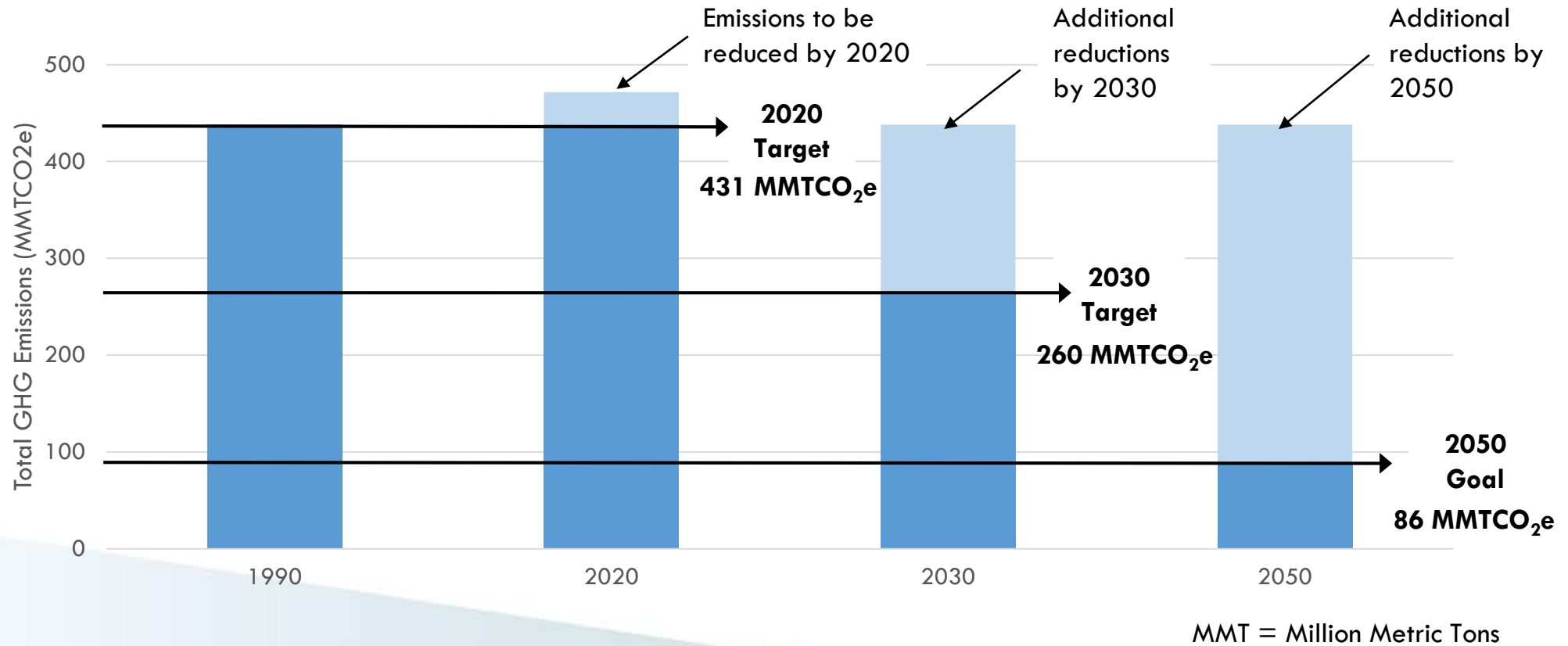
California's Climate Strategy and Carbon Neutrality

Mary Jane Coombs
California Air Resources Board
October 25, 2019





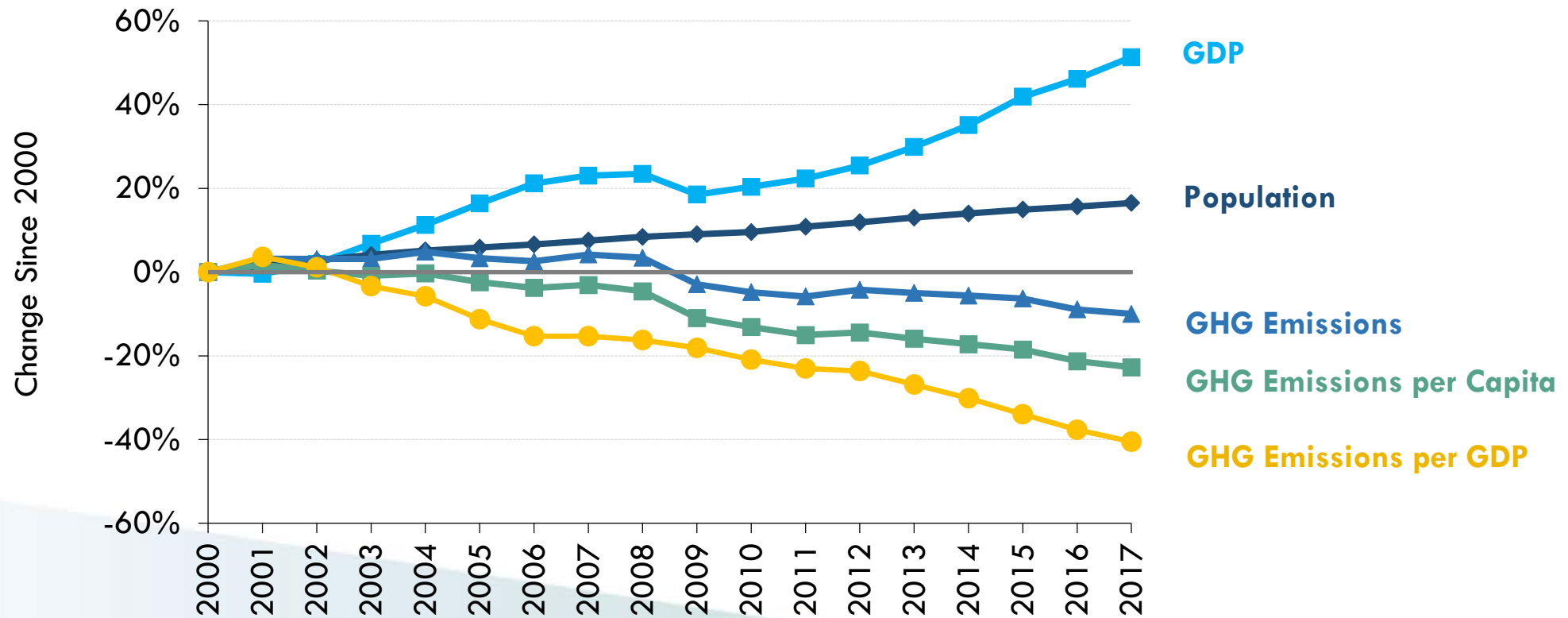
California's GHG Emissions Reduction Targets



Source: CARB, 2018



California Trends of Emissions and Indicators



Source: 2019 Edition, California Greenhouse Gas Emission Inventory: 2000-2017

2017 Climate Change Scoping Plan Policy Portfolio



Double building efficiency



Cleaner freight and goods movement



50% renewable power**



Slash potent “super-pollutants” from dairies, landfills and refrigerants



More clean, renewable fuels



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



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



Invest in communities to reduce emissions



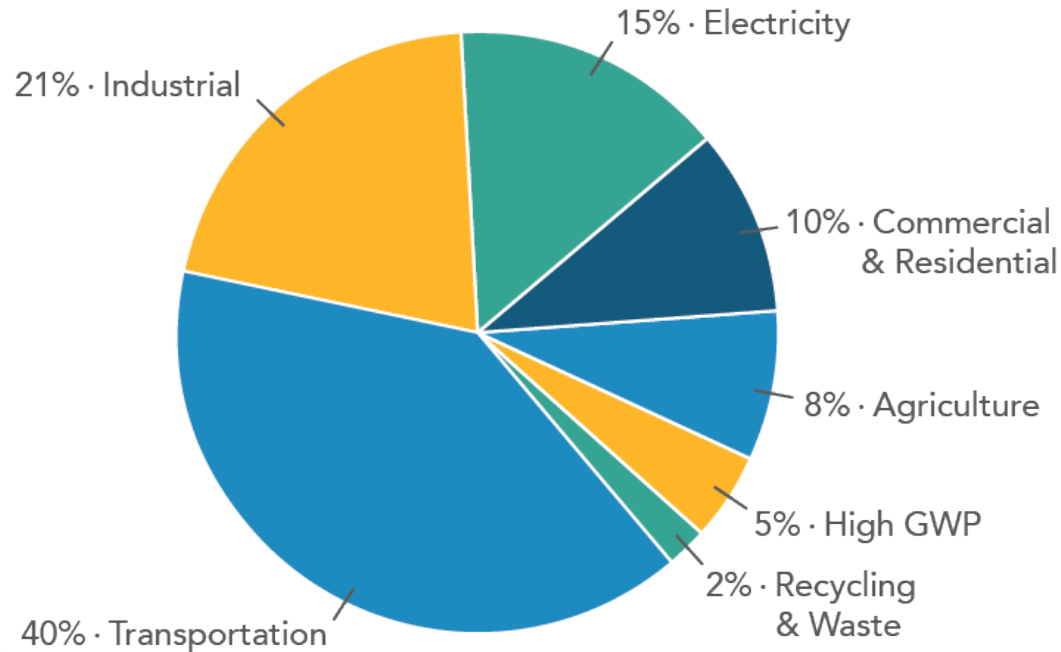
Walkable/bikeable communities with transit



Protect and manage natural and working lands

**In 2018, SB 100 increased the Renewables Portfolio Standard to 60% by 2030

Transportation Remains a Key Focus



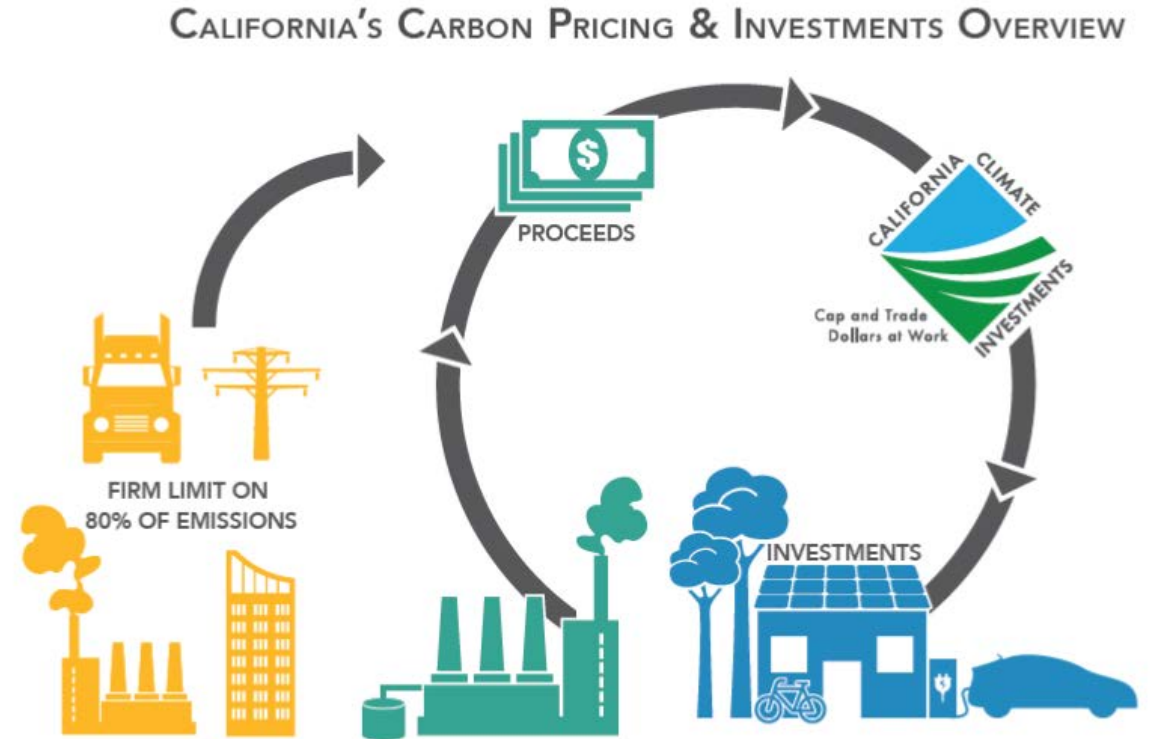
424.1 MMTCO₂e
2017 TOTAL CA EMISSIONS

- In 2017, California was home to
 - Nearly 50% of all ZEVs sold in the U.S.
 - A total diesel blend that includes 18% biomass-based fuel
 - 75% of U.S. venture capital investment in clean transportation

Source: 2019 Edition, California Greenhouse Gas Emission Inventory: 2000-2017; 2018 California Green Innovation Index, 10th Edition

Low Carbon Transportation Program Investments

- Clean Vehicle Rebate Program (CVRP)
- Clean Vehicle Assistance Program
- Transportation Equity Projects to Increase Access
- Clean Truck and Bus Voucher Incentive Project
- Freight projects: demonstrations and early commercial pilots for clean engines and facilities



Framing the Path Forward

**IPCC Report – Carbon neutrality
by 2045 may hold global
warming to 1.5°C**



Some regions are net emitters;
others are sinks



Carbon Neutrality by 2045



Reduce fossil energy and NWL
emissions; evaluate potential sinks

California Carbon Neutrality (CO₂e)

Today



AB 32 GHG Inventory



Conversion

Natural & Working
Lands Inventory

Minimize emissions

Mid-century



Both categories emit GHGs

No net GHG emissions



2019 Engagement

- Technical workshops to explore topic areas on achieving carbon neutrality
 - Energy demand and supply
 - Transformation across economic sectors (i.e., transportation, industrial)
 - Options and support for sequestration activities
- Continued collaboration
 - State and local agencies
 - Academics and researchers
 - International partners



Scoping Plan Supporting Efforts

- **Inter-agency Projects**
 - Annual Integrated Energy Policy Report (IEPR)
 - SB100 Joint Report to Legislature
 - AB 74 Studies on Vehicle Emissions and Fossil Fuel Demand and Supply

Thank You

- Climate Change Scoping Plan
 - <https://ww3.arb.ca.gov/cc/scopingplan/scopingplan.htm>
- Carbon Neutrality Workshops
 - <https://ww3.arb.ca.gov/cc/scopingplan/meetings/meetings.htm>

California Clean Electricity Programs Overview

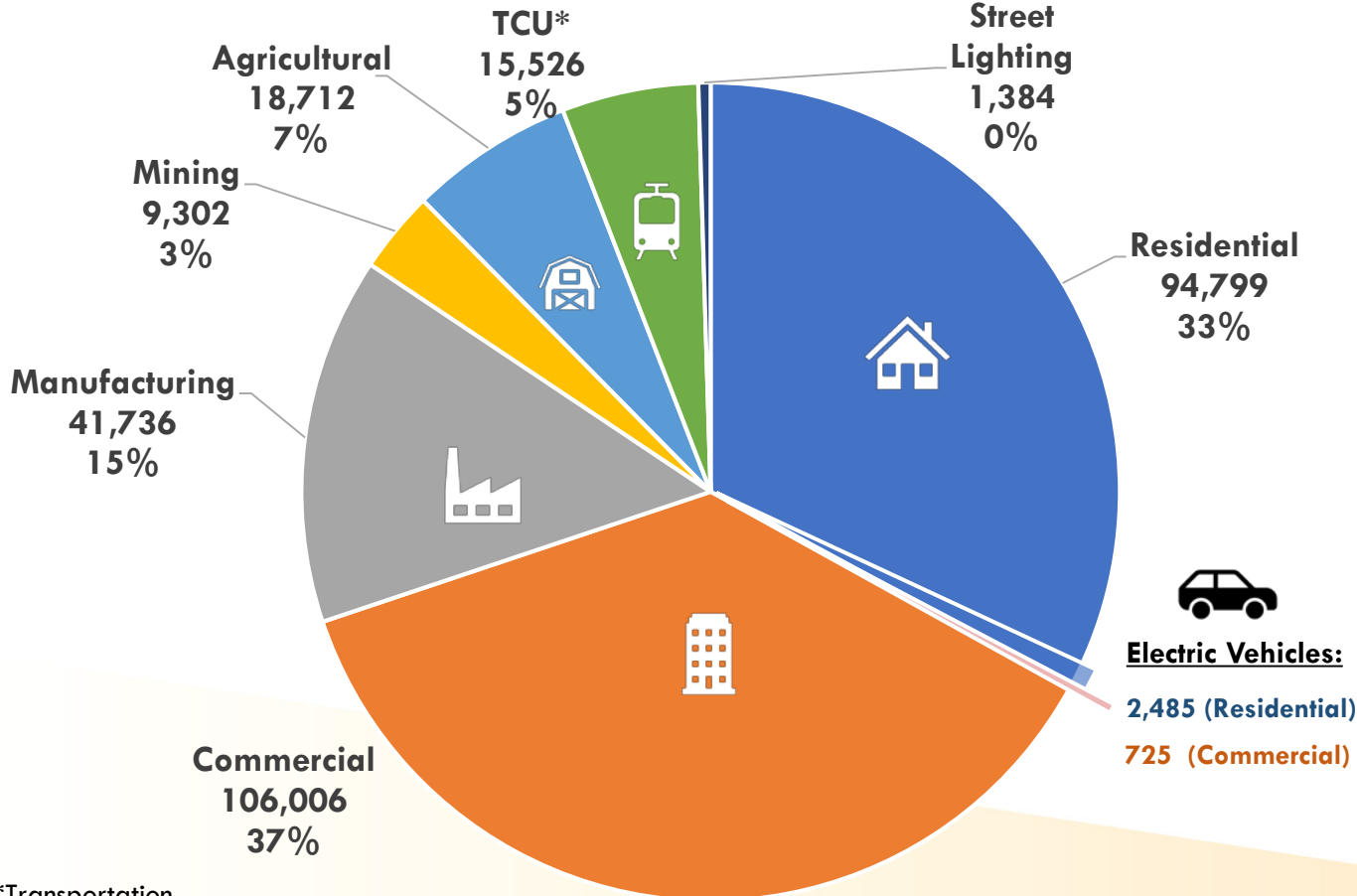
Jason Ortego
California Public Utilities Commission
October 25, 2019





Climate Change Mitigation in California's Electricity Sector

2018 Statewide Electricity Consumption by Sector (GWh, %)



*Transportation, Communications & Utilities

Source: California Energy Commission, 2018 IEPR Update, Mid Demand Forecast

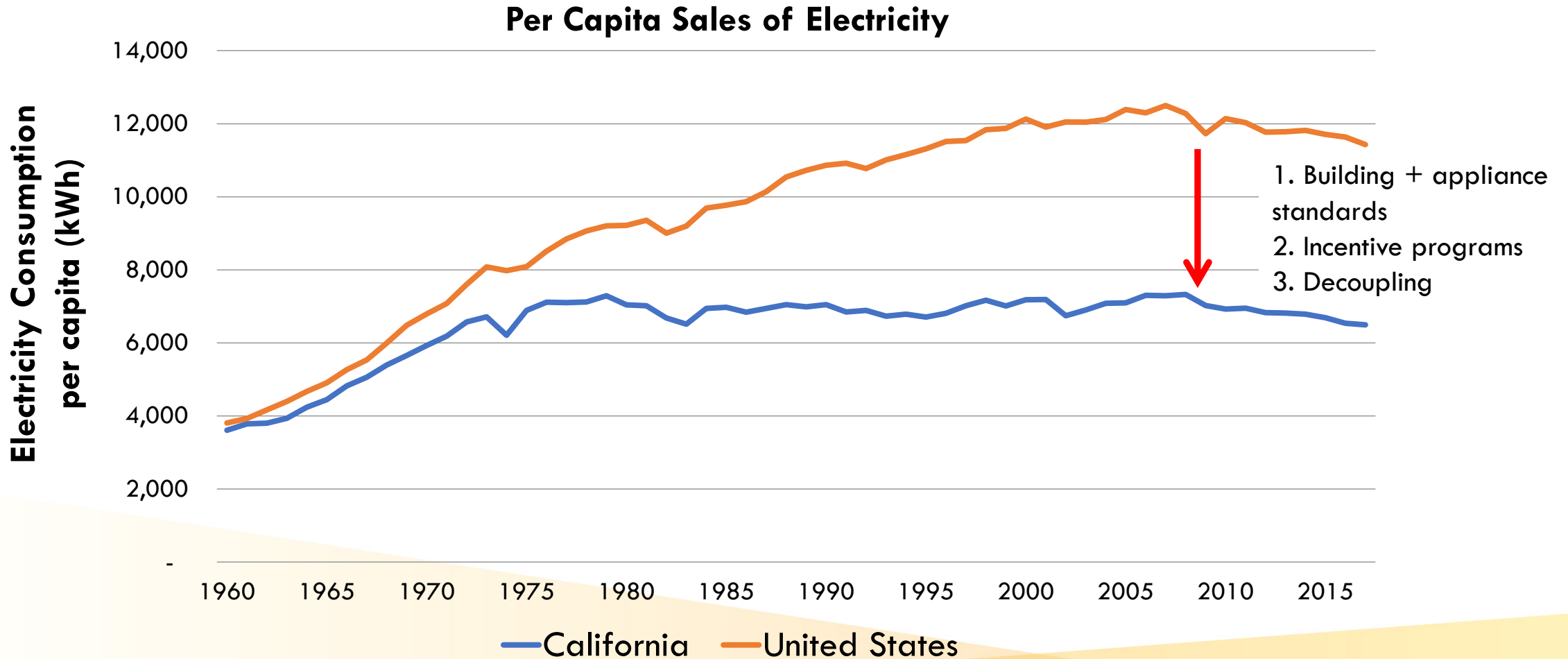
Programs

Program Domains

Programs	Customer	Grid
✓ Energy efficiency 	●	
✓ Rooftop solar 	●	
✓ Renewable energy (RPS)		●
✓ Building electrification 	●	
✓ Transportation electrification 	●	●
✓ Research & development 	●	●



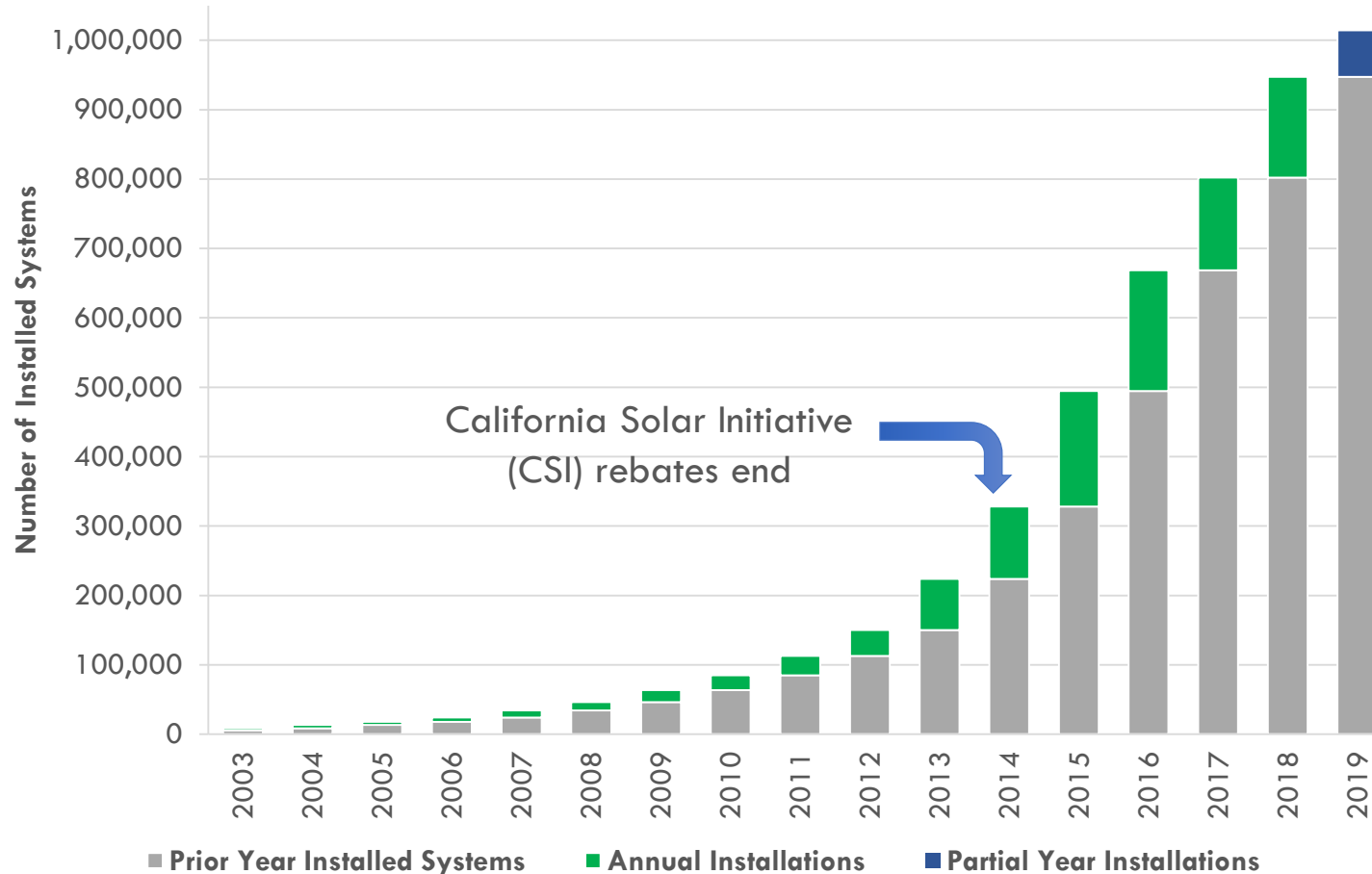
Energy efficiency + rooftop solar driving down the demand curve





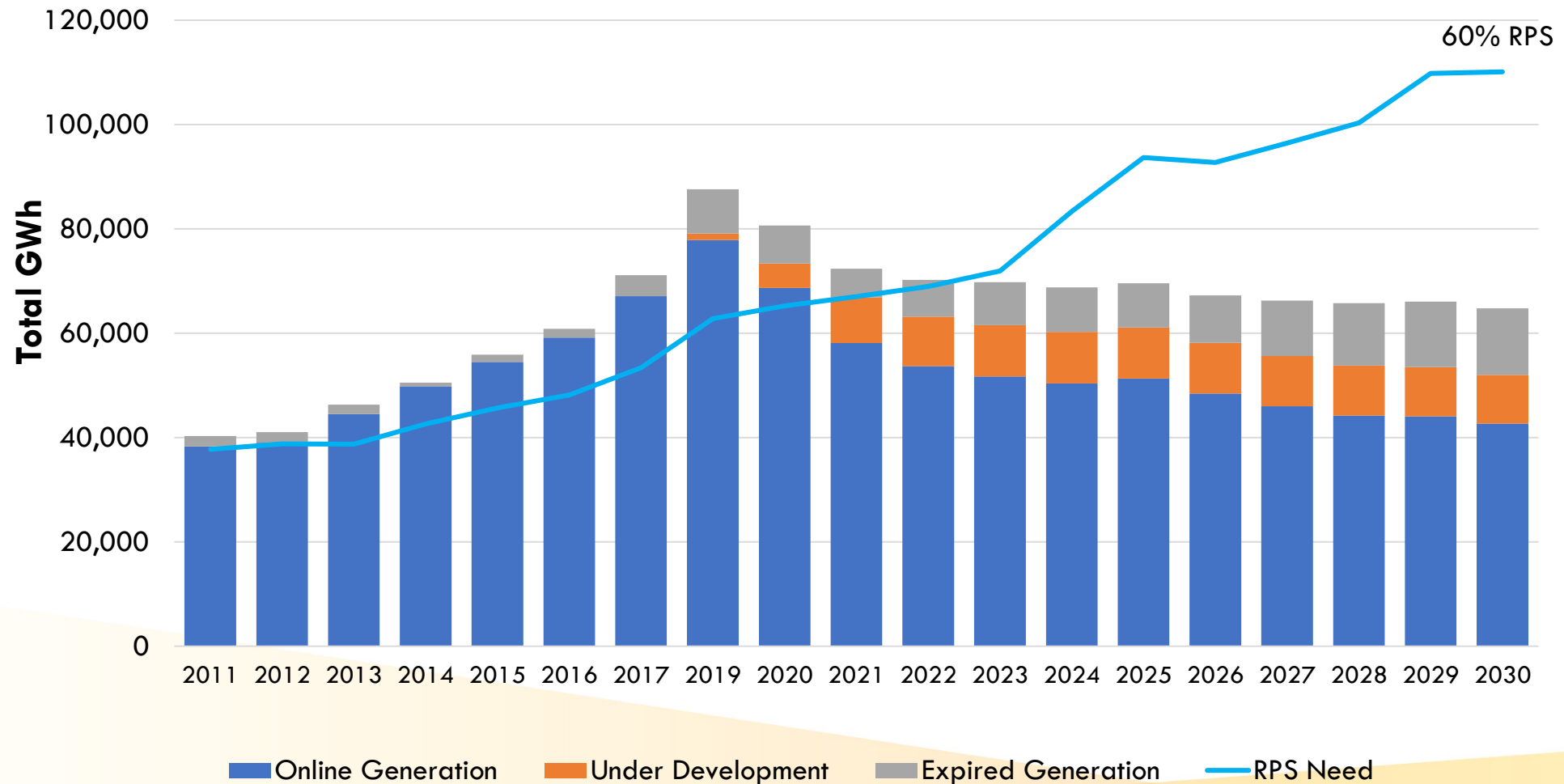
Growth in Customer-Sited Solar PV Installations Statewide in California

Number of Installed BTM PV Systems in California (Through June 2019)



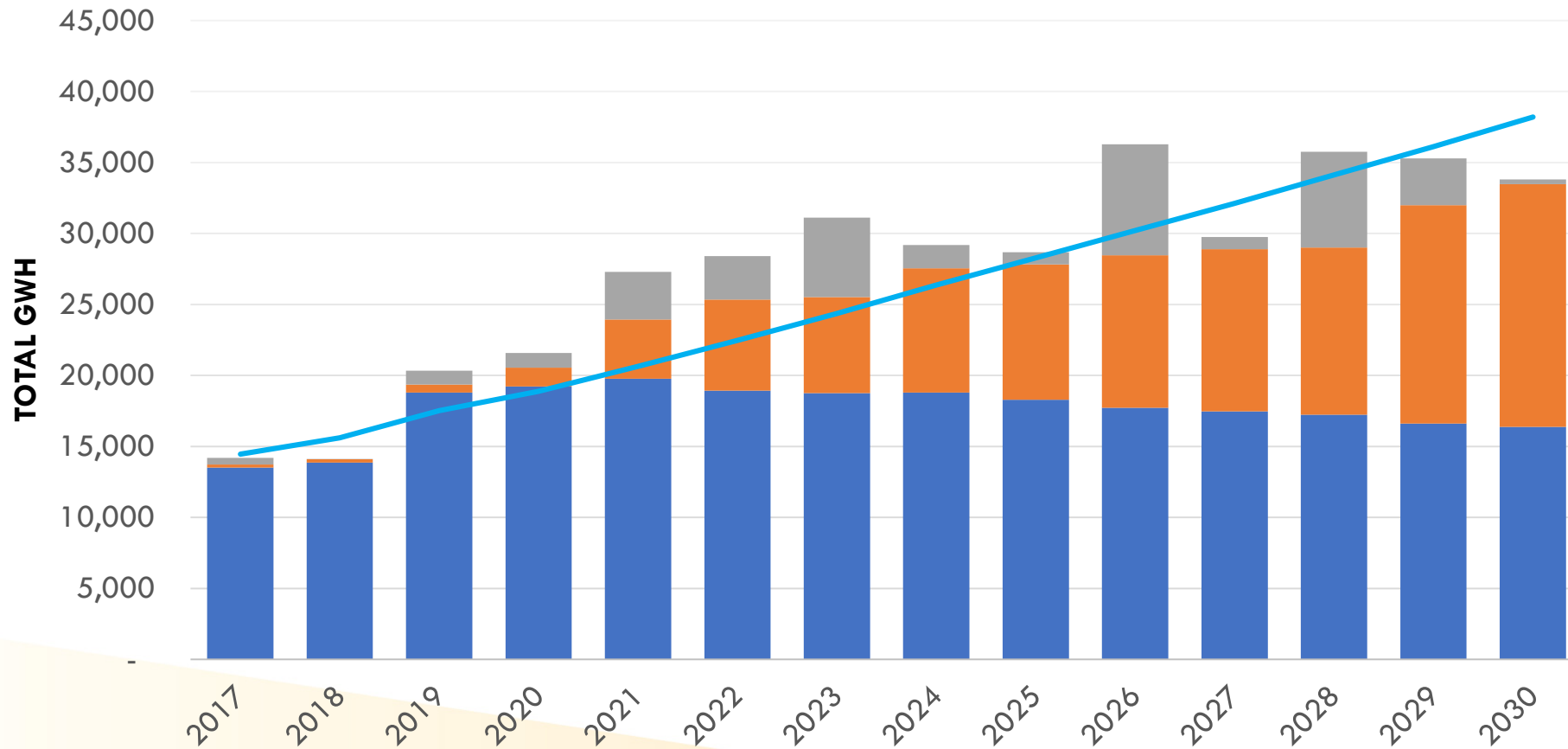


Aggregated CPUC-Jurisdictional Load Serving Entity Forecast Need and Progress Towards 60% RPS by 2030





Aggregated Publicly Owned Utility Forecast Need and Progress Toward 60% RPS by 2030

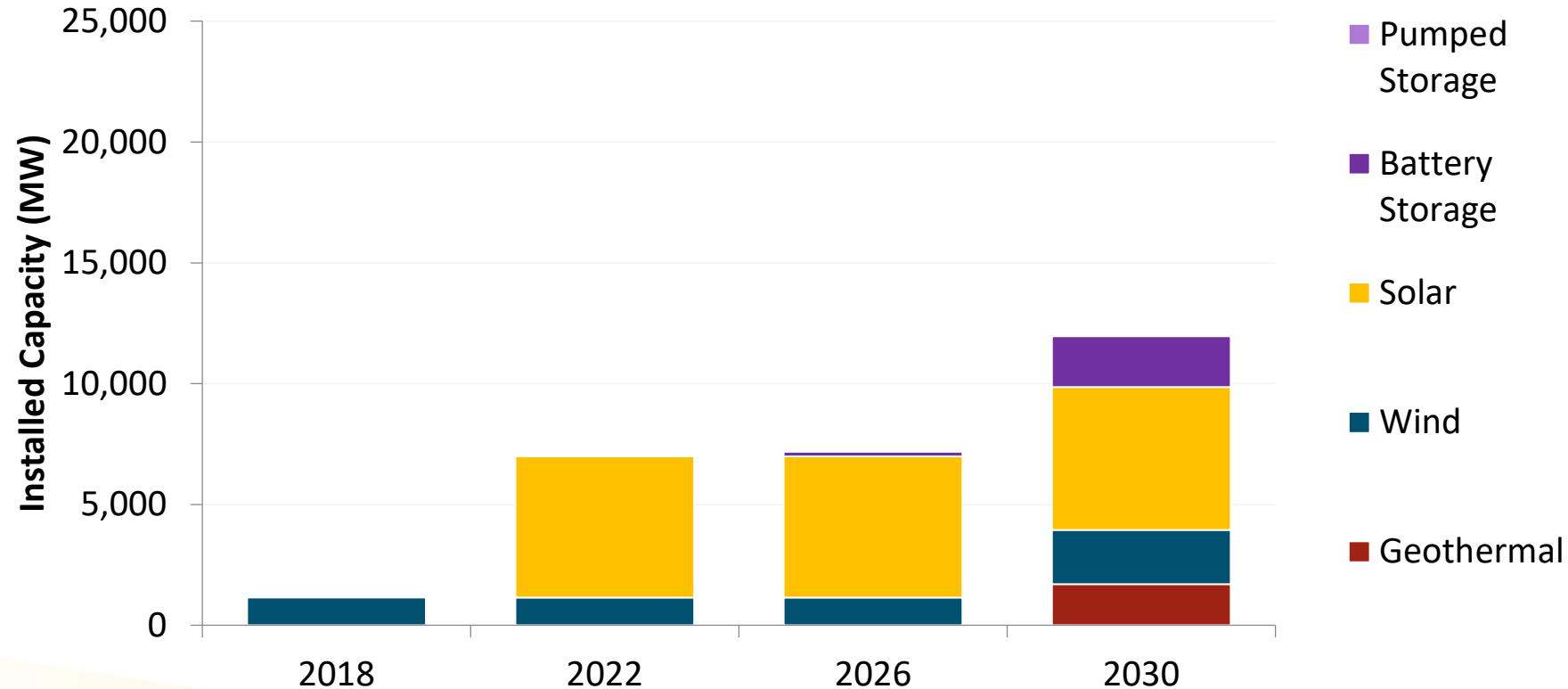


Data from the 16 largest POU's IRPs only; reflects planning prior to passage of 60% RPS

■ Online Generation ■ Under Development ■ Expired Generation — RPS Need



CPUC-Adopted 2018 Preferred System Portfolio for Integrated Resource Planning



- Achieves the Commission-adopted electric sector GHG planning target of 42 million metric tons by 2030
- Contains ~12,000 megawatts of **new** renewable and storage resources by 2030



Building Electrification Programs & Proceedings

- **Senate Bill 1477 (Stern, 2018)**
 - CPUC Building Decarbonization proceeding
- **San Joaquin Valley Pilots**
- **“Fuel substitution” test**
- **Self Generation Incentive Program**
- **Assembly Bill 3232**
- **Zero emission buildings goal**

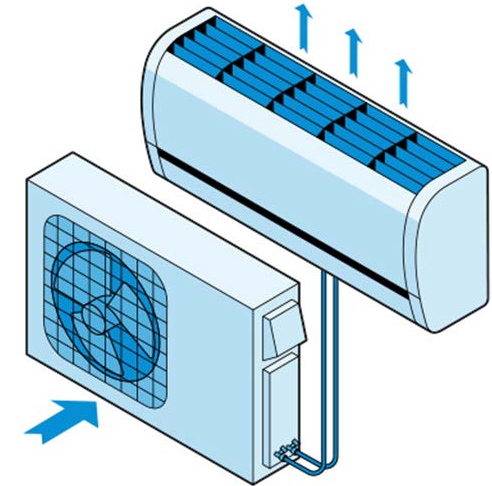


Illustration of heat pump “mini-split” heating and AC system.



Transportation Electrification (TE) Investments & Programs

- Investor-owned utility ratepayer investments (CPUC)
 - ~\$1B authorized
 - ~\$800M under review
- \$100M annually for Clean Transportation Program (CEC)
- CCI Low Carbon Transportation Program (CARB)
 - \$1.7B in through FY 2018-19
 - Additional \$485M in 2019-20
 - Over 80 percent has supported TE





Programs and Initiatives in Disadvantaged Communities (DACs)

- SB 350 Barriers Report
 - CEC Energy Equity Indicators
- CPUC and CEC SB 350 Disadvantaged Communities Advisory Group
- Bill assistance programs
- Weatherization programs
- Solar programs
- Budget “carve-outs” – Various programs
- CPUC Environmental and Social Justice Action Plan





Electric Program Investment Charge (EPIC) Research & Development - Overview

- CPUC established in 2011, funded by utility customers
 - Funded at \$555M for 2018-2020 investment period
- Administered by the CEC (80% of funds), PG&E, SCE, and SDG&E (together, 20% of funds)
- Program areas
 - Applied Research and Development (CEC only)
 - Technology Demonstration and Deployment (CEC + IOUs)
 - Market Facilitation (CEC only)
- CEC Focal Areas: renewable, efficiency, grid-scale storage, resilience & reliability, climate science & adaptation, innovation.





Thank you

SB100 Joint Agency Report Process and Implementation

Siva Gunda
California Energy Commission
October 25, 2019



SB 100: RPS and Zero-Carbon Resources

PUC 454.53 (a)

It is the policy of the state that **eligible renewable energy resources and zero-carbon resources** supply 100 percent of all retail sales of electricity to California end-use customers by December 31, 2045.



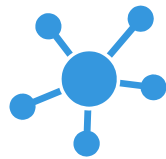
Joint Agency Report Goals



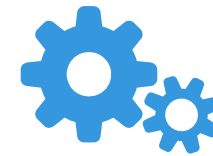
Meet report statutory requirements



Provide direction to the electricity market



Coordinate planning processes of the State Agencies



Form consensus on interpretation of statute

Interagency Coordination



CPUC

Principal: Commissioner Randolph



CEC

Principal: Chair Hochschild



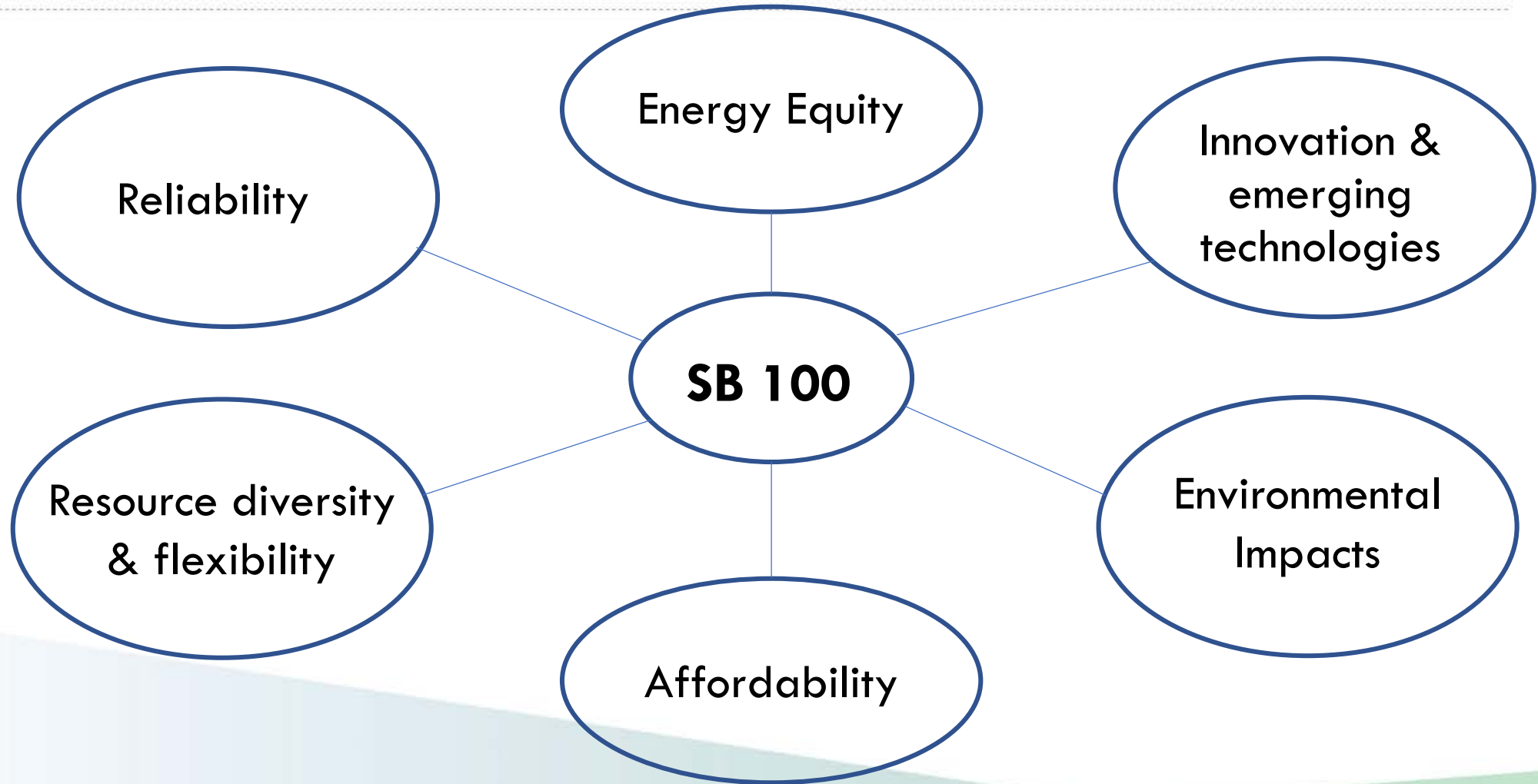
CARB

Principal: Chair Nichols

Workshops and Stakeholder Input

SB 100 Report

Key Considerations





SB 100: RPS and Zero Carbon Resources

RPS-eligible

Solar
Wind
Geothermal
Small Hydro
RPS Biomass

Zero Carbon (Under Consideration)

Existing Contracts
-Large Hydro
-Nuclear

Comments to date

“Don’t be prescriptive”
“Maximize optionality”
“Be technology inclusive”

Timeline

- **Fall 2019 Workshops:**

- October 29 – Scoping Workshop, Diamond Bar
- November 18 – Technical Workshop, San Francisco (CPUC)
 - Focus on technology trends and options, scenarios, and modeling framework

- **Spring 2020:** Finish SB 100 workshops/feedback from stakeholders

- **Summer 2020:** Draft report available for comment

- **Fall 2020:** Approval by CEC, CPUC, CARB

- **January 1, 2021:** Report due to the Legislature

Tentative SB 100 Workshop Topics

Fall 2019-Spring 2020

- Scenarios and Technologies for a Clean Energy Future
- Equity
- Affordability
- Reliability Needs
- Environmental Protection
- Electricity System Modeling
- Infrastructure and System Management Needs
- System Resilience



SB 100 Questions for Consideration

- How should the SB 100 report approach and address system and local reliability?
 - What key factors should be considered?



SB 100 Questions for Consideration

- How should issues around equity (environmental, economic, social) and affordability be addressed?
- How should land use planning issues be considered?

SB 100 Engagement

- Submit comments to CEC Docket 19-SB-100
- Visit the SB 100 Joint Agency Report webpage:
<https://www.energy.ca.gov/sb100>



SB 100 Website

- Events
- Related Links
- Subscribe to Listserv
- Submit comments

<https://www.energy.ca.gov/programs-and-topics/topics/renewable-energy/joint-agency-report-sb-100>



Joint-Agency Report - SB 100

Senate Bill (SB) 100 established a landmark policy requiring renewable energy and zero-carbon resources supply 100 percent of electric retail sales to end-use customers by 2045. It requires the California Energy Commission (CEC), California Public Utilities Commission (CPUC), and California Air Resources Board (CARB) to prepare a report.

Under the policy, California's renewable energy and zero-carbon resources supply 100 percent of electric retail sales to end-use customers and 100 percent of electricity procured to serve state agencies by December 31, 2045. The policy requires the transition to a zero-carbon electric system does not cause or contribute to increases of greenhouse gas emissions elsewhere in the western electricity grid.

SB 100 requires the CEC, CPUC, and CARB to complete a joint agency report to the Legislature evaluating the 100 percent zero-carbon electricity policy, as described below. The report will be developed using a public process and qualitative and quantitative analyses to address the requirements and intent of the statute.

In consultation with all California balancing authorities and as part of a public process, the three agencies will issue a report to the Legislature by January 1, 2021, and at least every four years afterward. The joint report shall include:

1. A review of the 100 percent zero-carbon policy focused on technologies, forecasts, then-existing transmission, and the maintenance of safety, environmental and public safety protection, affordability, and system and local reliability.
2. An evaluation identifying the potential benefits and impacts on system and local reliability associated with achieving the policy.
3. An evaluation identifying the nature of any anticipated financial costs and benefits to electric, gas, and water utilities, including customer rate impacts and benefits.
4. The barriers to, and benefits of, achieving the policy.
5. Alternative scenarios in which the policy can be achieved and the estimated costs and benefits of each scenario.

EVENTS

AUG 29 Webinar: Battery and Energy Storage Systems Added to the Energy Commission's Solar Equipment Lists
August 28, 2019 | 04:00 PM - 05:30 PM
Webinar
The California Energy Commission (CEC) is adding new equipment lists for Battery and Energy Storage Systems (ESS) to its solar equipment lists.

SEP 05 Joint Agency Workshop on the Senate Bill 100 Report
September 5, 2019 | 10:00 AM - 01:00 PM
California Secretary of State Building - First Floor Auditorium
The California Energy Commission (CEC) will jointly conduct a workshop with the California Public Utilities Commission (CPUC) and the California Air Resources Board (CARB) to kick off the process for developing the joint-agency report required by Senate Bill (SB) 100, the "100 Percent Clean Energy Act of 2018" (de León, Chapter 312, Statutes of

SEP 10 Staff Pre-Rulemaking Workshop on Proposal to Amend Regulations
September 10, 2019 | 10:00 AM - 01:00 PM
Art Rosenfeld Hearing Room
California Energy Commission staff will conduct a workshop to solicit

SEP 11 Energy Commission Business Meeting
September 11, 2019 | 10:00 AM - 03:00 PM
Art Rosenfeld Hearing Room
The Energy Commission will hold its regularly scheduled business meeting. The agenda is usually available about 10 business days

RENEWABLE ENERGY

- Funding Renewable Energy
- Joint-Agency Report - SB 100
- Offshore Renewable Energy
- Renewable Energy Resources
- Solar Energy
- Solar Equipment Lists

CONTACT

[Terra Weeks](#)

RELATED LINKS

- [Senate Bill 100](#)
- [California Air Resources Board - Carbon Neutrality](#)
- [California Air Resources Board - Scoping Plan](#)
- [California Public Utilities Commission - IRP Process](#)

SUBSCRIBE

100 Clean Energy

First Name *

Last Name *

Email *

SUBSCRIBE

CATEGORIES

Topic
Renewables

Program
Integrated Energy Policy Report - IEPR

Thank You



Siva Gunda
California Energy Commission
Siva.Gunda@energy.ca.gov

Jana Ganion

Blue Lake Rancheria



Dan Beans

Redding Electric Utility



Danielle Osborn Mills

American Wind Energy Association California Caucus





Jim Shetler

Balancing Area of Northern California

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Delphine Hou

California Independent System Operator

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