State of California
AIR RESOURCES BOARD

RESEARCH PROPOSAL

Resolution 10-8

February 25, 2010

Agenda Item No.: 10-2-1

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 2693-266, entitled "Measuring the Climate Impact of Residential Buildings: GreenPoint Rated Climate Calculator Version 2," 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 (RSC) has reviewed and recommends for funding:

> Proposal Number 2693-266 entitled "Measuring the Climate Impact of Residential Buildings: GreenPoint Rated Climate Calculator Version 2," submitted by the University of California, Berkeley, for a total amount not to exceed $101,575.

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

> Proposal Number 2693-266 entitled "Measuring the Climate Impact of Residential Buildings: GreenPoint Rated Climate Calculator Version 2," submitted by the University of California, Berkeley, for a total amount not to exceed $101,575.

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 $101,575.

I hereby certify that the above is a true and correct copy of Resolution 10-8, as adopted by the Air Resources Board.

Sandra Bannerman, Clerk of the Board

ATTACHMENT A

Measuring the Climate Impact of Residential Buildings: GreenPoint Rated Climate Calculator Version 2

Background
Buildings represent the second largest source of California's greenhouse gas (GHG) emissions. The residential sector contributes 14 percent of the total GHG inventory with an estimated 66.5 million metric tons of carbon dioxide (CO_2) equivalent ($MMTCO_2E$) emissions generated annually during 2002-2004. The Climate Change Scoping Plan adopted green building as a strategy to reduce GHG emissions, but states that further research is needed to quantify GHG reductions. This project will address the knowledge gap needed to better quantify GHG reduction estimates of residential green buildings and fill a critical research need identified in the Assembly Bill 32 (AB 32) planning process for green buildings.

Objective
The objective of this proposed study is to quantify GHG emission reductions of a green home compared to a conventional home regardless of occupant behavior. Local governments are expected to use the climate calculator outputs in the climate action planning and implementation process. Cities and counties are also expected to use the climate calculator to quantify GHG emission reduction of existing home retrofits in their local jurisdiction, which will be useful to meet the goals of AB 32 and Executive Order # S-03-03.

Methods
The investigators will validate existing methodologies and add new quantification metrics to the Green Point Rated Climate Calculator. They will conduct field testing of a variety of different building types and obtain stakeholder input to develop Version 2 of the green home climate calculator.

Expected Results
Results of this research are expected to better quantify GHG reduction estimates of residential green buildings and fill a critical research need identified in the AB 32 planning process for green buildings.

Significance to the Board
ARB is the lead agency implementing AB 32. This study will assist ARB with beginning to track GHG emission reductions from green buildings.

Contractor:
University of California, Berkeley

Contract Period:
20 months

Principal Investigator (PI):

Daniel M. Kammen, Ph.D.

Contract Amount:
$101,575

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:
Professor Kammen will serve as the principal investigator of this project responsible for overall project guidance and intellectual contributions. Professor Kammen is the Director of the Renewable and Appropriate Energy Laboratory at UC Berkeley and is Principal Investigator for a related research project to develop a carbon footprint calculator for individuals, which aims to guide household decision making.

Prior Research Division Funding to University of California, Berkeley:

Year	2008	2007	2006
Funding	$1,169,448	$1,372,484	$1,607,398

BUDGET SUMMARY

Contractor: University of California, Berkeley

Measuring the Climate Impact of Residential Buildings: GreenPoint Rated Climate Calculator Version 2

DIRECT COSTS AND BENEFITS				
1.	Labor and Employee Fringe Benefits	$	49,511	
2.	Subcontractors	$	45,000	
3.	Equipment	$	0	
4.	Travel and Subsistence	$	0	
5.	Electronic Data Processing	$	0	
6.	Reproduction/Publication	$	212	
7.	Mail and Phone	$	100	
8.	Supplies	$	0	
9.	Analyses	$	0	
10.	Miscellaneous	$	0	
	Total Direct Costs			$94,823
INDIRECT COSTS				
1.	Overhead	$	6,752	
2.	General and Administrative Expenses	$	0	
3.	Other Indirect Costs	$	0	
4.	Fee or Profit	$	0	
	Total Indirect Costs			$6,752
TOTAL PROJECT COSTS				**$101,575**

SUBCONTRACTOR'S BUDGET SUMMARY

Subcontractor: StopWaste.org

Description of subcontractor's responsibility: StopWaste.org will oversee the field testing for the project by providing stipends to GreenPoint Rated pilot projects, provide insight to the UCB on research efforts, and provide overall coordination with UCB staff. They will subcontract out a portion of the contract funds to Build It Green to organize stakeholder feedback with the UCB findings to update the climate calculator. StopWaste.org is also providing in-kind funding of an additional $25,000 to further the research needs of this project and programming of the updated climate calculator.

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	$ 21,000[1]	
	Total Direct Costs		$21,000
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			**$21,000**

[1] The $21,000 in miscellaneous direct costs will be used to pay for 14 stipends to GreenPoint Raters that will collect field data for the climate calculator. Projects will be selected to cover different residential building types and green measures. Project data will be collected by GreenPoint Raters that are trained and certified experts in evaluating green homes in California.

SUBCONTRACTOR'S BUDGET SUMMARY

Subcontractor: Build It Green

Description of subcontractor's responsibility: Build It Green is the non-profit organization administering the GreenPoint Rated program, which offers the climate calculator and issues report cards for homes based on third-party verification by a Certified GreenPoint Rater. Build It Green will be responsible for organizing stakeholder feedback with the UCB findings to update the climate calculator. There are no other organizations that have expertise in developing and managing a residential green building rating system with a climate calculator in California.

DIRECT COSTS AND BENEFITS				
11.	Labor and Employee Fringe Benefits	$	24,000	
12.	Subcontractors	$	0	
13.	Equipment	$	0	
14.	Travel and Subsistence	$	0	
15.	Electronic Data Processing	$	0	
16.	Reproduction/Publication	$	0	
17.	Mail and Phone	$	0	
18.	Supplies	$	0	
19.	Analyses	$	0	
20.	Miscellaneous	$	0	
	Total Direct Costs			$24,000
INDIRECT COSTS				
5.	Overhead	$	0	
6.	General and Administrative Expenses	$	0	
7.	Other Indirect Costs	$	0	
8.	Fee or Profit	$	0	
	Total Indirect Costs			$0
TOTAL PROJECT COSTS				**$24,000**