



Zero-Emission Appliance Standards

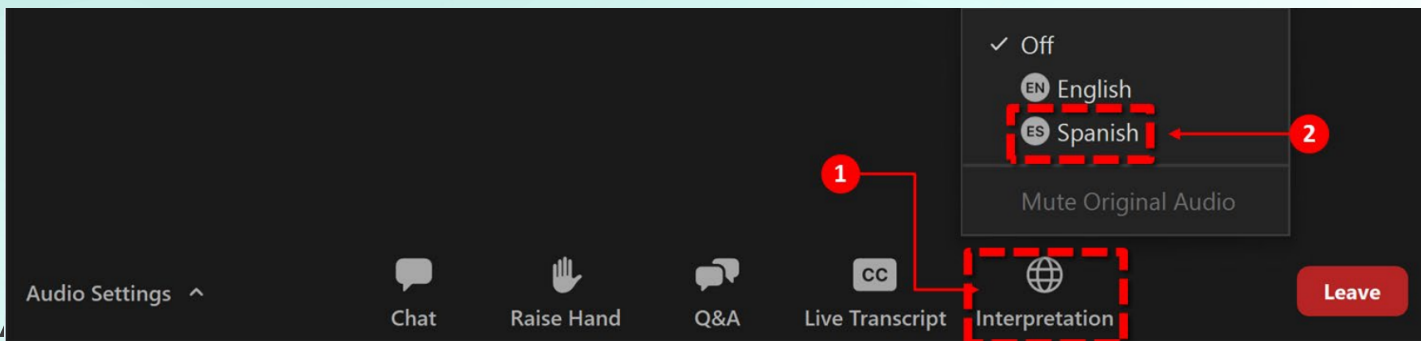
Public Workshop

May 10, 2023

9 a.m. – 12:30 p.m. (PDT)

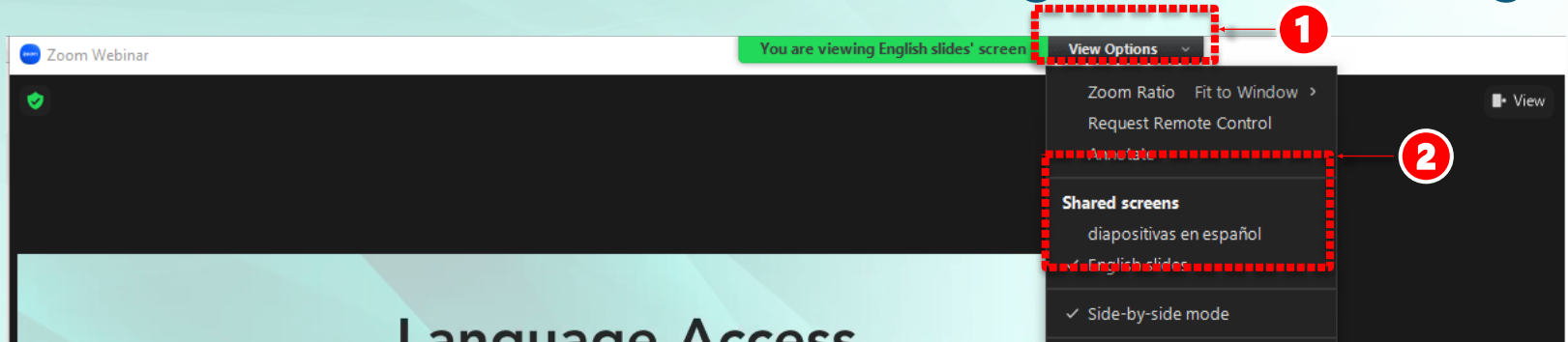
Language Access: Audio

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Language Access: Visual

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Today's Workshop

Zero-Emission Appliance Standards

Standards Concept:

- Starting in 2030, new sales of space and water heaters must be zero-emission.

Workshop Purpose:

- Inform the public about why CARB will develop zero-emission appliance standards.
- Consult the public about the planned engagement process, key topics for staff analysis, and values to guide staff's approach.

Overall Timeline



Overall Questions for the Public

- 1) **Engagement Process:** What actions would you recommend CARB take over the next six months to ensure the public engagement process is equitable and inclusive?
- 2) **Staff analysis topics:** What additional key topics or analysis should CARB explore, and do you have any data or reports that would be helpful to inform staff analysis?
- 3) **Values:** What values should CARB incorporate in this rulemaking, and how specifically would you encourage staff to enact them within the bounds of their work?

Today's Agenda

1) Opening Remarks

2) Engagement Process

3) Staff Analysis Overview

[Break]

4) Panel Discussion

5) Values Brainstorm

6) Public Comments

7) Closing Remarks and Next Steps

Opening Remarks CARB

Dr. Steven S. Cliff
Executive Officer





Why is a regulation being considered?

- Residential and commercial buildings contribute significantly to GHG and NO_x emissions
- Zero-emission appliance standards assist with meeting climate and air quality targets.

Aligned with California's Climate Strategy

- Zero-emission appliances are part of California's climate strategy as laid out in the 2022 Scoping Plan.
- Building electrification in combination with decarbonizing California's grid is the most effective path.



Image Source: Adobe Stock, 2023



CARB

<https://ww2.arb.ca.gov/our-work/programs/ab-32-climate-change-scoping-plan/2022-scoping-plan-documents>¹⁰

Aligned with California's Air Quality Strategy

- CARB committed to develop zero-emission standards for new space and water heaters in the 2022 State SIP Strategy.
- Provides NOx emission reduction co-benefits.
- Improves public health.



Additional Benefits



Image Source: Adobe Stock, 2023

- Provides resiliency, comfort, and safety co-benefits.
- Consistency across the State.
- Certainty for manufacturers, consumers, and contractors.

Complementary Policies are Key

- Zero-emission appliance standards are a key component of a broader portfolio of strategies
- Achieving a successful and equitable transition will require a range of actions
- Timing and scale of complementary policies are key

Incentives

Energy rate design

Grid readiness

Building codes

Workforce development

Public awareness

Low-GWP refrigerants

Gas decommissioning

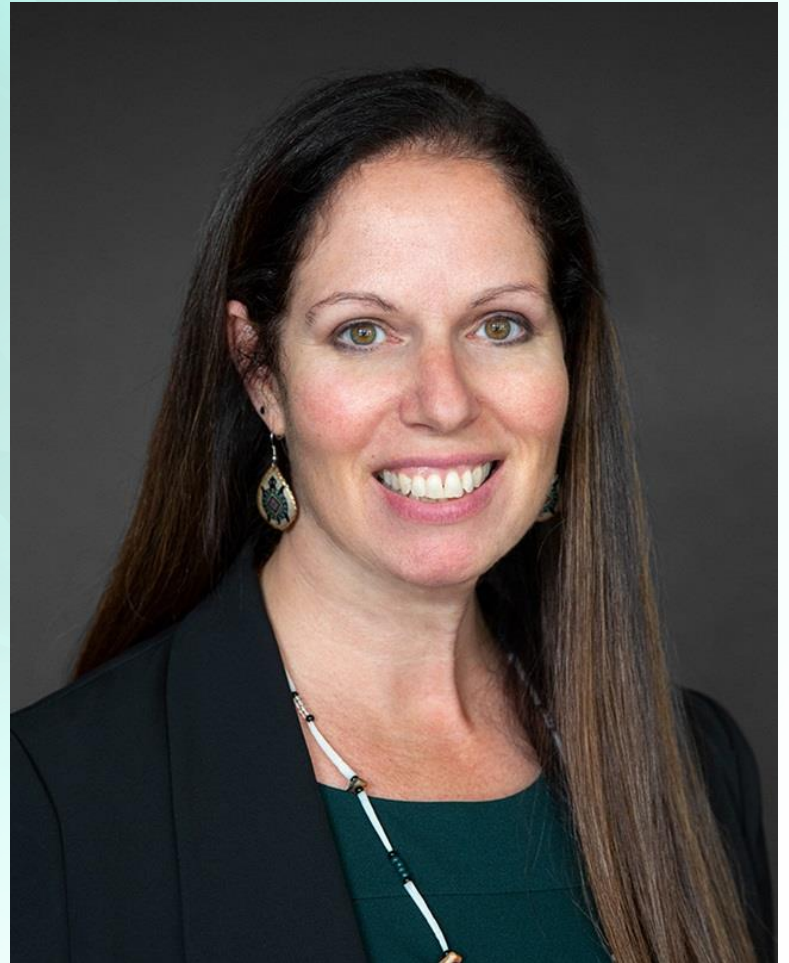
Opening Remarks CEC

Commissioner Andrew McAllister



Opening Remarks CPUC

Commissioner Darcie L. Houck



Opening Remarks BAAQMD



Gregory Nudd, Deputy Air Pollution Control Officer for Policy

Today's Agenda

- 1) Opening Remarks
- 2) Engagement Process**
- 3) Staff Analysis Overview
 - a) Purpose and goals
 - b) Process and milestones
- [Break]
- 4) Panel Discussion
- 5) Values Brainstorm
- 6) Public Comments
- 7) Closing Remarks and Next Steps

Why we are engaging the public:

- To increase **transparency** about the rulemaking process and implications.
- To incorporate **multiple forms of expertise**, especially the wisdom of lived experience.
- To ultimately develop a more **robust** and **successful** regulation.

Timeline & Regulatory Milestones



- Engagement Topics & Staff Analysis:**
- Data Sources
 - Assumptions
 - Analysis Methods
 - Regulatory Concepts

- Regulatory Package:**
- Staff Report
 - Economic and Environmental Analysis
 - Proposed Regulation Order

Today's Agenda

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- 2) Engagement Process
- 3) Staff Analysis Overview**

[Break]

4) Panel Discussion

5) Values Brainstorm

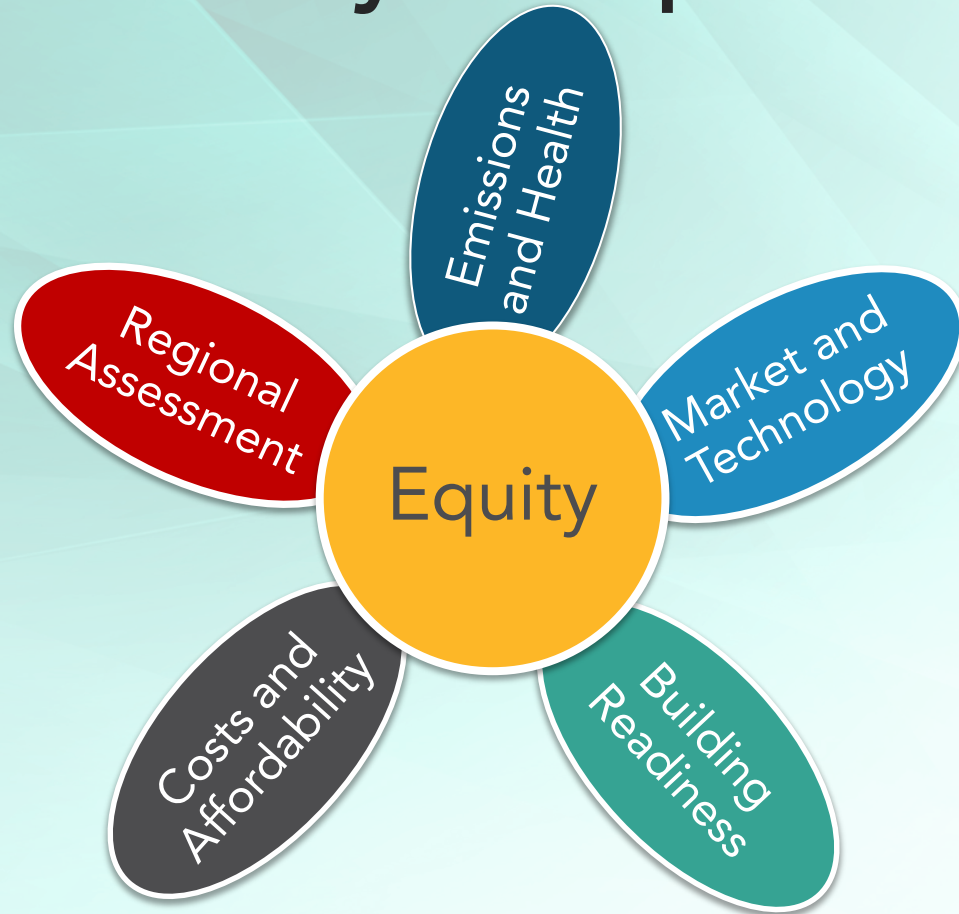
6) Public Comments

7) Closing Remarks and Next Steps

a) Topics Areas

b) Work Planned

Staff Analysis: Topic Areas



Staff Analysis: Emissions and Health

- Quantify GHG, criteria pollutant, and toxic emission impacts
- Estimate public health impacts



Image Source: Adobe Stock, 2023

Staff Analysis: Market and Technology

- Evaluate technology availability and performance across different end uses and building types.
- Understand manufacturing supply chain to meet expected demand in 2030.



Photo by Werner Slocum / NREL

Staff Analysis: Building Readiness

- Characterize the readiness of existing buildings to accommodate zero-emission appliances.
- Explore strategies to overcome barriers



Image Source: Adobe Stock, 2023

Staff Analysis: Costs and Affordability

- Quantify economic impacts for households and businesses, considering upfront costs, utility bill changes, and retrofits.
- Identify vulnerable groups, such as low-income renters, and examine potential benefits and impacts.



Image Source: Urban Land, 2023

Staff Analysis: Regional Assessment

- Collaborating with other agencies, consider potential regional changes in future grid capacity.
- Identify and consider the needs of communities that rely on propane and woodburning.



Image Source: Adobe Stock, 2023

Questions and Answers

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- 3) Staff Analysis Overview

[Break]

- 4) Panel Discussion
- 5) Values Brainstorm
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**Workshop will resume at
10:30am**

Today's Agenda

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[Break]

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Panelists



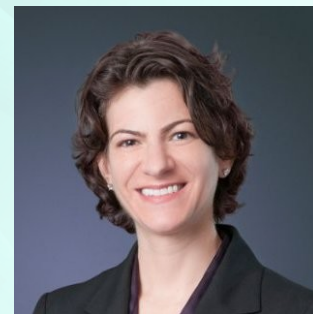
Amy Dryden

Director of Strategic
Innovation
Association for Energy
Affordability (AEA)



Caroline Farrell

Executive Director
Center for Race, Poverty,
and Environment (CRPE)



Samantha Slater

Senior Vice President of
Government Affairs
Air-Conditioning,
Heating, and
Refrigeration Institute
(AHRI)

Today's Agenda

- 1) Opening Remarks
- 2) Engagement Process
- 3) Staff Analysis Overview

[Break]

4) Panel Discussion

a) Purpose and process

b) Brainstorming exercise

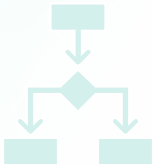
5) Values Brainstorm

6) Public Comments

7) Closing Remarks and Next Steps

Purpose and process for defining values

- Values describe motivations and intentions grounding and orienting staff work.
- Staff create them, with guidance from the public, as an accountability tool.



What values should be included?

Equity

Your ideas
here

Your ideas
here

Your ideas
here

Health

Integrity

Resilience

Brainstorming

What values should be included?

Today's Agenda

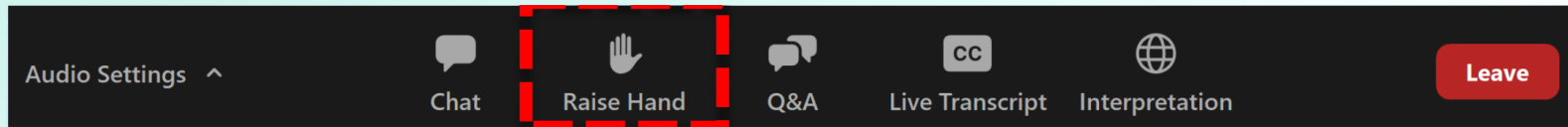
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Public Comments

General Feedback

Public Comments via Zoom

- Use the “**Raise Hand**” feature in the Zoom toolbar.
- When staff call your name, please “**Unmute**” yourself by clicking the red button, and proceed to introduce yourself
- Dial *6 to mute or unmute
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Closing Remarks and Next Steps

Next Steps and Staying Connected

- **Written Comments:** submit comments by May 25, 2023 at <https://ww2.arb.ca.gov/public-comments/zero-emission-appliance-standards>
- **Next Workshop:** Fall 2023
- **Website:** background, including FAQs: <https://ww2.arb.ca.gov/our-work/programs/zero-emission-appliance-standards>
- **Listserv:** Subscribe to CARB's Building Decarbonization GovDelivery topic to stay informed: https://public.govdelivery.com/accounts/CARB/subscriber/new?topic_id=bldg
- **Questions:** email buildingdecarb@arb.ca.gov