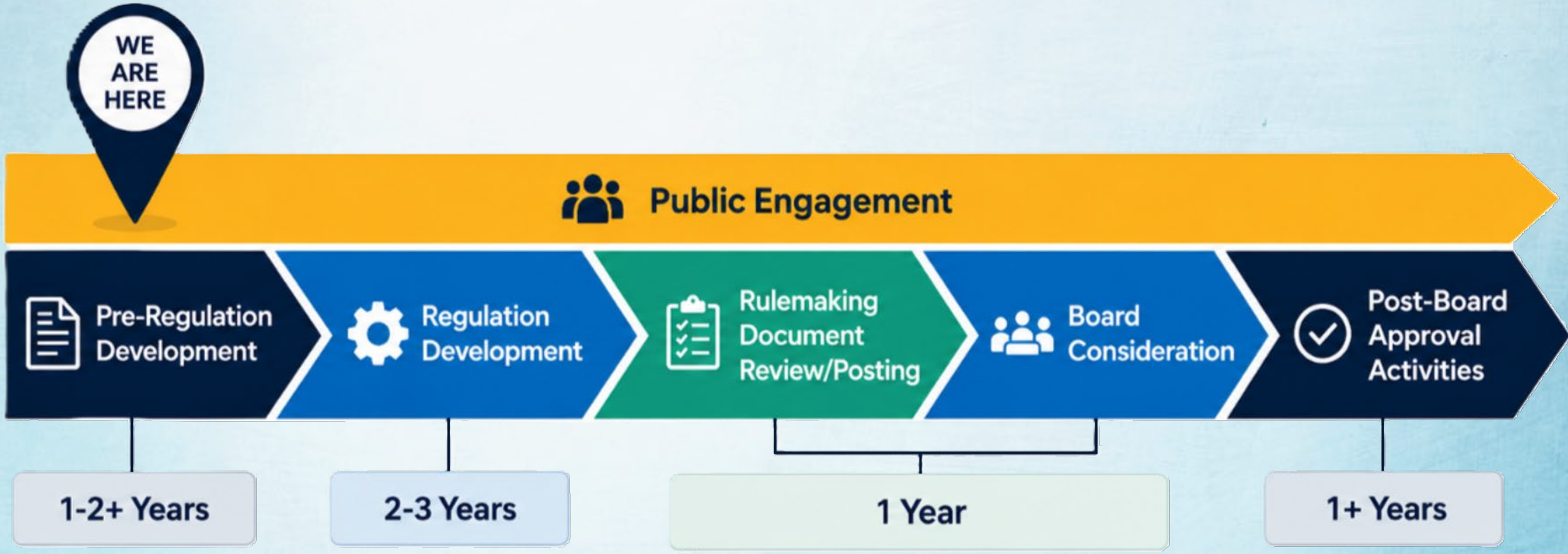
CALIFORNIA
AIR RESOURCES BOARD

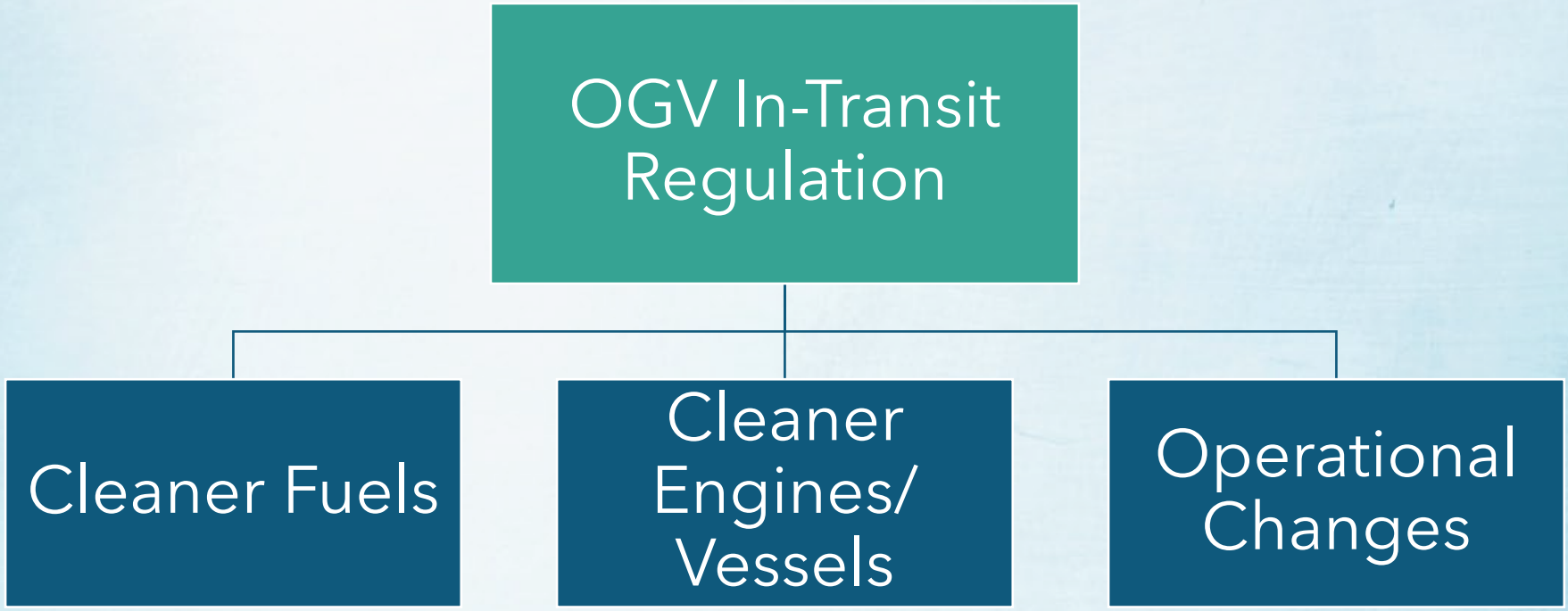
Stakeholder Feedback Session on OGV Technology Assessment

November 17, 2026

Regulation Development Timeline



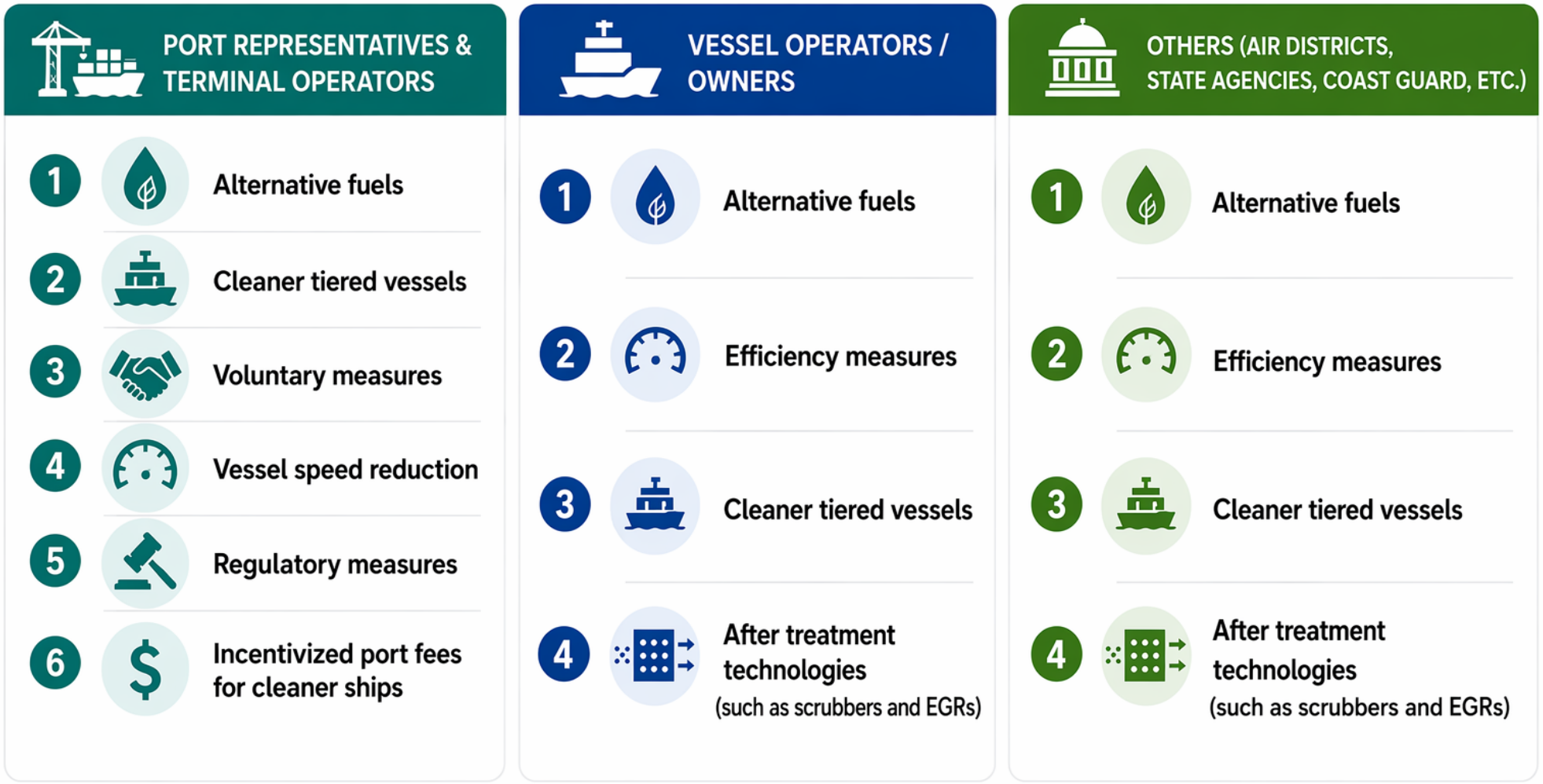
Potential Strategies



- CARB staff is exploring potential strategies and evaluating which measures are priority for reducing emissions.

Top strategies identified by stakeholder groups

Survey Question: What strategies do you think would be most likely to reduce OGV emissions?



Top hurdles to reducing emissions from OGVs

Survey Question: What is your biggest hurdle to reducing emissions from OGVs?

PORT REPRESENTATIVES & TERMINAL OPERATORS

1. Technology readiness or feasibility
2. Cost
3. Alternative fuel availability or infrastructure limitations
4. Operational constraints
5. Lack of incentives or financing mechanisms
6. Regulatory uncertainty or lack of clarity

VESSEL OPERATORS / OWNERS

1. Alternative fuel availability or infrastructure limitations
2. Regulatory uncertainty or lack of clarity
3. Technology readiness or feasibility
4. Cost
5. Lack of incentives or financing mechanisms
6. Operational constraints

OTHERS (AIR DISTRICTS, STATE AGENCIES, COAST GUARD, ETC.)

1. Regulatory uncertainty or lack of clarity
2. Cost
3. Lack of incentives or financing mechanisms
4. Availability of alternative fuels or supporting infrastructure
5. Technology readiness or feasibility
6. Operational constraints

Top concerns about impacts from In-Transit Ocean-Going Vessels

COMMUNITY MEMBERS

1. Health impacts from air pollution
2. Community representation in decision making and planning efforts
3. Alternative fuels concerns
4. Economic and/or job considerations
5. Non-air pollution-related environmental impacts

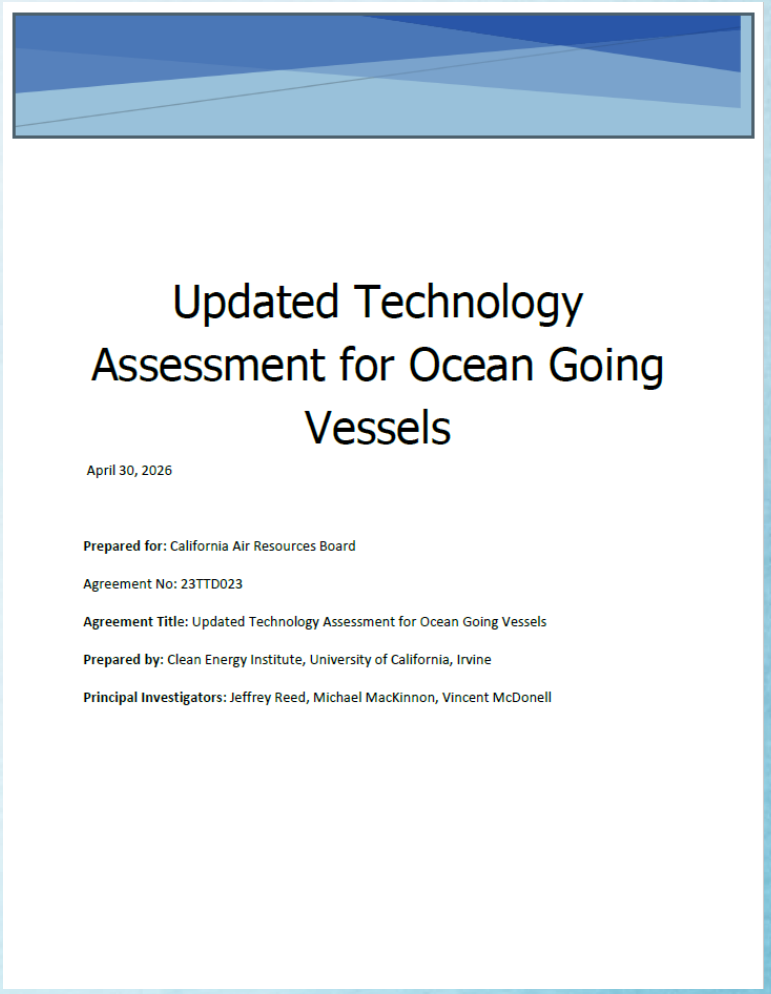
ENVIRONMENTAL ADVOCACY REPRESENTATIVES

1. Health impacts from air pollution
2. Economic and/or job considerations
3. Alternative fuels concerns
4. Non-air pollution-related environmental impacts

CARB

What Is the UCI Technology Assessment?

- The University of California, Irvine (UCI) completed their OGV Technology Assessment in June 2026.
  - The report was published on CARB's webpage.
- UCI evaluated current and emerging technologies and fuels that can reduce emissions from ocean-going vessels.
- The assessment provides technical information to help CARB explore options for a future In-Transit OGV Regulation.
  - It does not recommend specific regulatory requirements.



Updated Technology Assessment for Ocean Going Vessels

April 30, 2026

Prepared for: California Air Resources Board

Agreement No: 23TTD023

Agreement Title: Updated Technology Assessment for Ocean Going Vessels

Prepared by: Clean Energy Institute, University of California, Irvine

Principal Investigators: Jeffrey Reed, Michael MacKinnon, Vincent McDonell

Focus of the UCI Technology Assessment

- Three major areas of study include:
  - **Technology evaluation:** Current, near-term, and future technologies to reduce criteria pollutants, toxic air contaminants, and GHG emissions
  - **Program alignment:** Opportunities to coordinate California measures with local, national, international, and private-sector programs
  - **Fuel availability and infrastructure:** Current and future cleaner fuels, their availability, emission profiles, technology compatibility, and infrastructure requirements

UCI Technology Assessment: Key Takeaways

Cleaner Alternative Fuels Exist

- Cleaner alternative fuels are already available and can significantly reduce pollution in the near to mid-term

Controlling NOx remains essential

- Most combustion-based alternative fuels still require after-treatment like SCR to reduce NOx emissions

ZE Technologies show promise - but face hurdles

- New technologies (battery-electric, fuel cells, nuclear) show long-term promise but face cost, safety, and regulatory challenges

Multiple strategies may be necessary

- Most effective path may be combining approaches—using cleaner fuels, improving efficiency, applying after-treatment, and transitioning to zero-emission when feasible

How Public Input Strengthened the Report

- UCI and CARB held a public workshop on February 4, 2026, to share preliminary findings.
- UCI gathered feedback through:
  - Comments and questions during the February 4th workshop
  - Written comments submitted afterward
  - Follow-up meetings with community, industry, and agency stakeholders
- UCI used this feedback to refine the final report by adding clarifications, updated information, and additional analysis.
- Public input strengthened the assessment by identifying where more context or clearer explanations were needed.

UCI OGV Technology Assessment

Open Discussion

- We want to hear from you on:
  - Anticipated future direction of maritime industry technologies and practices to reduce OGV emissions (in transit)?
  - Emission-reduction technologies or alternative fuels you are currently considering
  - Technologies or fuels under development that were not included in the UCI assessment
  - Key research gaps or areas needing further analysis to support regulatory development

Next Steps


Continue consulting with technical experts
Emissions testing and research
Community engagement
Develop draft regulatory concepts

Contact Us!

- Email our inbox at: OGVintransit@arb.ca.gov
- Visit our website at: Potential Ocean-Going Vessel (OGV) In-Transit Regulation | California Air Resources Board
- Sign up for our Listserv: Marine Vessel Activities (Commercial)