

**DOCKETED**

<b>Docket Number:</b>	19-SB-100
<b>Project Title:</b>	SB 100 Joint Agency Report: Charting a path to a 100% Clean Energy Future
<b>TN #:</b>	229864
<b>Document Title:</b>	SB 100 Report Central Valley Scoping Workshop
<b>Description:</b>	Presentations by Carey Bylin (California Air Resources Board), Simon Baker (California Public Utilities Commission), and Siva Gunda (California Energy Commission)
<b>Filer:</b>	Jann Mitchell
<b>Organization:</b>	California Energy Commission
<b>Submitter Role:</b>	Commission Staff
<b>Submission Date:</b>	9/27/2019 11:02:31 AM
<b>Docketed Date:</b>	9/27/2019



# SB 100 Report

Central Valley Scoping Workshop



# Agenda

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## **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**

- Mayor Rey León, City of Huron
- Brad Koehn, Turlock Irrigation District
- Leslie Martinez, Leadership Counsel for Justice & Accountability

## **Public Comment**

## **Closing Remarks**

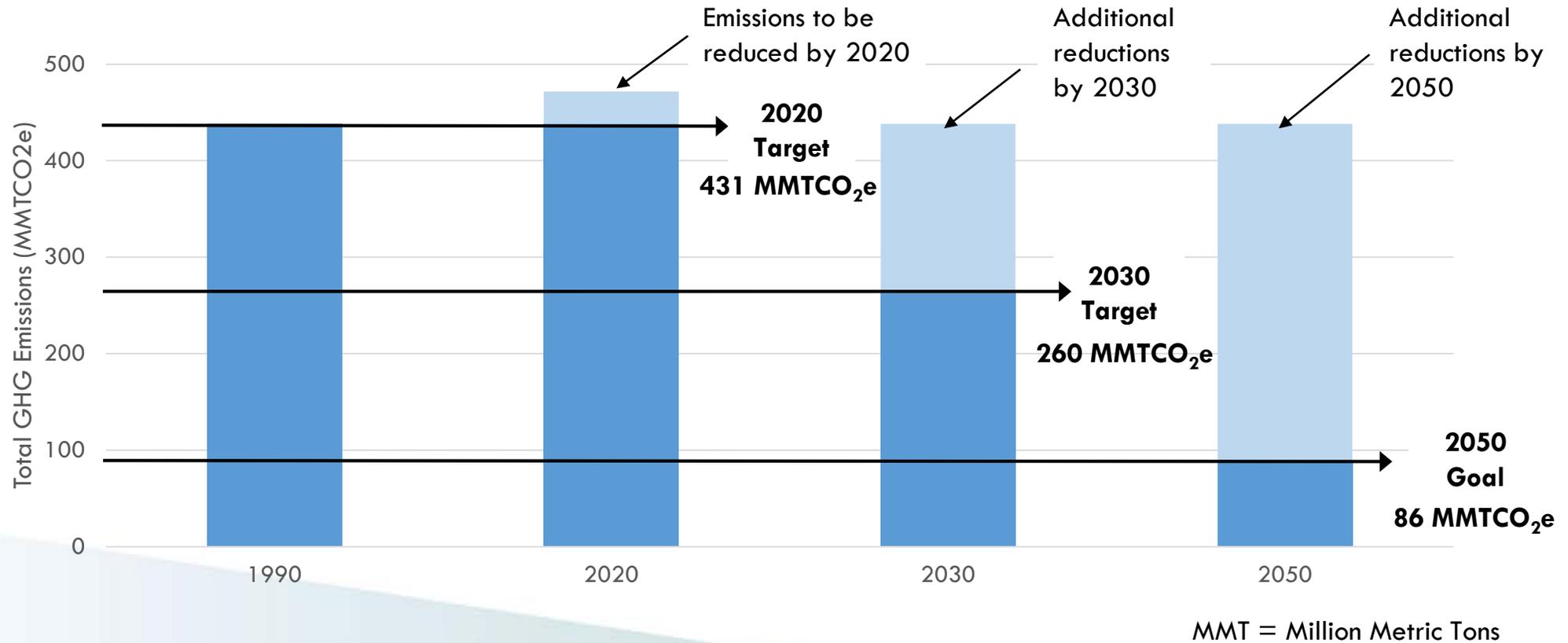
# California's Climate Strategy and Carbon Neutrality

Carey Bylin  
California Air Resources Board  
September 30, 2019





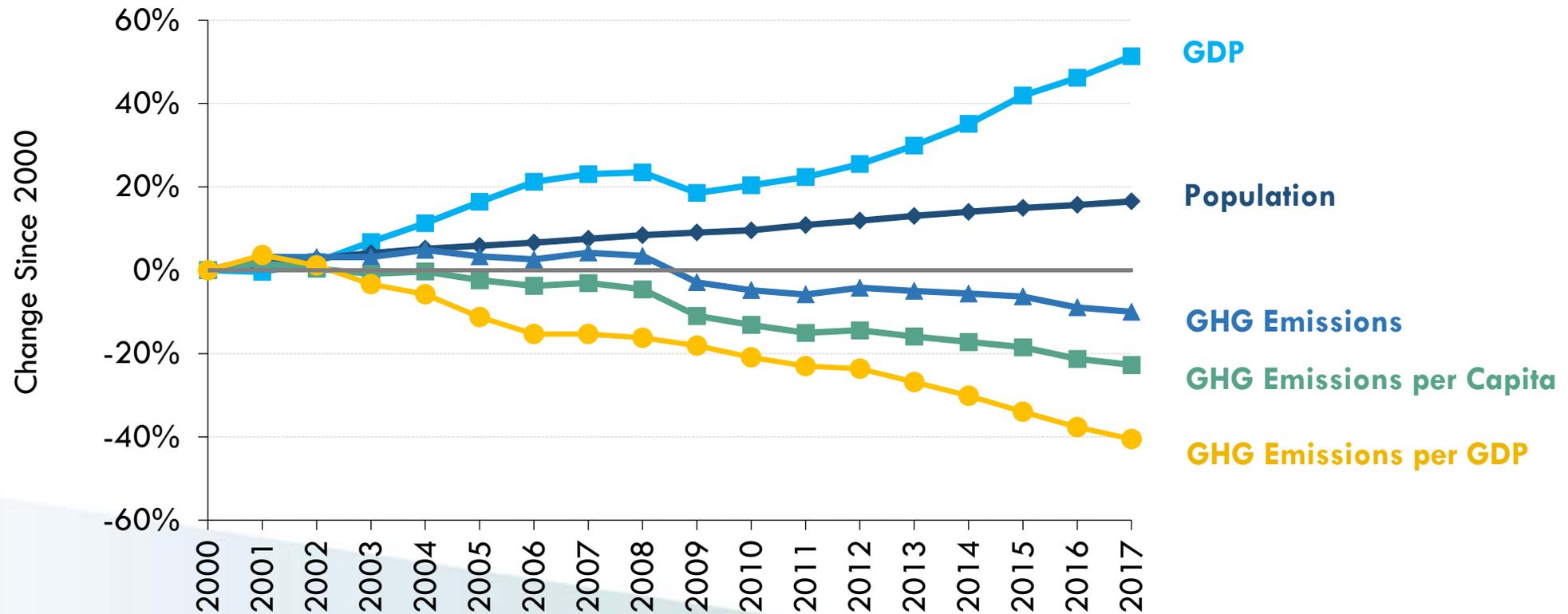
# California's GHG Emissions Reduction Targets



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



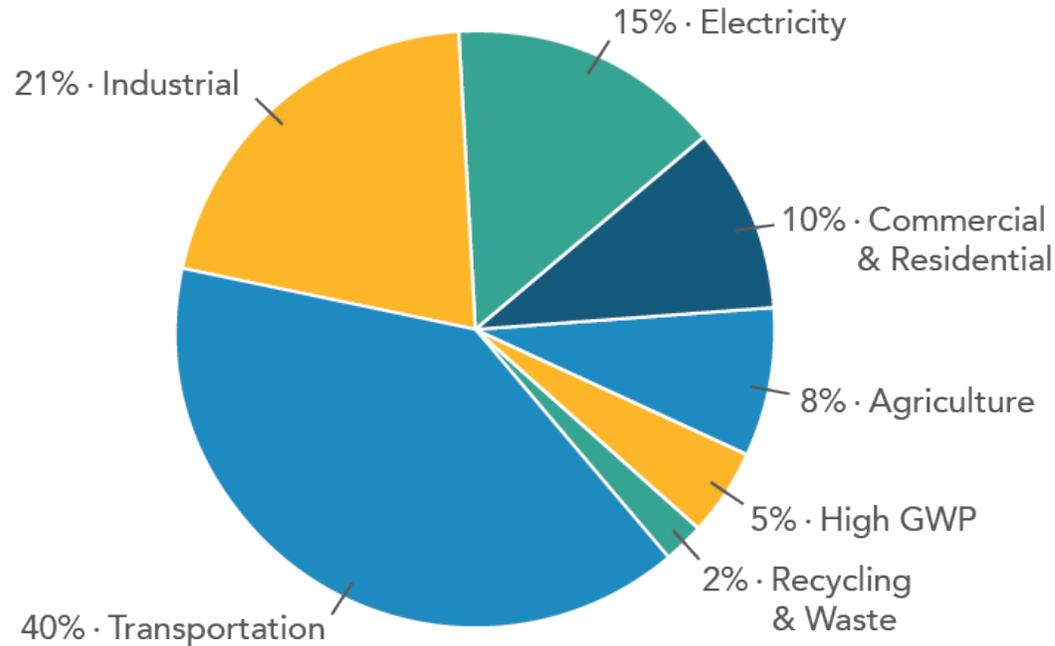
Walkable/bikeable communities with transit



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



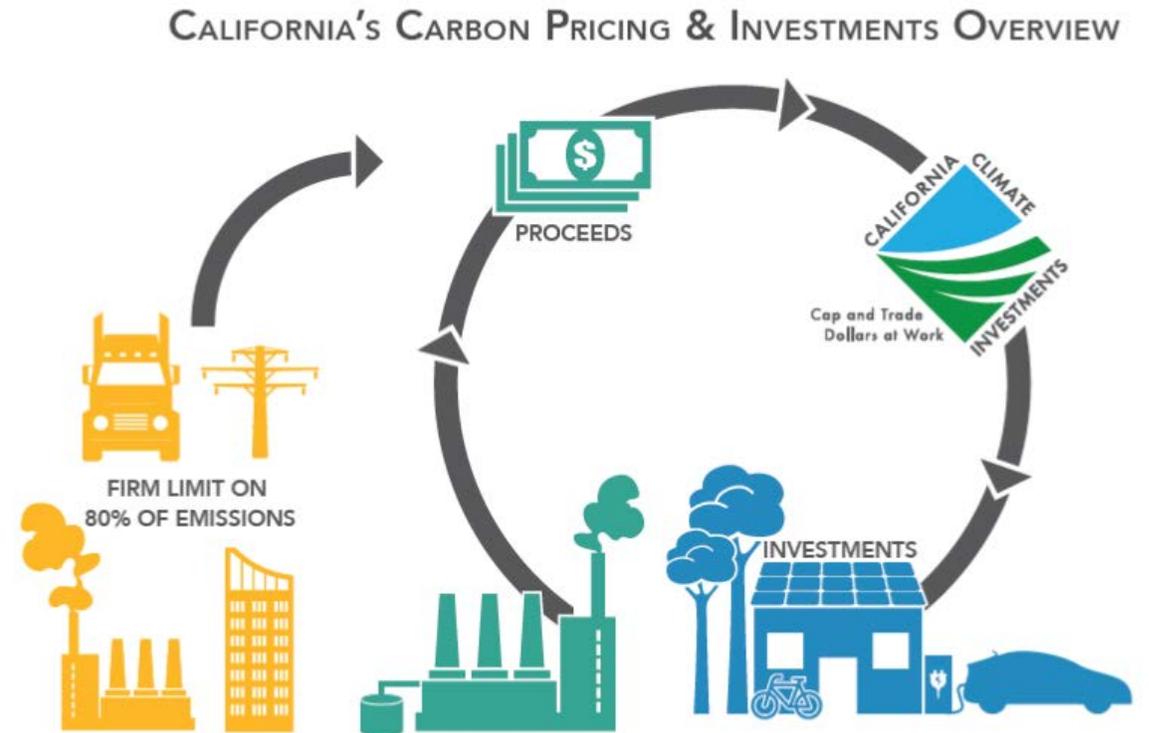
424.1 MMTCO<sub>2</sub>e  
2017 TOTAL CA EMISSIONS

- 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, 10<sup>th</sup> 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 (CO<sub>2</sub>e)

**Today**



AB 32 GHG Inventory



**Conversion**

Natural & Working  
Lands Inventory

Minimize emissions

Transition from source to sink

**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

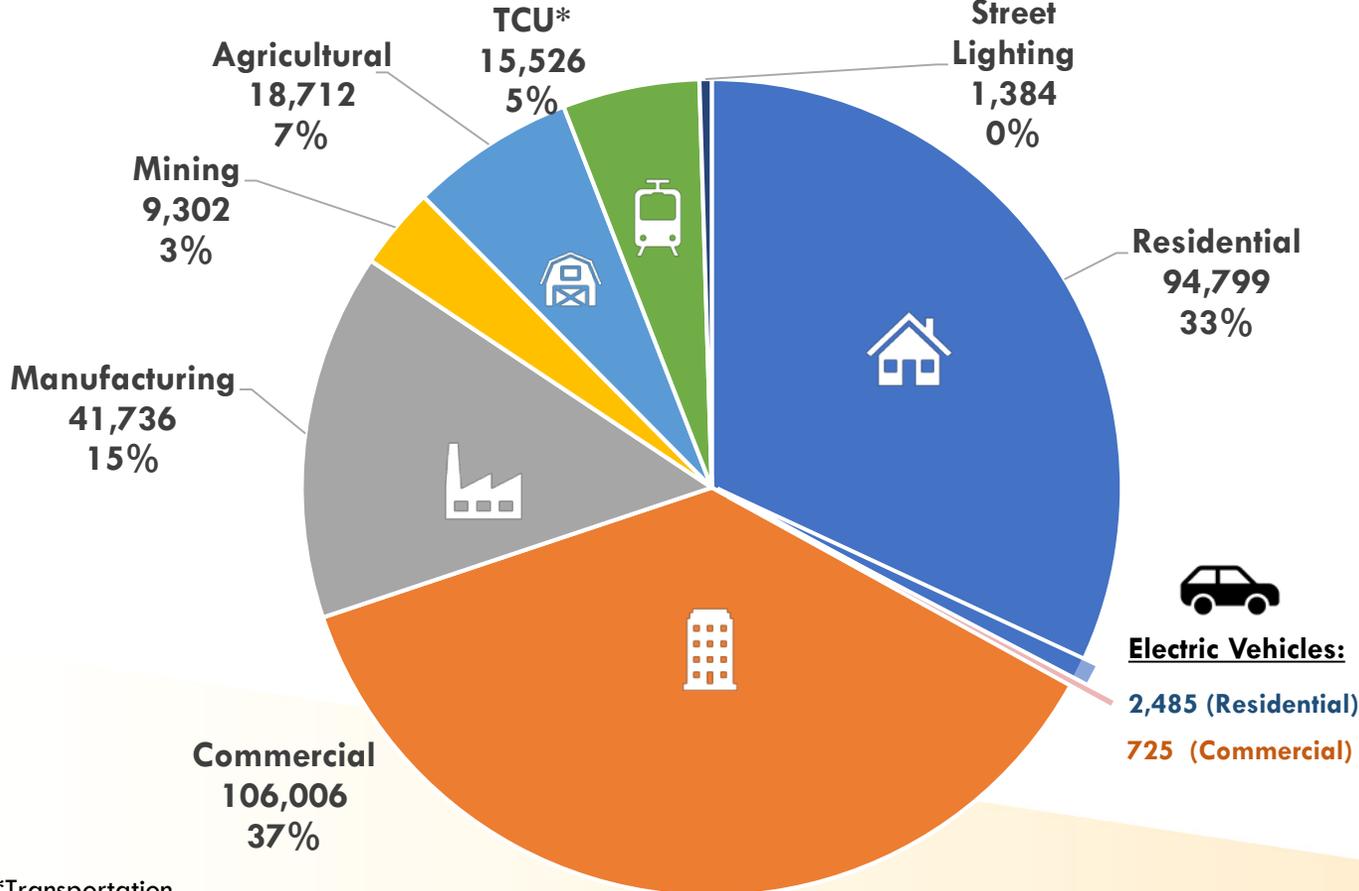
Simon Baker  
California Public Utilities Commission  
September 30, 2019





# 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

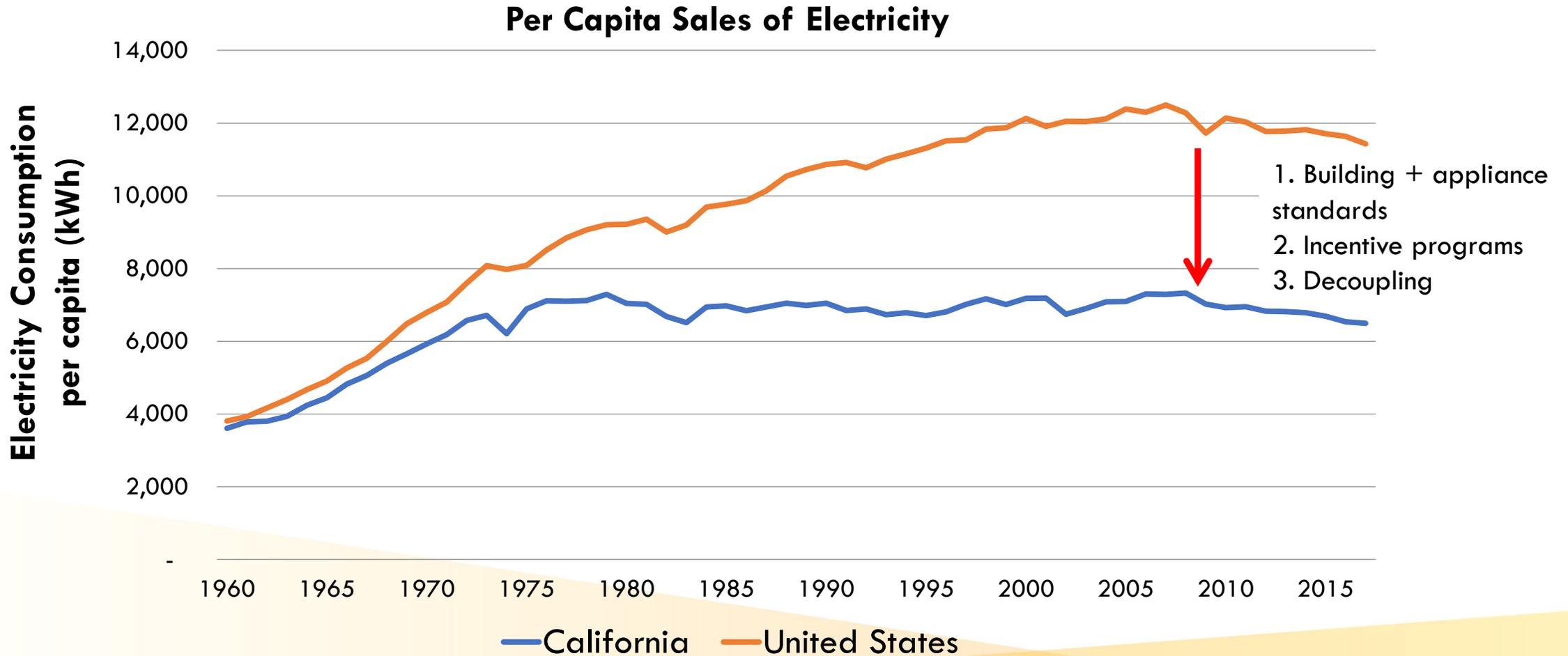
## Programs

## Program Domains

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



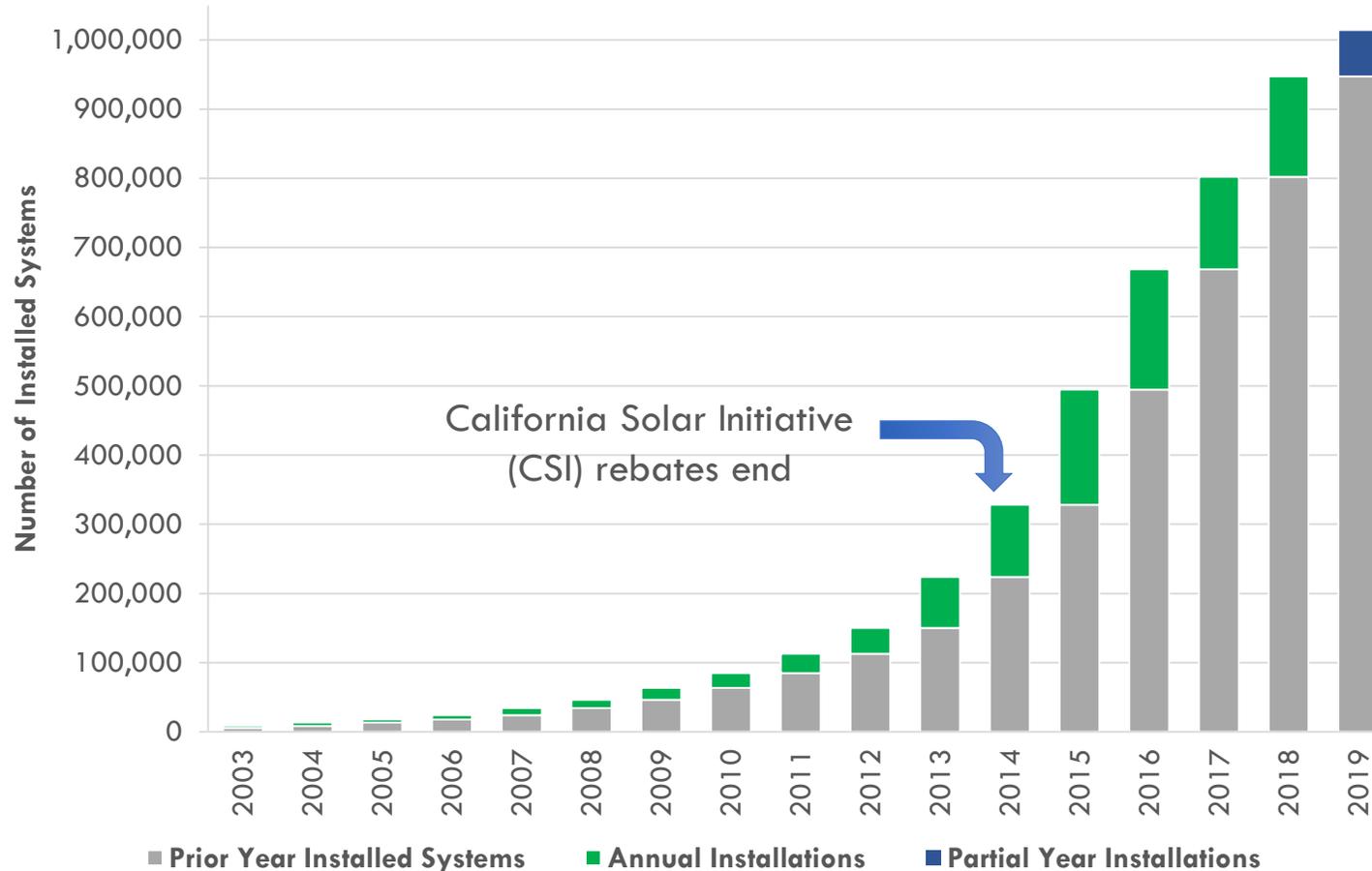
# Energy efficiency + rooftop solar driving down the demand curve





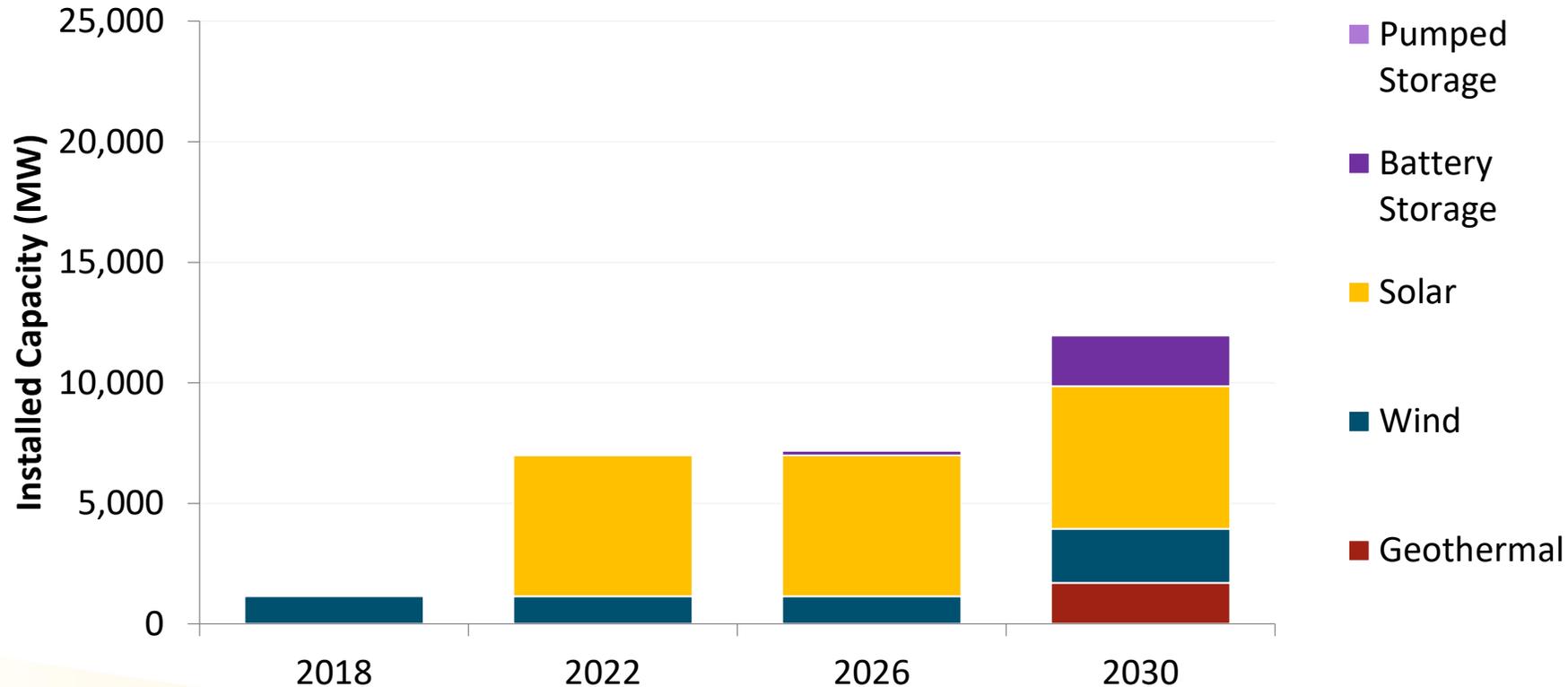
# Growth in Customer-Sited Solar PV Installations Statewide in California

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





# 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**

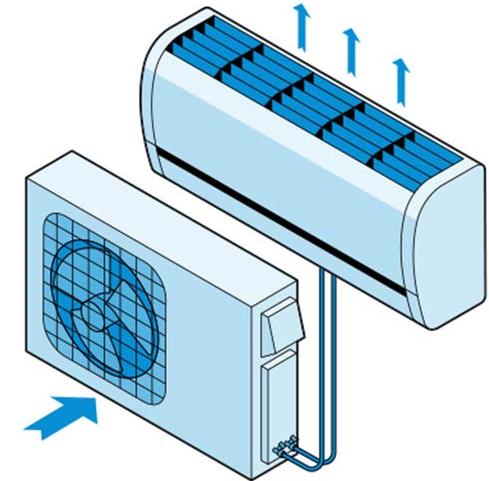


Illustration of heat pump “mini-split” heating and AC system.



# 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





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

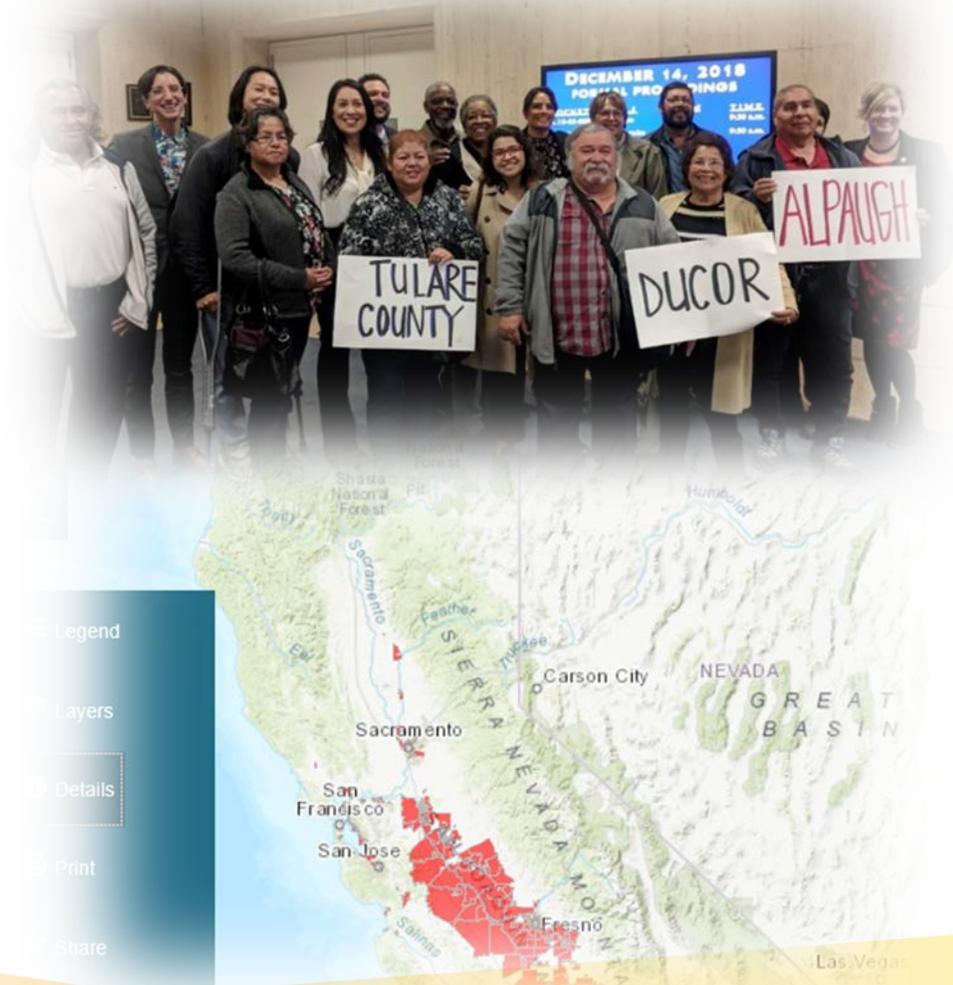
- CPUC established in 2011, funded by utility customers
  - Funded at \$555M for 2018-2020 investment period
- Administered by the CEC (80% of funds), PG&E, SCE, and SDG&E (together, 20% of funds)
- Program areas
  - Applied Research and Development (CEC only)
  - Technology Demonstration and Deployment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





# 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



# SB100 Joint Agency Report Process and Implementation

Siva Gunda  
California Energy Commission  
September 30, 2019





# Senate Bill 100

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## 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 and 100 percent of electricity procured to serve all state agencies by December 31, 2045.



# Joint Agency Report

In consultation with CA balancing authorities, through a public process, issue a joint agency report by January 1, 2021 and at least every four years after that includes:

- **Review of the policy** focusing on: technologies, forecasts, then-existing transmission, and maintain safety, environmental and public safety protection, affordability, and system/local reliability
- Evaluation identifying potential **benefits and impacts on system/local reliability**
- Evaluation identifying the nature of any **anticipated financial cost and benefits** to electric, gas, and water utilities, including customer rate impacts and benefits
- **Barriers and benefits** of achieving the policy
- **Alternative scenarios** to achieve the policy with estimated cost and benefits



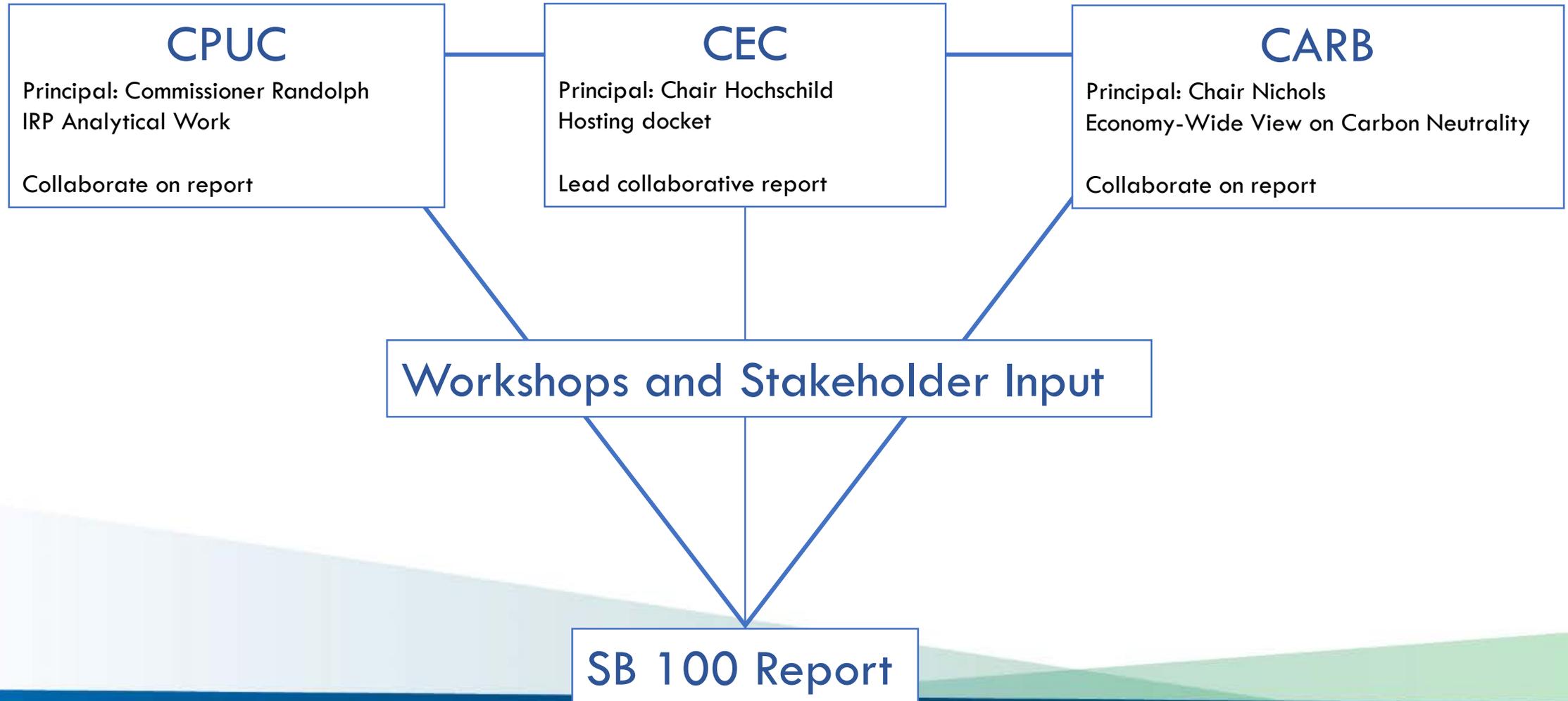
# Joint Agency Report Goals

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- Meet the joint agency report statutory requirements
- Provide direction to the electricity market
- Coordinate the planning processes of the State Agencies
- Form consensus on interpretation of statute
  - e.g. definition of “zero-carbon resources”



# Interagency Coordination





# Timeline

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Fall 2019: Scoping Workshops

Spring 2020: Finish SB 100 workshops/feedback from stakeholders

Summer 2020: Draft report available for comment

Fall 2020: Approval by CEC, CPUC, CARB

By January 1, 2021: Submit report to the Legislature



# Workshop Topics

- Scoping Workshops Sept/Oct 2019
- Tentative SB 100 Workshop Topics Fall 2019-Spring 2020
  - Scenarios and Technologies for a Clean Energy Future
  - Electricity System Modeling
  - Affordability
  - Equity
  - Environmental Protection
  - Infrastructure and System Management Needs
  - Reliability Needs
  - System Resilience
- Additional feedback from workshops in other proceedings



# 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”



# SB 100 Questions for Consideration

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



# SB 100 Questions for Consideration

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



# Submit Comments to Docket 19-SB-100

The screenshot shows the California Energy Commission website interface. At the top, there is a navigation bar with the CA.GOV logo and the California Energy Commission name. Below this is a menu with links for Home, About Us, Analysis & Stats, Efficiency, Funding, Power Plants, Renewables, Research, and Transportation. The main content area is titled "Docket Log" and includes the docket number (19-SB-100), project title ("SB 100 Joint Agency Report: Charting a path to a 100% Clean Energy Future"), and generation date (8/29/2019 1:28:15 PM). Below the header, there are filters for "Include:" with checkboxes for Documents, Comments, and Transcripts, and a search icon. A table lists the docketed documents with columns for TN #, Docketed Date, Document Title, Exhibit #, To, and From.

↓ TN #	Docketed Date	Document Title	Exhibit #	To	From
229511	8/22/2019	<a href="#">Notice of Joint Agency Workshop On The Senate Bill 100 Report</a> *** THIS DOCUMENT SUPERSEDES TN 229505 *** - Thursday, September 5, 2019, 10:00 a.m. 5 page(s)		CEC/Docket Unit	California Energy Commission
229505	8/22/2019	<a href="#">Notice Of Joint Agency Workshop On The Senate Bill 100 Report</a> *** THIS DOCUMENT REPLACES TN 229511 *** - Thursday, September 5, 2019 5 page(s)		CEC/Docket Unit	California Energy Commission
229470	8/15/2019	<a href="#">Memo to Open New Docket</a> 1 page(s)		CEC/Docket Unit	California Energy Commission

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# 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 - IEP



# Thank you

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

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# Mayor Rey León

City of Huron



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# Brad Koehn

Turlock Irrigation District



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# Leslie Martinez

Leadership Counsel for Justice & Accountability

