<table>
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<tr>
<th><strong>Docket Number:</strong></th>
<th>19-SB-100</th>
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<tr>
<td><strong>Project Title:</strong></td>
<td>SB 100 Joint Agency Report: Charting a path to a 100% Clean Energy Future</td>
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<tr>
<td><strong>TN #:</strong></td>
<td>230339</td>
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<tr>
<td><strong>Document Title:</strong></td>
<td>SB 100 Report - Northern California Scoping Workshop</td>
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<tr>
<td><strong>Description:</strong></td>
<td>Presentations by Mary Jane Coombs (California Air Resources Board), Jason Ortego (California Public Utilities Commission), and Siva Gunda (California Energy Commission)</td>
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<td><strong>Filer:</strong></td>
<td>Harinder Kaur</td>
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<td><strong>Organization:</strong></td>
<td>California Energy Commission</td>
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<td><strong>Submitter Role:</strong></td>
<td>Commission Staff</td>
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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

Emissions to be reduced by 2020
2020 Target: 431 MMTCO$_2$e

Additional reductions by 2030
2030 Target: 260 MMTCO$_2$e

Additional reductions by 2050
2050 Goal: 86 MMTCO$_2$e

MMT = Million Metric Tons
California Trends of Emissions and Indicators

Change Since 2000

GDP
Population
GHG Emissions
GHG Emissions per Capita
GHG Emissions per GDP

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

- Double building efficiency
- 50% renewable power**
- More clean, renewable fuels
- Cleaner zero or near-zero emission cars, trucks, and buses
- Walkable/bikeable communities with transit
- Cleaner freight and goods movement
- Slash potent “super-pollutants” from dairies, landfills and refrigerants
- Cap emissions from transportation, industry, natural gas, and electricity
- Invest in communities to reduce emissions
- 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

- 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

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

Some regions are net emitters; others are sinks

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

Reduce fossil energy and NWL emissions; evaluate potential sinks

Carbon Neutrality by 2045
California Carbon Neutrality (CO$_{2e}$)

Today

- AB 32 GHG Inventory
- Conversion
  - Natural & Working Lands Inventory

Both categories emit GHGs

Mid-century

- Minimize emissions
- Transition from source to sink
- 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**
  - 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](https://ww3.arb.ca.gov/cc/scopingplan/scopingplan.htm)

- Carbon Neutrality Workshops
  - [https://ww3.arb.ca.gov/cc/scopingplan/meetings/meetings.htm](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

- Energy efficiency
- Rooftop solar
- Renewable energy (RPS)
- Building electrification
- Transportation electrification
- Research & development

2018 Statewide Electricity Consumption by Sector (GWh, %)

- Residential: 94,799 (33%)
- Commercial: 106,006 (37%)
- Manufacturing: 41,736 (15%)
- Agricultural: 18,712 (7%)
- Mining: 9,302 (3%)
- TCU*: 15,526 (5%)
- Street Lighting: 1,384 (0%)
- Street Lighting: 1,384 (0%)

Electric Vehicles:
- 2,485 (Residential)
- 725 (Commercial)

*Transportation, Communications & Utilities

Source: California Energy Commission, 2018 IEPR Update, Mid Demand Forecast
Energy efficiency + rooftop solar driving down the demand curve

Per Capita Sales of Electricity

- California
- United States

1. Building + appliance standards
2. Incentive programs
3. Decoupling
Growth in Customer-Sited Solar PV Installations Statewide in California

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

California Solar Initiative (CSI) rebates end
Aggregated Publicly Owned Utility Forecast Need and Progress Toward 60% RPS by 2030

Data from the 16 largest POUs’ IRPs only; reflects planning prior to passage of 60% RPS
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
  o 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
  o 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
  o Applied Research and Development (CEC only)
  o Technology Demonstration and Deployment (CEC + IOUs)
  o Market Facilitation (CEC only)

• CEC Focal Areas: renewable, efficiency, grid-scale storage, resilience & reliability, climate science & adaptation, innovation.
Thank you
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

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:

- Technical review of the policy
- Potential benefits and impacts on system/local reliability
- Nature of anticipated financial cost and benefits to utilities
- Barriers and benefits of achieving the policy
- Alternative scenarios to achieve the policy
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

- Reliability
- Energy Equity
- Innovation & emerging technologies
- Resource diversity & flexibility
- Environmental Impacts
- Affordability

SB 100
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<tr>
<th>RPS-eligible</th>
<th>Zero Carbon (Under Consideration)</th>
<th>Comments to date</th>
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<tr>
<td>Solar</td>
<td></td>
<td>“Don’t be prescriptive”</td>
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<td>Wind</td>
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<td>“Maximize optionality”</td>
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<td>Geothermal</td>
<td></td>
<td>“Be technology inclusive”</td>
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<td>Small Hydro</td>
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<td>RPS Biomass</td>
<td>Existing Contracts</td>
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<td>-Large Hydro</td>
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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?
  
  o 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
Thank You

Siva Gunda
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Jana Ganion
Blue Lake Rancheria
Danielle Osborn Mills
American Wind Energy Association California Caucus
Jim Shetler

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Delphine Hou
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