PROPOSED

State of California
AIR RESOURCES BOARD

RESEARCH PROPOSAL

Resolution 11-16

February 24, 2011

Agenda Item No.: 11-1-1

WHEREAS, the Air Resources Board (ARB or Board) has been directed to carry out an effective research program in conjunction with its efforts to combat air pollution, pursuant to Health and Safety Code sections 39700 through 39705;

WHEREAS, a research proposal, number 2718-270 entitled "The Cool California Carbon Challenge: a Pilot Intra- and Inter-Community Carbon Footprint Reduction Competition," has been submitted by the University of California, Berkeley;

WHEREAS, the Research Division staff has reviewed and recommended this proposal for approval; and

WHEREAS, the Research Screening Committee has reviewed and recommends for funding:

> Proposal Number 2718-270 entitled "The Cool California Carbon Challenge: a Pilot Intra- and Inter-Community Carbon Footprint Reduction Competition," submitted by the University of California, Berkeley, for a total amount not to exceed $300,004.

NOW, THEREFORE, BE IT RESOLVED that ARB, pursuant to the authority granted by Health and Safety Code section 39703, hereby accepts the recommendation of the Research Screening Committee and approves the following:

> Proposal Number 2718-270 entitled "The Cool California Carbon Challenge: a Pilot Intra- and Inter-Community Carbon Footprint Reduction Competition," submitted by the University of California, Berkeley, for a total amount not to exceed $300,004.

BE IT FURTHER RESOLVED that the Executive Officer is hereby authorized to initiate administrative procedures and execute all necessary documents and contracts for the research effort proposed herein, and as described in Attachment A, in an amount not to exceed $300,004.

ATTACHMENT A

"The Cool California Carbon Challenge: a Pilot Intra- and Inter-Community Carbon Footprint Reduction Competition"

Background
Assembly Bill 32 Scoping Plan indicates a need for measurable, voluntary reductions of residential greenhouse gas (GHG) emissions, if California is going to reduce carbon emissions to 1990 levels by the year 2020. However, motivating behavioral change can be difficult. Improved access to information does not generally suffice to motivate individuals and communities to adopt energy-saving behaviors, even when these behaviors are in the actors' economic best interests. Strategies that have demonstrated some success in motivating environmentally benign behaviors include competitions coupled with other approaches such as goal-setting, modeling of normative behaviors, feedback, rewards, and providing tailored information, with typical measured carbon footprint reductions between 5 and 20 percent.

In addition to building upon past work funded by ARB, this contract will leverage at least $10,000, and more likely several tens of thousands of dollars, from UC Berkeley's CoolClimate Network, a consortium designed to support the development of online carbon management tools. Participating communities will also contribute in-kind resources to support the pilot project, including staff time and volunteer support to administer the competitions.

Objective
This project aims to develop, monitor, and evaluate a carbon footprint reduction program for California households and communities that is based on ARB's CoolCalifornia.org website and toolkit and that leverages a variety of proven strategies to motivate behavioral change.

Phase 0:
This project relies upon several pre-project tasks that will be completed with non-ARB funds. Specifically, the researchers will complete the following tasks in advance of the proposed project:

1. Develop an overview of community-based carbon footprint programs in California;
2. Select pilot communities;
3. Complete program design in collaboration with selected communities and ARB;
4. Refine survey instrument, sampling frame, statistical procedures for evaluation;
5. Improve the CoolCalifornia.org website.

Phase 1:
After the pre-project tasks are complete, the proposed project will use ARB funds to:

1. Develop an inter- and intra-community carbon footprint reduction competition that builds on recognized strategies to encourage behavior changes among households and communities;
2. Investigate the effectiveness of tools developed collaboratively by ARB and University of California, Berkeley (UCB) to foster voluntary emissions reductions by households and small businesses;
3. Assess the effectiveness of the competition in promoting carbon footprint reductions during the twelve-month competition period;
4. Assess long-term effects of the competition by investigating carbon footprints six months after the competition ends;
5. Delineate demographic, psychographic, and other factors that motivate households to make changes or are associated with inertial behavior;
6. Elicit feedback from households and communities to help streamline future competitions.

Methods
Investigators will:
1. Work with three California communities to launch a carbon footprint reduction competition (location-specific details of competition design to be determined in collaboration with ARB and the selected communities in advance);
2. Record participants' baseline carbon footprint calculation using the CoolCalifornia.org calculator;
3. Survey competition participants at start of competition to learn about their relevant practices and attitudes;
4. Work with communities to conduct events and other opportunities to provide information to competition participants and to encourage continued involvement;
5. Secure footprint reduction pledges from competition participants;
6. Track and evaluate participants' carbon footprint data for 12 full months using the CoolCalifornia.org carbon calculator;
7. Reward competition winners (lowest footprint, greatest footprint reduction, etc.) with prizes at a public event;
8. Administer survey at end of competition;
9. Administer second follow-up survey 6 months following the end of the program and evaluate results;
10. Evaluate competition program for replicability in other communities with or without changes.

Expected Results
Study results will clarify whether a competition that incorporates goal-setting, modeling of normative behaviors, feedback, rewards, and information tailored to participants is an effective means of reducing household carbon footprints in three pilot communities in

California. If effective, this study will provide a replicable competition model, built on CoolCalifornia.org web resources, which could be expanded throughout the state.

Significance to the Board
This project will add significantly to the State's capacity to motivate voluntary, residential GHG emissions reductions using tools developed collaboratively by ARB and UCB. This project will provide both a quantitative indication of the CoolCalifornia.org website's prospective behavioral impact, as well as a potentially effective, replicable means for delivering this information resource to the citizens and communities of California. Additionally, the project will foster development of networks with communities whose initiatives will be critical to reaching out to residents throughout the State.

Contractor:
University of California, Berkeley

Contract Period:
24 months

Principal Investigator (PI):
Daniel M. Kammen, Ph.D.

Contract Amount:
$300,004

Basis for Indirect Cost Rate:
The State and the UC system have agreed to a ten percent indirect cost rate.

Past Experience with this Principal Investigator:
Daniel M. Kammen has several relevant contracts with ARB including the development of the CoolCalifornia.org carbon calculators (for households and businesses), a project to augment a decision support tool for local governments, and an effort to expand the GreenPoint Rated Climate Calculator. Project manager Chris Jones has worked closely with ARB throughout the development of the CoolCalifornia.org resources and has published several papers, with Daniel Kammen, on calculator-related research. Robb Willer is widely published in the fields of social and political psychology and a pioneer in the study of happiness and social motivation.

Prior Research Division Funding to the University of California, Berkeley:

Year	2009	2008	2007
Funding	$1,507,702	$1,140,572	$1,350,484

BUDGET SUMMARY

Contractor: University of California, Berkeley

"The Cool California Carbon Challenge: a Pilot Intra- and Inter-Community Carbon Footprint Reduction Competition"

DIRECT COSTS AND BENEFITS			
1.	Labor and Employee Fringe Benefits	$ 225,989	
2.	Subcontractors	$ 36,000	
3.	Equipment	$ 0	
4.	Travel and Subsistence	$ 4,520	
5.	Electronic Data Processing	$ 0	
6.	Reproduction/Publication	$ 2,875	
7.	Mail and Phone	$ 4,628	
8.	Supplies	$ 1,251	
9.	Analyses	$ 0	
10.	Miscellaneous	$ 1,000	
	Total Direct Costs		$276,263
INDIRECT COSTS			
1.	Overhead	$ 23,741	
2.	General and Administrative Expenses	$ 0	
3.	Other Indirect Costs	$ 0	
4.	Fee or Profit	$ 0	
	Total Indirect Costs		$ 23,741
TOTAL PROJECT COSTS			**$300,004**

Attachment 1

SUBCONTRACTOR'S BUDGET SUMMARY

Subcontractor: Community Partners (TBD)

Description of subcontractor's responsibility: Community partners will be selected based upon the results of Phase 0 of this project. Subawards will be granted to three community partners, selected on a competitive basis. Subawards will cover one part-time researcher to conduct phone, mail and in-person surveys in each community, in addition to assisting with program interventions. Community partners may be local governments or community-based organizations.

DIRECT COSTS AND BENEFITS			
1.	Labor and Employee Fringe Benefits	$ 0	
2.	Subcontractors	$ 0	
3.	Equipment	$ 0	
4.	Travel and Subsistence	$ 0	
5.	Electronic Data Processing	$ 0	
6.	Reproduction/Publication	$ 0	
7.	Mail and Phone	$ 0	
8.	Supplies	$ 0	
9.	Analyses	$ 0	
10.	Miscellaneous	$ 36,000	
	Total Direct Costs		$ 36,000
INDIRECT COSTS			
1.	Overhead	$ 0	
2.	General and Administrative Expenses	$ 0	
3.	Other Indirect Costs	$ 0	
4.	Fee or Profit	$ 0	
	Total Indirect Costs		$ 0
TOTAL PROJECT COSTS			**$ 36,000**