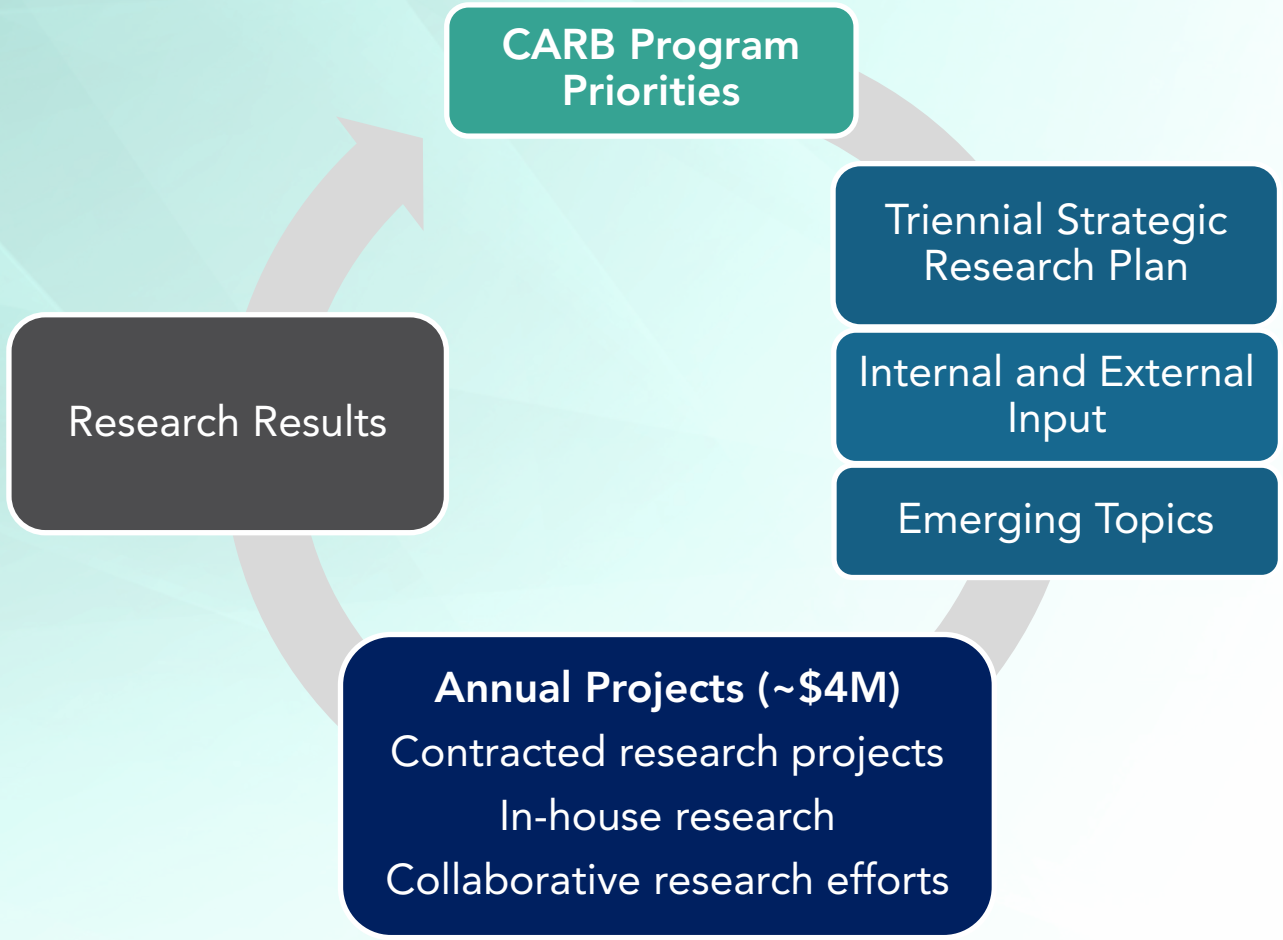
CALIFORNIA
AIR RESOURCES BOARD

Fiscal Year 2022-2023 Research Solicitation Public Meeting

February 23, 2022

CARB Research Project Priorities

- Driven by CARB program priorities
- Responsive to:
  - Triennial Plan
  - Internal and external coordination
  - Emerging topics
- Annual Projects
  - Who?
    - Leading scientists and community advocates
    - CARB researchers
    - Collaborators



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Strategic Guidance: Priorities

- Triennial Strategic Research Plan
  - Developed with public input
  - Provides roadmap
  - Aids in research planning and outreach
  - Guides annual project selection
  - Identifies strategies to operationalizing racial equity in CARB research
    - Greater transparency in project selection
    - Fostering multidisciplinary teams through Empower Innovation
    - Seeking new research partners

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Find a Partner on EmpowerInnovation.net

- **Empower Innovation** provides easy access to funding opportunities from the CEC and other providers, curated resources, events, and connections to people and organizations
- CARB's projects are available on the EI site
- You can use the EI platform to find a partner by announcing your interest in a funding opportunity and message other interested parties
- Questions: https://www.empowerinnovation.net/en/contact_us

EmpowerInnovation.net

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Projects included in FY22-23 solicitation

- Quantifying Health & Exposure Impacts
  1. Expanding Health Analysis – Metabolic Endpoints $475k
  2. Expanding Health Analysis – Neurodevelopmental Endpoints $500k
- Evaluating Emission and Exposure Mitigation
  3. Equitable Commercial Building Decarbonization $450k
  4. Air Cleaning Devices (White Paper) $25k
- Emerging Pollutant Issues
  5. Wildfires: Emissions from Burning Structures $650k
  6. Linking Volatile Chemical Products and Air Quality $200k

Additional FY22-23 Projects

- Community Engagement and Research Roadmap $100k
  - Solicitation will be released at a later date

- Tire and Brake Wear – On-Road Conditions $650k
  - Will be released at a later date in a request for proposals

- Intergenerational Impacts $500k
  - Contracting directly with concept submitter

Additional FY22-23 Projects: Spring 2022 Solicitation

- A future solicitation covering some of the following topics is forthcoming in spring 2022
- Vehicle miles traveled (VMT)
  - Strategies to reduce VMT and assessment of impacts from emerging technologies like connected and shared autonomous vehicles as well as impacts from telework
- Buildings
  - Assessment of strategies to advance equitable building decarbonization
- Light duty zero emission vehicles in the secondary market
  - Impacts of purchase incentives on equitable access to clean transportation
- California Climate Investments
  - Greenhouse gas quantification and co-benefit assessment methods
- Housing
  - Assessment of combined housing and transportation costs and strategies to advance equity
- Local government climate action
  - Assessment of barriers and opportunities

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Subscribe to “Research Activities” listserv to receive notification:
https://public.govdelivery.com/accounts/CARB/subscriber/new

Important Dates

- Monday March 14, 2022 – 5PM PST
  - Pre-proposals due – email to research@arb.ca.gov
  - For Community Engagement Project – Pre-proposals due 6 weeks after release date (stay tuned for release of SOW and Scoring Criteria)
- April 4, 2022
  - Winners notified – can begin preparing full proposal
- Monday April 25, 2022 – 5PM PST
  - Full proposals due
- June 20, 2022
  - Review by Research Screening Committee
- August-November, 2022
  - Kickoff executed contracts
- Mid 2024
  - Draft final reports due
- Early 2025 (usually 24 months after kickoff)
  - Results available, contracts close

Pre-Proposal Requirements

- **Use template provided on solicitation landing page**
- Pre-proposal
  - Not to exceed 5 pages
  - Include approach for conducting research
  - Tip: check scoring criteria
  - Tip: Do not copy solicitation text
- CV or Statement of Qualifications for entire project team
- Describe relevant experience
- Preliminary Budget
- Equity components
  - Differs by project

Line Item Number	Line Item Description	Cost
	Direct Costs	
1	Labor & Employee Fringe Benefits	$0
2	Subcontractor(s)/Consultant(s)	$0
3	Equipment	$0
4	Travel & Subsistence	$0
5	Electronic Data Processing	$0
6	Photocopying & Printing	$0
7	Mail, Telephone, and Fax	$0
8	Materials & Supplies	$0
9	Analyses	$0
10	Miscellaneous	$0
	Total Direct Cost	$0
11	Indirect Cost (Overhead: Rate 25%)	$0
	Total Indirect Cost	$0
	Total Direct and Indirect Cost	$0

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Equity Deliverables

- Common to all projects
  - Outreach materials
  - Quarterly updates for website
  - Equity implications, plain-language summary in final report
  - Publicly available peer-reviewed articles
- Specific to projects listed below:

Abbreviated project title	Cultural competency statement	Implicit bias, racial equity training	Compensate engaged partners	Community engagement plan
Equitable Commercial Building Decarbonization	Yes	Yes		
Development of a Research Roadmap through Community Engagement – Focus on Toxics	Yes	Yes	Yes	Yes

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Cultural Competency

- What it is and isn't
  - Cultural competence is a stance taken toward culture, not a discrete status or simple mastery of particular knowledge and skills.* Cultural and linguistic competence is a set of congruent behaviors, attitudes, and policies that come together in a system, agency, or among professionals that enables effective work in cross-cultural situations.**
  - A culturally competent researcher is prepared to engage with diverse segments of communities to include cultural and contextual dimensions important to community engagement, project development, project implementation and interpretation of results*
  - A lack of cultural competency can result in biases informing the interpretation of results, ignoring the knowledge and expertise of community members, and possibly harming a community that is part of a research project***

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*Adapted from American Evaluation Association's "Public Statement on Cultural Competence in Evaluation"
** Cultural Competence In Health and Human Services | NPIN (cdc.gov), Cross, 1989
***See "Making Racial Equity Real in Research," Creger, 2020, the Greenlining Institute

Cultural Competency Statements

- The Cultural Competency Statement
  - 1-page
  - Discuss prior engagement efforts and lessons learned from those experiences;
  - Examples of guiding questions:
    - What differences in cultural background and socioeconomic status exist between the researcher and communities being engaged with?
    - What language barriers may exist?
    - What power dynamics exist that could influence the interaction between the researcher and community members?
    - Acknowledge these differences and discuss how the project team will ensure community members are heard and how their expertise and priorities will be centered throughout the project.

Contracting

- Contracts – not grants
- Required by H&S code to look for expertise in UC/CSUs
  - Sub-contractors can come from any other university, private research institution or firm, community-based organization, etc.
  - Sub-contractors can receive up to 25% of budget
    - Up to 50% if it can be demonstrated that no expertise exists within the UC/CSU and the contract requirements call for it
  - Inter-agency agreement with UC/CSU
    - 25% overhead rate (see FAQ for details)

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Project Descriptions

Health Analysis Project: assessment of air pollution-related adverse metabolic health outcomes

- Objective
  - Evaluate adverse metabolic effects such as type 2 diabetes or risk factors (e.g., high blood pressure) from criteria pollutants and to the extent possible, toxic air contaminants
- Desired Outcome
  - Identification of concentration-response functions for health endpoints
  - Include race, ethnicity, socioeconomic status (SES)
  - Develop monetized values (cost of illness and willingness to pay) for those health impacts
- Contact for questions:
  - Hye-Youn Park: hye-youn.park@arb.ca.gov

Health Analysis Project: assessment of air pollution-related children's neurodevelopmental effects

- Objective
  - Evaluate children's neurodevelopmental effects, such as learning disabilities and developmental delays from criteria pollutants and to the extent possible, toxic air contaminants
- Desired Outcome
  - Identification of concentration-response functions for health endpoints
  - Include race, ethnicity, socioeconomic status (SES)
  - Develop monetized values (cost of illness and willingness to pay) for those health impacts
- Contact for questions:
  - Hye-Youn Park: hye-youn.park@arb.ca.gov

Estimating costs, benefits and strategies for equitable electrification of high priority commercial buildings

- Natural gas combustion in buildings accounts for
  - **8%** of GHG emissions & **5%** of NOx emissions
  - Over **300** premature deaths and thousands of illnesses each year

- Electrification of existing commercial buildings (7,392 million square feet) indicates a great potential for emission reductions

Objectives:

1. Identify the high priority commercial building subsectors for electrification,
2. Analyze the impacts of natural gas combustion in these subsectors,
3. Assess the costs, benefits, the equity implications and enabling and limiting factors of their electrification,
4. Provide policy recommendations to enhance equitable electrification for these subsectors.

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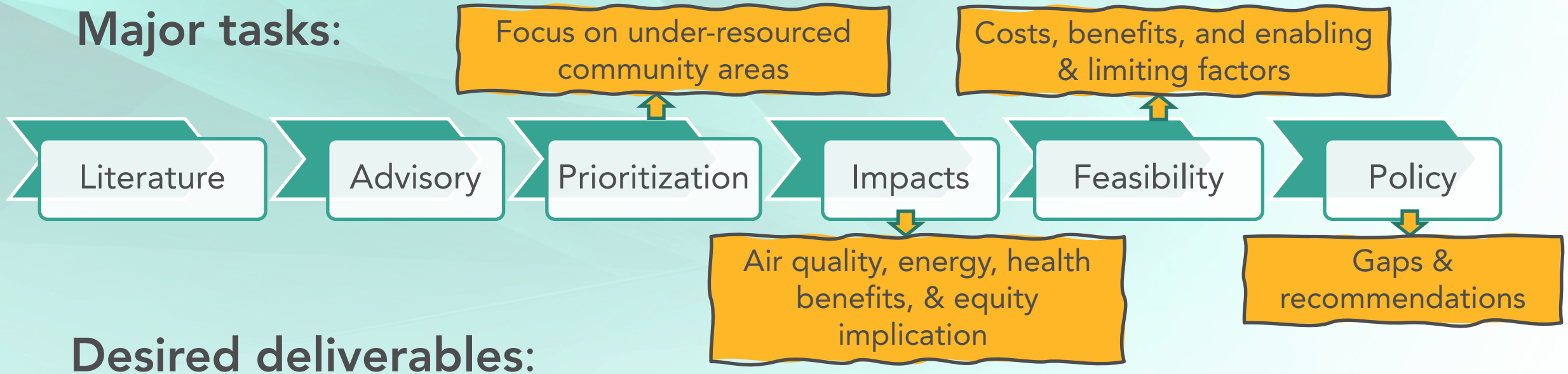
Estimating costs, benefits and strategies for equitable electrification of high priority commercial buildings

Major tasks:



Desired deliverables:

Quarterly Progress Reports and conference calls

Final Report and seminar

Plain-language outreach deliverables for public

Contact for questions: Patrick Wong, Patrick.wong@arb.ca.gov

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Air Cleaner White Paper- Background

- Air cleaners sold in California are required to be CARB certified for electrical safety and ozone emissions.
- Some air cleaner technologies may produce non-ozone air pollutants.
- There are few studies regarding possible health effects from exposure to these non-ozone air pollutants.
- To assess the importance of this issue and consider future actions, CARB needs additional information regarding health risks and emission levels of these non-ozone air cleaner pollutants.

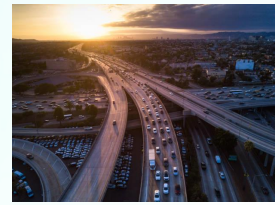
Air Cleaner White Paper – Objectives and Deliverables

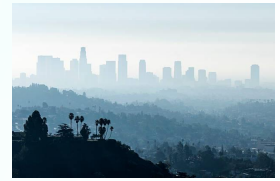
- Summarize current electronic air cleaning technologies and device types
- Identify possible air pollutants in addition to ozone from these devices
- Summarize possible health effects from exposure to emissions from air cleaners
- Identify gaps in current research data or scientific knowledge about measurements and health effects from non-ozone air pollutants from air cleaners
- Provide recommendations for future research directions to address gaps in research data
- Deliverables (12-month contract) – Public summaries, kick-off meeting, progress report updates, white paper, and public seminar

For additional information or questions please contact: Pat Wong (pat.wong@arb.ca.gov)

Analysis of Particulate Matter Composition in Los Angeles, CA Measured During RECAP-CA

- Objectives:
  - Analyze aerosol- and gas-phase composition data collected during the 2021 ReEvaluation of California Air Pollution (RECAP-CA) field campaign to improve the understanding of the sources and processing of local organic and inorganic particulate matter (PM).
- Desired deliverables include:
  - Comparisons of current with previous ambient PM composition,
  - Quantification of the magnitude of individual organic aerosol sources with an emphasis on the role of volatile chemical products as precursors,
  - Evaluation of the dependence of aerosol mass loading and composition on meteorological factors,
  - Quantification of the inorganic and organic fractions of measured nitrate aerosol, and
  - Assessments of the relative role of changing emissions, atmospheric chemistries, and oxidant concentrations on both past and future trends in organic PM concentrations.
- Contact Toshihiro Kuwayama for questions: toshihiro.kuwayama@arb.ca.gov





Determine Emission Factors and Chemical Speciation from Burning Structures due to Wildfires in California for Use in Air Quality and Health Impact Assessments

- **Objectives:**
  - Determine emission factors and chemical speciation from burning structures typical of those located in California
  - Participate in "Structure Separation Experiments" organized by NIST to measure emissions from burning a full-scale structure including both building materials and building contents
- **Desired Outcomes:**
  - Lead to development of better fire model to predict how wildfires spread in different ecosystems and under different conditions
  - Assess potential benefit of decreased destructive capacity of wildfires through increases in future forest management
  - Improved fire model can be used to better assess wildfire impacts in air quality and human health

Contact for questions:
Nehzat Motallebi: nehzat.motallebi@arb.ca.gov

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