

# The CoolCalifornia City Challenge: A Statewide Program to Enable Low Carbon Communities



COOLCALIFORNIA  
**CITY CHALLENGE**

Sponsored by: **energy  
upgrade**<sup>™</sup>  
CALIFORNIA

Daniel M. Kammen  
Christopher M. Jones  
Energy and Resources Group  
University of California, Berkeley

ARB Research Seminar  
January 8, 2015



**CoolCalifornia.org**  
Simple steps for a sustainable future

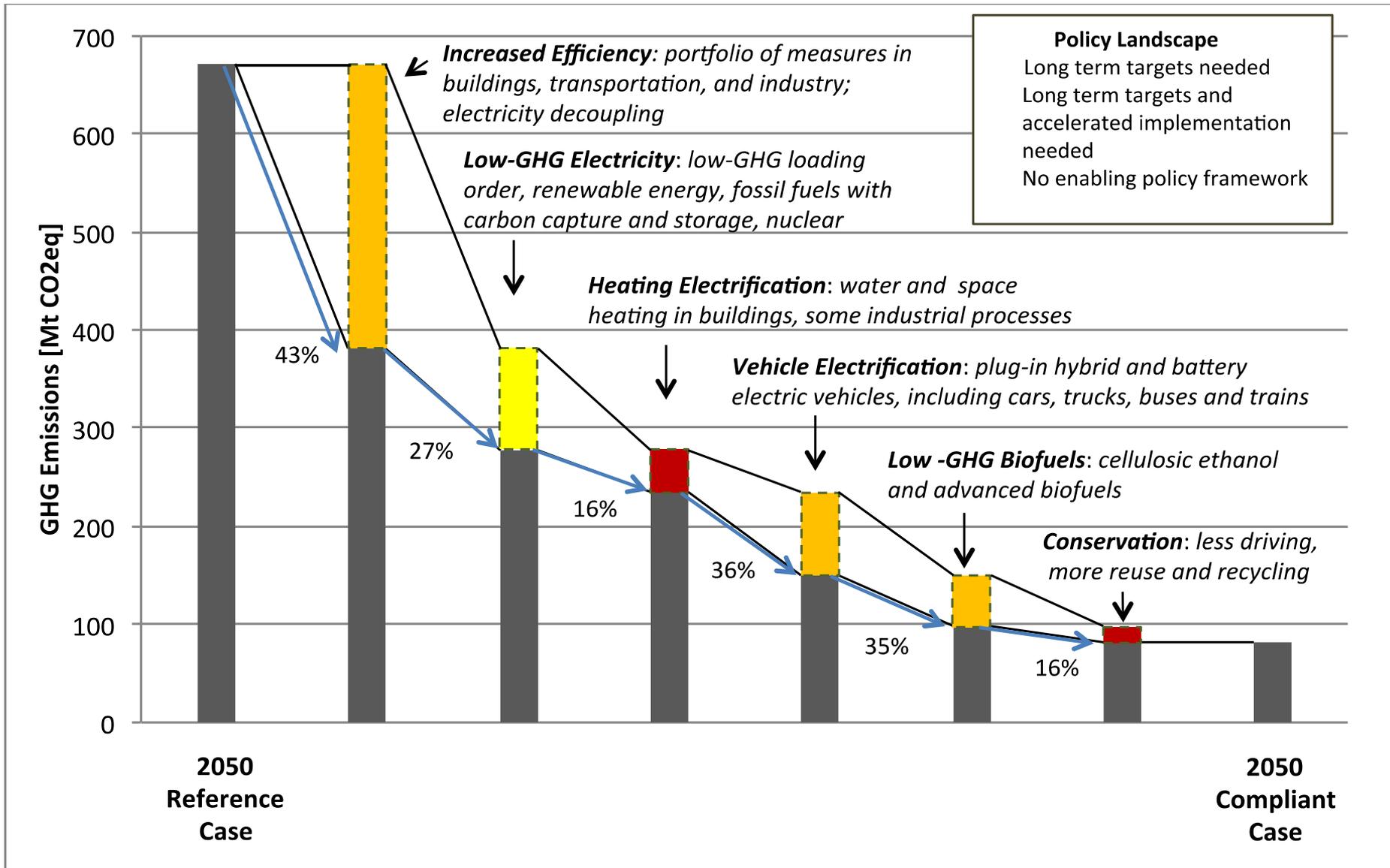
California Environmental Protection Agency  
 **Air Resources Board**

University of California  
**R A E L**  
Renewable & Appropriate  
Energy Laboratory

**CoolClimate  
Network**



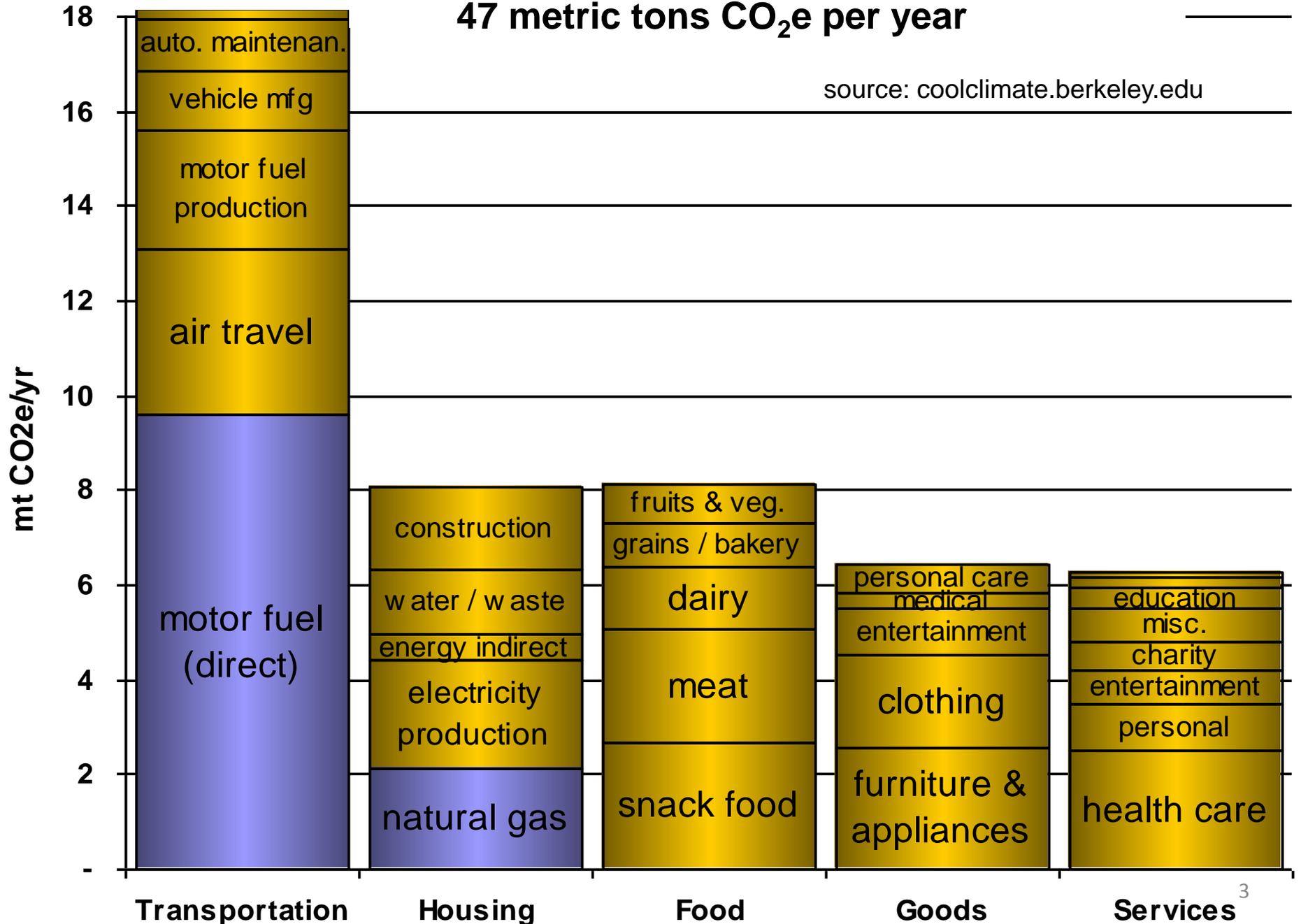
# Meeting 2050 Target Requires Behavior Change



# Carbon footprint of average California household

## 47 metric tons CO<sub>2</sub>e per year

source: coolclimate.berkeley.edu





Intro



Travel



Housing



Food



Shopping



Take Action

### Build your action plan



### Total Reductions

**6.5**  
tons CO<sub>2</sub>/year

\$/yr saved: \$2834  
Upfront cost: \$17890

### Total Footprint

**40.8**  
tons CO<sub>2</sub>/year



**28.8% Better**  
than the average household in Berkeley, California 94708 with average size and similar income.

Reset Axis

- Assumptions
- Transportation
- Housing
- Shopping
- Offset

Save to my profile

	Category	Tons Saved mtCO <sub>2</sub> e/yr	Dollars Saved \$/yr	Upfront Cost \$/yr
Pledge	Buy a More Efficient Vehicle	2.32	\$726	\$2000
Pledge	Buy an Alternative Fuel Vehicle	2.45	\$797	\$17000
Pledge	Buy an Electric Vehicle	7.39	\$1866	\$15000
Pledge	Buy a Hybrid Vehicle	3.34	\$1045	\$15000
Pledge	Telecommute to Work	0.98	\$545	\$0
Pledge	Ride my Bike	0.53	\$165	\$0

I will ride my bike  miles per week instead of driving  which gets 22 miles per gallon.

Your bicycle can make you a lean, green clean-moving machine! Free tools like google maps have bike-friendly directions to get you going as an exemplary neighborhood cyclist.



[+] assumptions

Pledge	Take Public Transportation	0.42	\$165	\$0
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# CoolCalifornia Challenge





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**CITY CHALLENGE**

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**upgrade**<sup>TM</sup>  
CALIFORNIA

## The Appeal of Competitions

1. **Highly scalable**
2. **Potential for deep savings**
3. **Ability to reach diverse populations**
4. **Potentially cost-effective**

## Theoretical Foundation for Competitions: Why do they work?

1. **Comparative Feedback:** let people know how well they are doing vs. peers
2. **Norms:** provide information on what others are doing and expected behavior
3. **Collaboration & Competition:** foster collaboration within groups to meet goals; friendly competition between out-groups
4. **Social Diffusion:** spread adoption through existing social networks
5. **Gamification:** earning points for small tasks and “leveling up” increases enjoyment of taking actions
6. **Incentives:** recognition and tangible rewards provide positive feedback for accomplishments
7. **Visibility:** Visible actions are more motivating than invisible actions
8. **Self-efficacy:** by working together people feel like they can make meaningful contributions to address climate change

## Behavior Tools Employed by Competitions

Project	Local Messengers	Comparative Feedback	Social Diffusion	Competition	Imagery	Incentives	Descriptive Norms	Prompts	Commitments	Goal Setting	Scarcity	Tailored Feedback	Reciprocity	Instantaneous Feedback	Gamification	Subjective Norms	Loss Aversion	Energy Coach/Advisor	# of strategies used
1	Green	Green	Green	Green	Green	Green	Grey	Grey	Green	Grey	Grey	Grey	Grey	Yellow	Grey	Grey	Grey	Grey	8
2	Green	Green	Green	Green	Green	Green	Grey	Green	Green	Green	Yellow	Grey	Yellow	Green	Green	Grey	Grey	Grey	13
3	Green	Green	Green	Green	Green	Green	Green	Yellow	Grey	Yellow	Yellow	Grey	Yellow	Green	Yellow	Yellow	Grey	Yellow	15
4	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Grey	Green	Green	Grey	15
5	Green	Yellow	Green	Green	Green	Green	Yellow	Green	Green	Green	Grey	Yellow	Green	Grey	Grey	Green	Yellow	Yellow	15
6	Green	Green	Green	Yellow	Yellow	Yellow	Green	Yellow	Green	Grey	Grey	Grey	Yellow	Grey	Grey	Grey	Grey	Grey	10
7	Green	Green	Green	Yellow	Green	Green	Green	Green	Green	Green	Yellow	Grey	Grey	Grey	Grey	Grey	Grey	Grey	12
8	Green	Green	Green	Yellow	Yellow	Yellow	Yellow	Yellow	Grey	Grey	Yellow	Grey	Grey	Grey	Grey	Grey	Yellow	Grey	10
9	Yellow	Green	Green	Green	Yellow	Green	Green	Green	Grey	Grey	Green	Yellow	Grey	Yellow	Green	Grey	Green	Grey	13
10	Green	Green	Green	Yellow	Green	Green	Yellow	Yellow	Yellow	Yellow	Grey	Grey	Grey	Grey	Yellow	Grey	Grey	Grey	11
11	Green	Yellow	Green	Green	Grey	Green	Green	Green	Grey	Green	Yellow	Green	Yellow	Grey	Grey	Grey	Grey	Green	12
12	Green	Yellow	Green	Green	Green	Green	Green	Green	Green	Green	Yellow	Green	Green	Green	Grey	Grey	Grey	Yellow	14
13	Yellow	Yellow	Green	Grey	Green	Green	Green	Green	Green	Yellow	Yellow	Green	Yellow	Grey	Grey	Grey	Grey	Green	13
14	Green	Grey	Green	Yellow	Green	Yellow	Green	Green	Green	Green	Grey	Grey	Yellow	Grey	Grey	Yellow	Green	Grey	12
15	Green	Green	Grey	Green	Grey	Grey	Green	Yellow	Green	Grey	Grey	Grey	Grey	Grey	Green	Green	Grey	Grey	7
16	Green	Green	Yellow	Green	Green	Grey	Green	Yellow	Grey	Grey	Green	Green	Green	Green	Green	Yellow	Grey	Grey	12
17	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Yellow	Green	Yellow	Grey	Grey	Grey	Green	Grey	14
18	Green	Green	Grey	Green	Green	Yellow	Grey	Green	Green	Green	Grey	Grey	Yellow	Green	Grey	Yellow	Grey	Green	12
19	Green	Green	Green	Green	Green	Green	Green	Green	Yellow	Yellow	Green	Grey	Green	Green	Green	Grey	Green	Yellow	16
20	Grey	Green	Grey	Yellow	Grey	Yellow	Yellow	Grey	Yellow	Yellow	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	6
Score	36	34	33	32	31	31	29	29	27	23	16	15	15	12	12	10	10	10	18

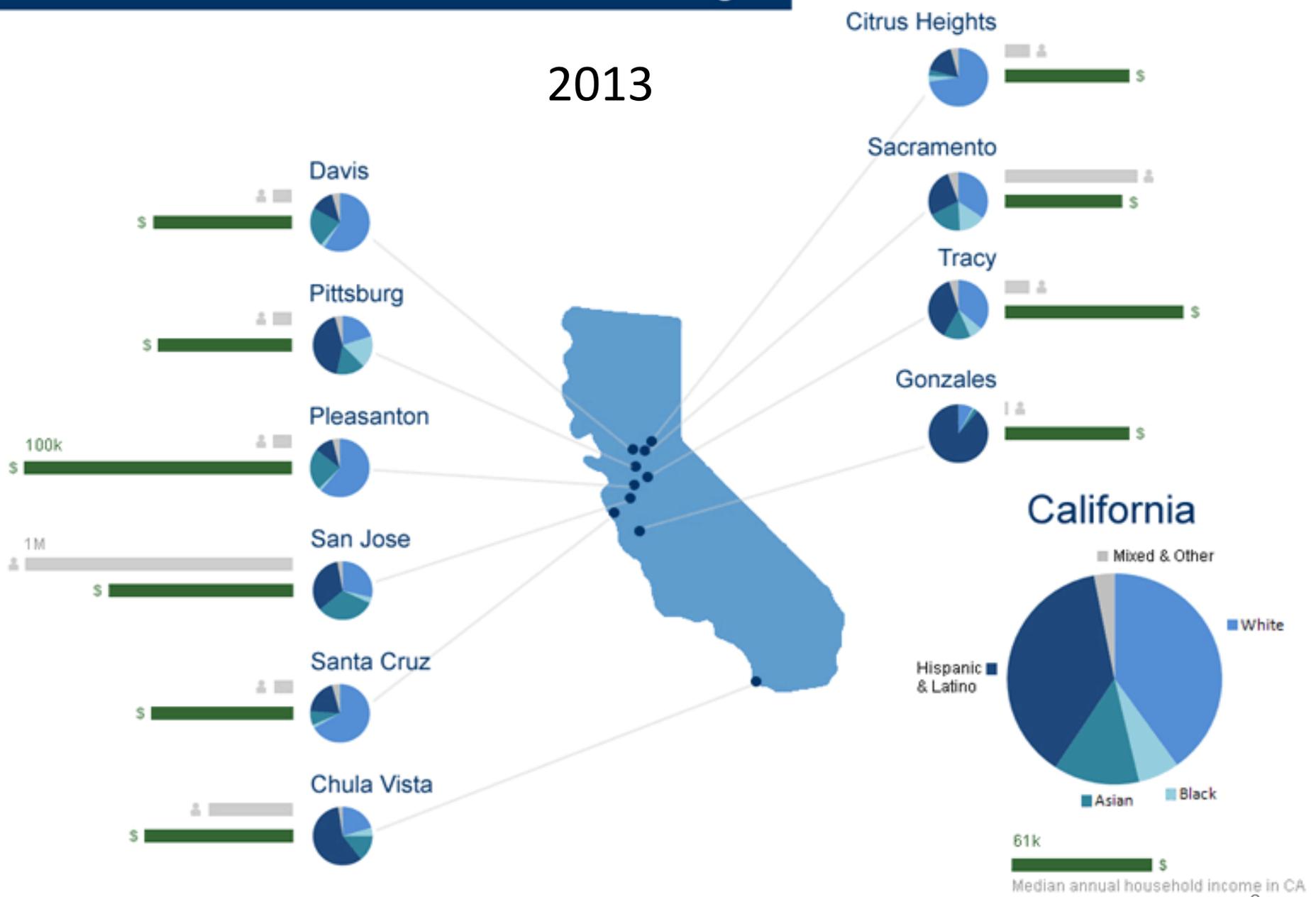
AVG

12

Source: Jones C.M. and Vine, E.,-2015. A review of energy reduction competitions (forthcoming)

# Who's in on the CoolCalifornia Challenge?

2013



Source: U.S. Census quickfacts.census.gov

# 2014 Challenge Participating Cities



# Challenge Points System

1 pound of CO2 below Similar Households = 1 “Green Point”

1 pound of CO2 reduced (adjusting for weather) = 5 “Bonus Points”

“Kudo Points” for taking small actions

## EARN KUDOS

Add Picture  
(50 points)

Take Survey  
(500 points)

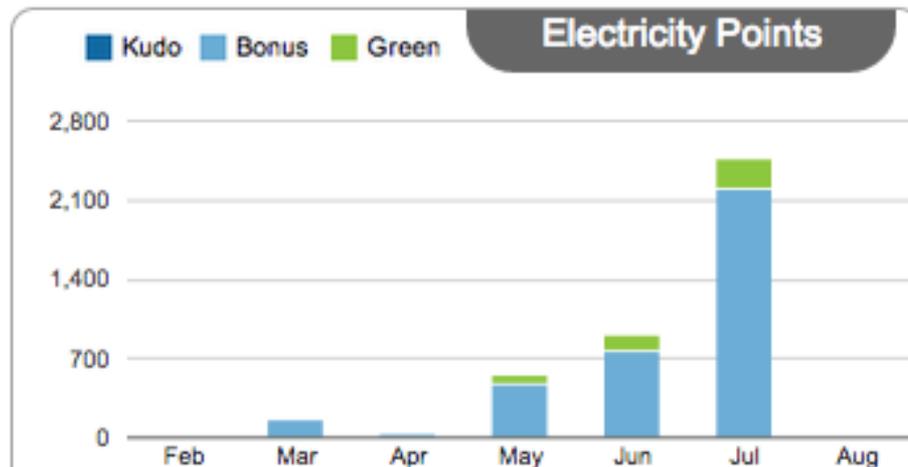
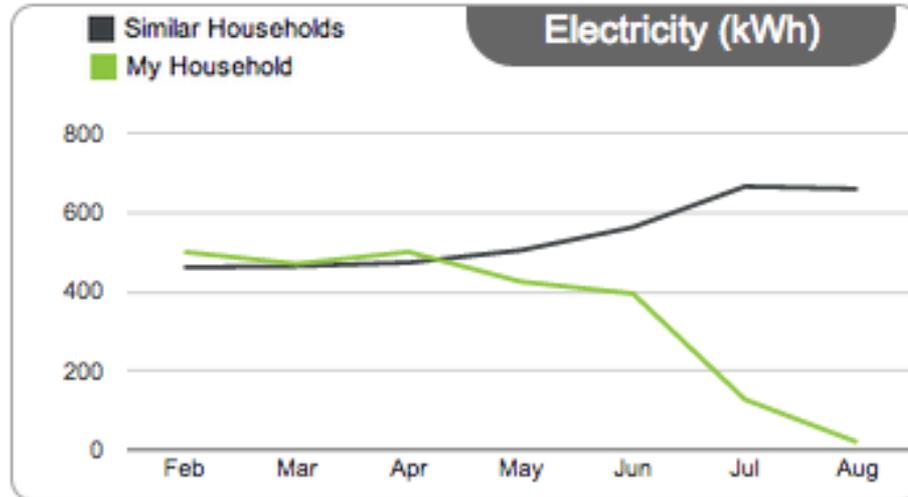
Calculator  
(coming soon)

Invite Friends  
(20 pts. each)

type e-mail address

Submit

## SHARE



1 pound of CO2 below Similar Households in city = 1 Green Point

1 pound of CO2 reduced (adjusting for weather) = 5 Bonus Points

# Entering Data



Edit Picture

**Chris**  
cmjones

### Team Summary



20861 total points  
# 28 out of 79 in Gonzales

### LEVELS

-  **GURU**  
10,000 points
-  **CHAMPION**  
5,000 points
-  **MAGICIAN**  
2,000 points
-  **WARRIOR**  
500 points
-  **MINION**  
100 points

Household Team City

### Add Electricity Data

My household used  kilowatt hours of  
electricity from

Enter bills sequentially starting Jan - Feb

Electricity Natural Gas Driving



# COOLCALIFORNIA CITY CHALLENGE

Sponsored by: **energy upgrade** CALIFORNIA



Hi Chris! No pending requests! Sign out

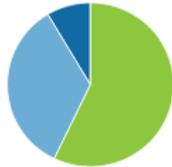
Profile My Data & Reports Teams Requests Directory Settings Challenge Donate



Edit Picture

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cmjones

### Team Summary



20861 total points

# 28 out of 79 in Gonzales

Household Team City

### Add Electricity Data

My household used  kilowatt hours of

electricity from

Enter bills sequentially starting Jan - Feb

Electricity Natural Gas Driving

### 2014 Leaderboard

City	Households	Points
#1 Riverside	842	1654944
#2 Claremont	377	1542557
#3 Rancho Cucamonga	248	778921
#4 Corona	453	710751
#5 Chula Vista	763	524230
#6 Long Beach	319	458805
#7 Mission Viejo	97	262121
#8 Burlingame	60	116565
#9 Arcata	58	110060
#10 Lynwood	24	2608

Cities Teams Households

### LEVELS

- GURU**  
10,000 points
- CHAMPION**  
5,000 points
- MAGICIAN**  
2,000 points
- WARRIOR**  
500 points
- MINION**  
100 points

### EARN KUDOS

Add Picture  
(50 points)

**Take Survey**  
(500 points)

Calculator  
(coming soon)

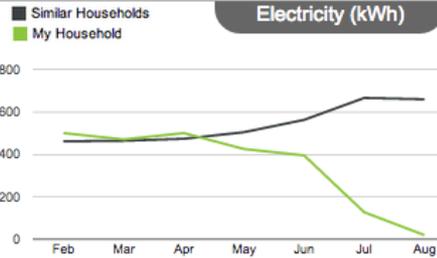
**Invite Friends**  
(20 pts. each)

type e-mail add

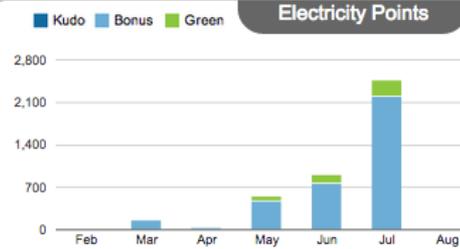
### SHARE



### Electricity (kWh)



### Electricity Points



### News & Activity

**The Challenge is on!** Ten cities competing to be the "Coolest California City."

Did you know **Bonus Points are worth five times the value of Green Points?** This means you and your city can earn the most points by lowering your energy bills and motor vehicle emissions over time. Plus, you save money too!

[See Statewide Press Release Announcing the 2014 CoolCalifornia City Challenge.](#)

Congratulations to Davis for officially being named "Coolest California City" and Chula Vista and Tracy for being named "Cool California Cities!!" [Read More.](#)

Join the CoolCalifornia City Challenge Facebook page! [Read More.](#)



# COOLCALIFORNIA CITY CHALLENGE

Sponsored by: **energy upgrade** CALIFORNIA



Hi Chris! No pending requests! Sign out

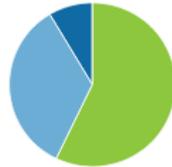
Profile My Data & Reports Teams Requests Directory Settings Challenge Donate



Edit Picture

**Chris**  
cmjones

### Team Summary



20861 total points

# 28 out of 79 in Gonzales

Household Team City

### Add Electricity Data

My household used  kilowatt hours of

electricity from  Start

End

Enter bills sequentially starting Jan - Feb

Electricity Natural Gas Driving

### 2014 Leaderboard

Team	City	Points
#1 Sustainable Claremont	Claremont	444940
#2 UCR ENSC 3 Riverside Green Team	Riverside	401216
#3 Riverside Green Team	Riverside	380496
#4 Corona Secret Service	Corona	144149
#5 Riverside Public Utilities	Riverside	142125
#6 Energy Harvester	Claremont	138037
#7 LB Super Eco - LBH	Long Beach	133314
#8 MV Green Team	Mission Viejo	131929
#9 Gulch Mulchers - HSLB	Long Beach	119676

Cities Teams Households

### LEVELS

- GURU**  
10,000 points
- CHAMPION**  
5,000 points
- MAGICIAN**  
2,000 points
- WARRIOR**  
500 points
- MINION**  
100 points

### EARN KUDOS

Add Picture  
(50 points)

**Take Survey**  
(500 points)

Calculator  
(coming soon)

**Invite Friends**  
(20 pts. each)

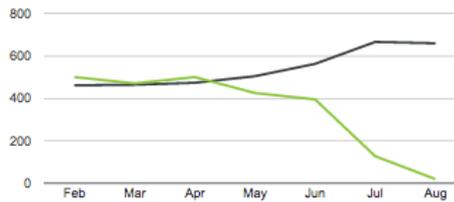
type e-mail add

### SHARE



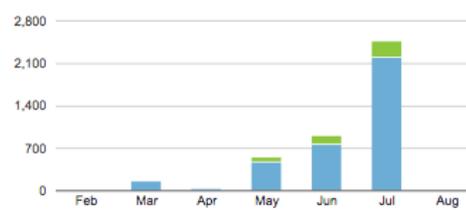
### Electricity (kWh)

■ Similar Households  
■ My Household



### Electricity Points

■ Kudo ■ Bonus ■ Green



### News & Activity

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## City of Riverside

3510339 points **1st** place

Residents, community groups and the city of Riverside are joining together to make our city a better place. Join us!

We have raised **\$17,793** for local sustainability projects.

[Scoreboard >](#)

## Thank you Sponsors!

City of Riverside Supporters  
Sponsors: No sponsors to show.

## News

Find us on Facebook



CoolCalifornia Challenge

[Like](#) You like this.



CoolCalifornia Challenge

October 24, 2014

Great story from the Riverside Press-Enterprise on this year's Challenge winners & participants!



Riverside's simply the coolest

You and 537 others like CoolCalifornia Challenge.



Facebook social plugin

## Top Teams

1. Riverside Green Team 688738 pts
2. UCR ENSC 3 477797 pts
3. Riverside Public Utilities 248054 pts
4. FCC Riverside 90117 pts
5. La Sierra A.P.E.S. 65056 pts
6. fo'ty twelve 18548 pts
7. UCR Office of Sustainability 15906 pts
8. UC Riverside 7819 pts
9. Riverside University Neighbors 7814 pts
10. Team Oaktree 2914 pts

[Riverside Teams >](#)

## Top Households



**Qusai Bhaijeweala**  
86,172 points



**JOHN COOK**  
64,102 points



**Maher Blaibel**  
62,337 points



**Rusty Bailey**  
58,060 points





# COOLCALIFORNIA CHALLENGE



Hi Betsy! No pending requests! Sign out

- Profile
- My Data & Reports
- Teams
- Requests
- Directory
- Settings
- Challenge
- Donate

**Betsy**  
betsyblue



[edit picture](#)

**3431** total points

**2 / 12** households in Gonzales

**96** pounds of carbon dioxide saved

**13734** Green Points   **288** Bonus Points  
**-10591** Kudo Points

## Shortcuts

-  home
-  help
-  my city

Electricity   Natural Gas   Driving

**111 kWh** for December-January bill.   [view all reports](#)

**91 Green Points** for being more efficient than similar households.

**0 Bonus Points** for improving your own efficiency level.

[Data & Reports >](#)

## Research

### Official Contributor

Thank you for sharing your unique approach to sustainability through UC Berkeley's CoolCalifornia Challenge research survey.

Teams [hide](#)

## Be a Team Player

Support your friends, neighbors or co-workers as part of an EcoTeam.



## News

Find us on Facebook



**CoolCalifornia Challenge**

Like   You like this.



# Way to go Mission Viejo

## CoolCalifornia participants!

We are picking up steam in the CoolCalifornia City Challenge and have moved into fifth place with 19 participants and close to 17,000 points. All of you know that Mission Viejo is number one, so let's prove it to the rest of the state!

### **Here are a few tips that will help Mission Viejo move up in the ranks:**

1. Ask a friend to join the challenge. If each of us gets just one friend to join the challenge by this time next week, we will double the number of participants we have in the challenge. If you use social media post information about the challenge on your friend's timeline! This really works!
2. Take the survey. It's super easy and worth 500 points!
3. Enter electricity and natural gas usage and start tracking your miles driven. This is where the real points are, so let's get going!
4. Finally share your green action and earn kudo points!

**Great job Mission Viejo and keep up the good work!**

~The Mission Viejo Challenge Team



## Weekly Progress Update

Thank you for helping make Claremont a cooler place, Eli

You've earned 2,239 points and the status of Magician in the CoolCalifornia City Challenge. Use your magic to find even more ways to save energy and move up to Champion status at 5,000 points. Remember to log your energy bills and odometer readings every month to help Claremont become a Cool California City!



### Magician

**MY HOUSEHOLD**  
2,239 points  
125th of 381 in city  
267 lbs. CO2 saved

[Sign In / Sign Up](#)



### Not in Team

**MY TEAM**  
0 points  
0 of 4 teams in city  
0 of 58 total teams  
0 lbs. CO2 Saved

[Teams Page](#)



### Claremont

**MY CITY**  
1,598,046 points  
2nd of 10 cities  
200,400 lbs. CO2 saved

[Leaderboard](#)

The CoolCalifornia City Challenge is a competition engaging 10 California cities to reduce residential energy consumption, lower household carbon footprints, and help build more vibrant and sustainable communities. The Challenge is run by [CoolCalifornia.org](http://CoolCalifornia.org) with major sponsorship from the Energy Upgrade California initiative.



# Raffle

[back to top](#)

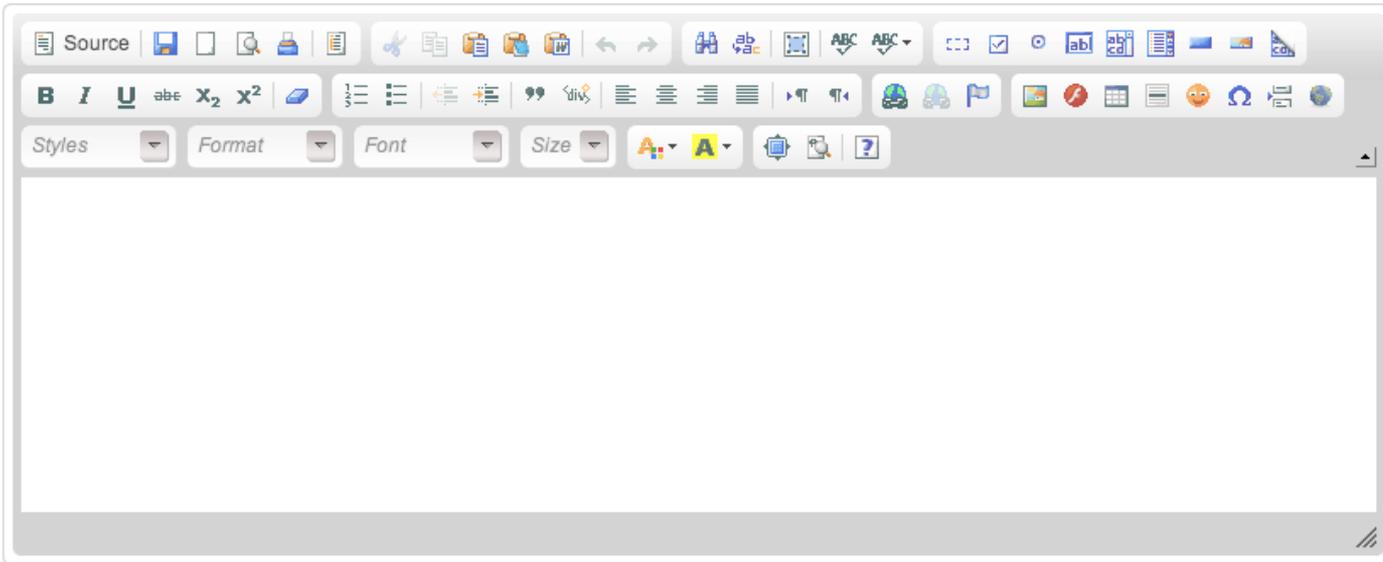
## [View Raffle Messages](#)

Refresh the page to generate a new winner. The form below will allow you to send an email to the winner. Please be sure to include details about their raffle prize as well as any additional information the winner will need to claim their prize.

Winner: **Steven**

Subject:

Body:



A rich text editor interface with a toolbar and a large text area. The toolbar includes icons for source code, undo, redo, bold, italic, underline, text color, background color, bulleted list, numbered list, link, unlink, insert link, insert image, insert video, insert audio, insert table, insert code, and insert quote. Below the toolbar are dropdown menus for Styles, Format, Font, and Size, followed by color pickers for text and background colors, and icons for link, unlink, and help. The text area is currently empty.

[Send Email](#)

# Invites

[back to top](#)

There are no pending outgoing requests.

# Requests



### CoolCalifornia Challenge

Posted by Chris Jones [?]  
September 16 · Edited ·

Rode my bike from home to City Hall and will ride back this evening  
~ Rusty B., Riverside resident

Like · Comment · Share



## CoolCalifornia Challenge

Posted by Chris Jones [?]

September 16 · Edited ·

Participated in the Wood Streets Green Team's public transportation outing to our local farmer's market and Tio's Tacos - fun!

~ Justin S., Riverside resident

Tag Photo

Add Location

Edit

Like · Comment · Share



Write a comment...





### CoolCalifornia Challenge

Posted by Chris Jones [?]  
September 16 · 🌐

On vacation last month we opted not to rent a car and took public transportation.  
~ Joe M., Long Beach resident

- 📍 Tag Photo
- 📍 Add Location
- ✎ Edit

Like · Comment · Share



Write a comment... 📷



## CoolCalifornia Challenge

Posted by Chris Jones [?]

September 16 · 🌐

Removed grass front yard and converted to a desert drip system.

~ Ted B., Corona resident

 Tag Photo

 Add Location

 Edit

Like · Comment · Share



Write a comment...





CoolCalifornia Challenge...  
in Here's what Challenge...

Tag Photo

Options

Boost Post

Share

Like



## CoolCalifornia Challenge

Posted by Chris Jones [?]

September 16 · 🌐

Nearly all lights have been converted to LED or CFL  
~ Eric P., Corona resident

📍 Tag Photo

📍 Add Location

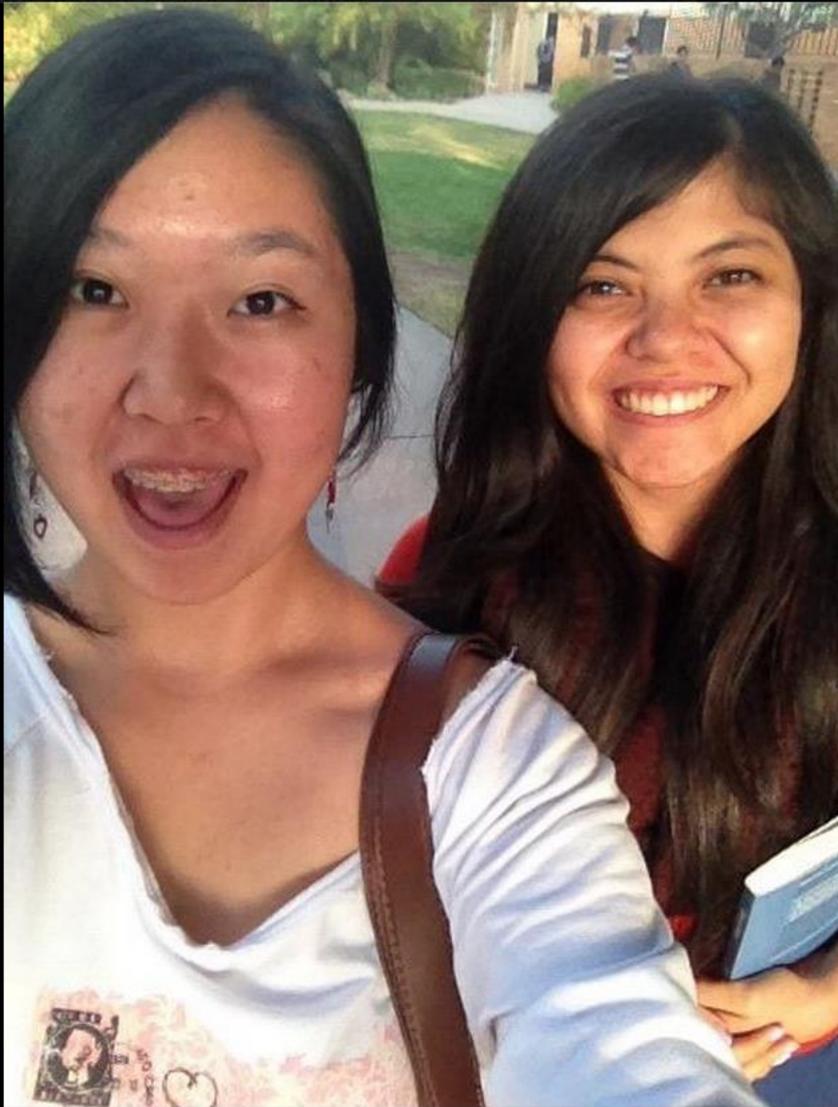
✎ Edit

Like · Comment · Share



Write a comment...





## CoolCalifornia Challenge

Posted by Chris Jones [?]

September 16 · 🌐

[Add a description](#)

 [Tag Photo](#)

 [Add Location](#)

 [Edit](#)

[Like](#) · [Comment](#) · [Share](#)



Write a comment...



# Final Cities Scoreboard 2013

## Finalist Cities Rankings

Place	City Name	Points	Number of Members
1	<u>Davis</u>	1716247	439
2	<u>Chula Vista</u>	1562752	686
3	<u>Tracy</u>	956909	381
4	<u>Sacramento</u>	339049	301

## Non-Finalist Cities

City Name	Points	Number of Members
<u>San Jose *</u>	831644	414
<u>Citrus Heights</u>	135846	133
<u>Pleasanton</u>	134806	168
<u>Pittsburg</u>	122889	102

San Jose's [Green Energy Match](#) program uses [Wattzon](#) to automatically track energy usage.



# Davis is the “Coolest California City” 2013



# Final Cities Scoreboard 2014

## Live 2014 Cities Scoreboard\*

City Name	Points	Number of Members
<u>Riverside</u>	3510339	1170
<u>Claremont</u>	3284729	504
<u>Rancho Cucamonga</u>	1079311	260
<u>Long Beach</u>	1012081	387
<u>Corona</u>	856871	476
<u>Chula Vista</u>	685879	768
<u>Burlingame</u>	373060	66
<u>Mission Viejo</u>	300251	97
<u>Arcata</u>	120495	58
<u>Lynwood</u>	11363	24

\*Note: This scoreboard will continue to register points; however, only valid points earned before midnight, Sept 30 will count toward the final 2014 rankings. Final rankings to be announced on October 23, 2014.

# Riverside is the “Coolest California City” 2014



ARB Board Member Barbara Riordan, Riverside Mayor Rusty Bailey, ARB Board Member Judy Mitchell, & ARB Chairman Mary D. Nichols

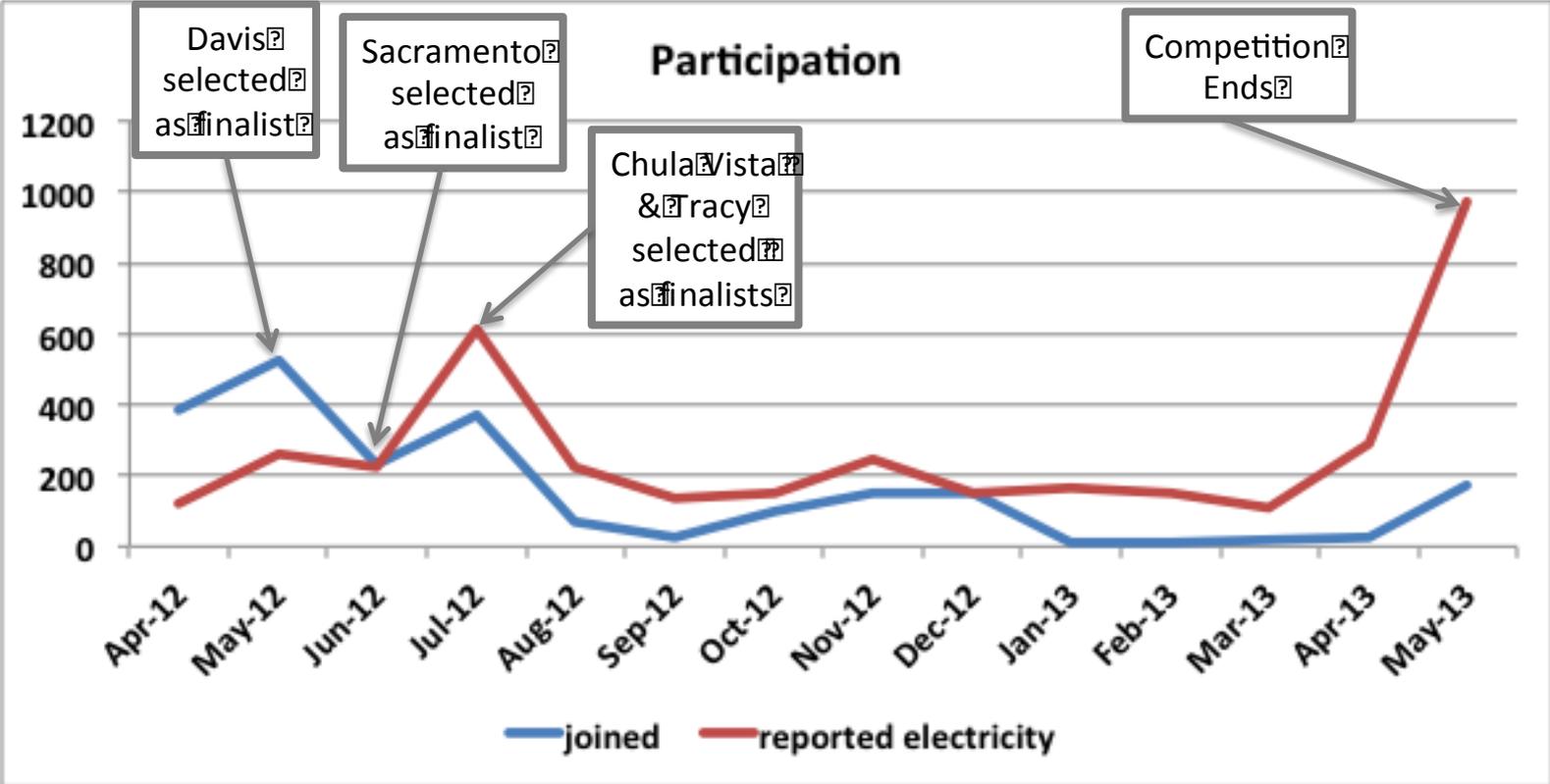
## Round II Seed Funding & Prize Money Allocation\*

Rank	City	Seed Funding	Prize Money	Total
1	Riverside	\$ 17,793	\$ 15,157	\$ 32,950
2	Claremont	\$ 8,325	\$ 14,472	\$ 22,797
3	Rancho Cucamonga	\$ 4,125	\$ 5,307	\$ 9,432
4	Long Beach	\$ 6,784	\$ 4,650	\$ 11,434
5	Corona	\$ 7,604	\$ 3,676	\$ 11,281
6	Chula Vista	\$ 1,118	\$ 3,124	\$ 4,242
7	Burlingame	\$ 1,218	\$ 1,633	\$ 2,851
8	Mission Viejo	\$ 1,417	\$ 1,376	\$ 2,793
9	Arcata	\$ 1,292	\$ 552	\$ 1,844
10	Lynwood	\$ 323	\$ 52	\$ 375
	<b>TOTAL</b>	\$ 50,000	\$ 50,000	\$ 100,000

\*Funding provided by 

Participants saved over 800,000 lbs of CO<sub>2</sub>, equivalent to taking 140 California homes off the electrical grid for a year.

Program participation spiked during moments of intense competition



## Primary Motivations to Participate by City

Motivation	Tracy	Other Cities	Chula Vista	Davis	All
Improving where you live	3.4	3.4	3.4	3.4	3.4
Making an environmental statement	3.3	3.2	3.0	3.3	3.2
Supporting organizations you care about	3.1	3.3	2.9	3.3	3.2
Learning how to save money	3.5	3.2	3.4	2.9	3.2
Learning about new technologies	3.2	3.0	3.1	3.0	3.1
Being part of something important	2.9	3.0	2.9	3.1	3.0
Receiving discounts for green products	3.1	3.0	3.2	2.6	2.9
Having fun	3.0	2.7	3.0	2.6	2.8
Living in a "Cool California City"	2.9	2.7	2.8	2.7	2.8
Getting to know your neighbors	2.7	2.6	2.5	2.6	2.6
Making a political statement	2.3	2.4	2.0	2.8	2.4
Meeting like-minded people	2.3	2.6	2.2	2.4	2.4
Receiving recognition for your city	2.4	2.2	2.5	2.4	2.4
Winning prizes	2.1	2.1	2.4	1.9	2.1
	32	70	88	128	318

## Primary Motivations to Participate by Demographics

**KEY**

Very important	4.0
Important	3.0
Somewhat important	2.0
Not very important	1.0
Not important at all	-

The following is a list of reasons why people are interested in joining the CoolCalifornia Challenge. How important is the following to you?

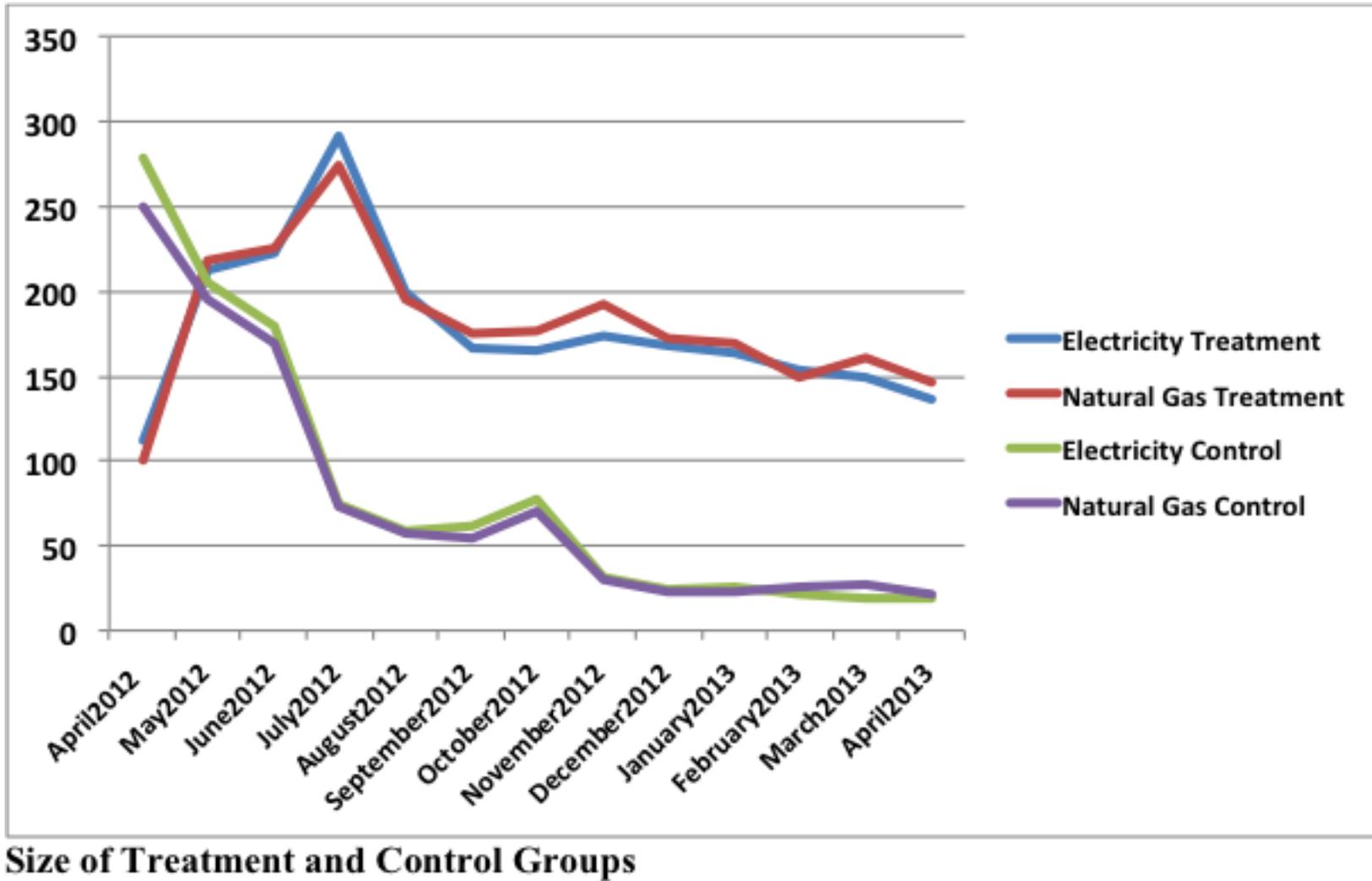
Motivation	All participants	Under 35 years old	Over 35 years old	Women	Men	Under \$70k household income	Over \$70k household income
Improving where you live	3.4	3.7	3.4	3.5	3.3	3.4	3.5
Making an environmental statement	3.2	3.0	3.3	3.3	3.1	3.2	3.2
Supporting organizations you care about	3.2	3.3	3.2	3.3	3.0	3.2	3.2
Learning how to save money	3.2	3.4	3.1	3.3	3.1	3.3	3.1
Learning about new technologies	3.1	3.0	3.1	3.1	3.1	3.1	3.0
Being part of something important	3.0	3.2	3.0	3.1	2.8	3.0	3.0
Receiving discounts for green products	2.9	3.1	2.8	2.9	2.8	2.9	2.7
Having fun	2.8	3.1	2.7	2.8	2.8	3.0	2.7
Living in a "Cool California City"	2.8	2.7	2.7	2.9	2.6	2.9	2.7
Getting to know your neighbors	2.6	2.6	2.6	2.7	2.3	2.7	2.6
Making a political statement	2.4	2.4	2.4	2.5	2.3	2.4	2.5
Meeting like-minded people	2.4	2.5	2.3	2.5	2.2	2.5	2.4
Receiving recognition for your city	2.4	2.6	2.3	2.5	2.1	2.5	2.4
Winning prizes	2.1	2.5	2.0	2.1	2.0	2.3	1.9
N	318	47	259	195	106	110	137

## Primary Motivations to Participate by Demographics

Motivation	Climate change skeptics	Republicans & Conservatives	Democrats & Liberals	Less than 4-yr degree	Hold advanced degree	Earned no Points	Earned over 5k Points
Improving where you live	3.2	3.4	3.5	3.4	3.4	3.5	3.4
Making an environmental statement	2.6	2.6	3.4	3.0	3.3	3.2	3.2
Supporting organizations you care about	3.0	3.1	3.3	3.0	3.3	3.1	3.1
Learning how to save money	3.3	3.4	3.1	3.4	2.9	3.3	3.0
Learning about new technologies	3.0	3.0	3.1	3.0	3.1	3.1	3.0
Being part of something important	2.6	2.8	3.1	2.9	3.0	3.0	3.0
Receiving discounts for green products	2.7	2.9	2.9	3.0	2.6	3.1	2.6
Having fun	2.7	3.0	2.7	2.9	2.7	2.9	2.6
Living in a "Cool California City"	2.5	2.6	2.8	2.8	2.7	2.8	2.6
Getting to know your neighbors	2.4	2.8	2.6	2.6	2.6	2.6	2.5
Making a political statement	1.5	1.6	2.7	1.9	2.8	2.3	2.5
Meeting like-minded people	1.9	2.1	2.5	2.3	2.4	2.4	2.3
Receiving recognition for your city	2.1	2.2	2.4	2.4	2.3	2.4	2.4
Winning prizes	2.0	2.2	2.0	2.4	1.9	2.3	2.0
N	42	41	230	69	108	139	111

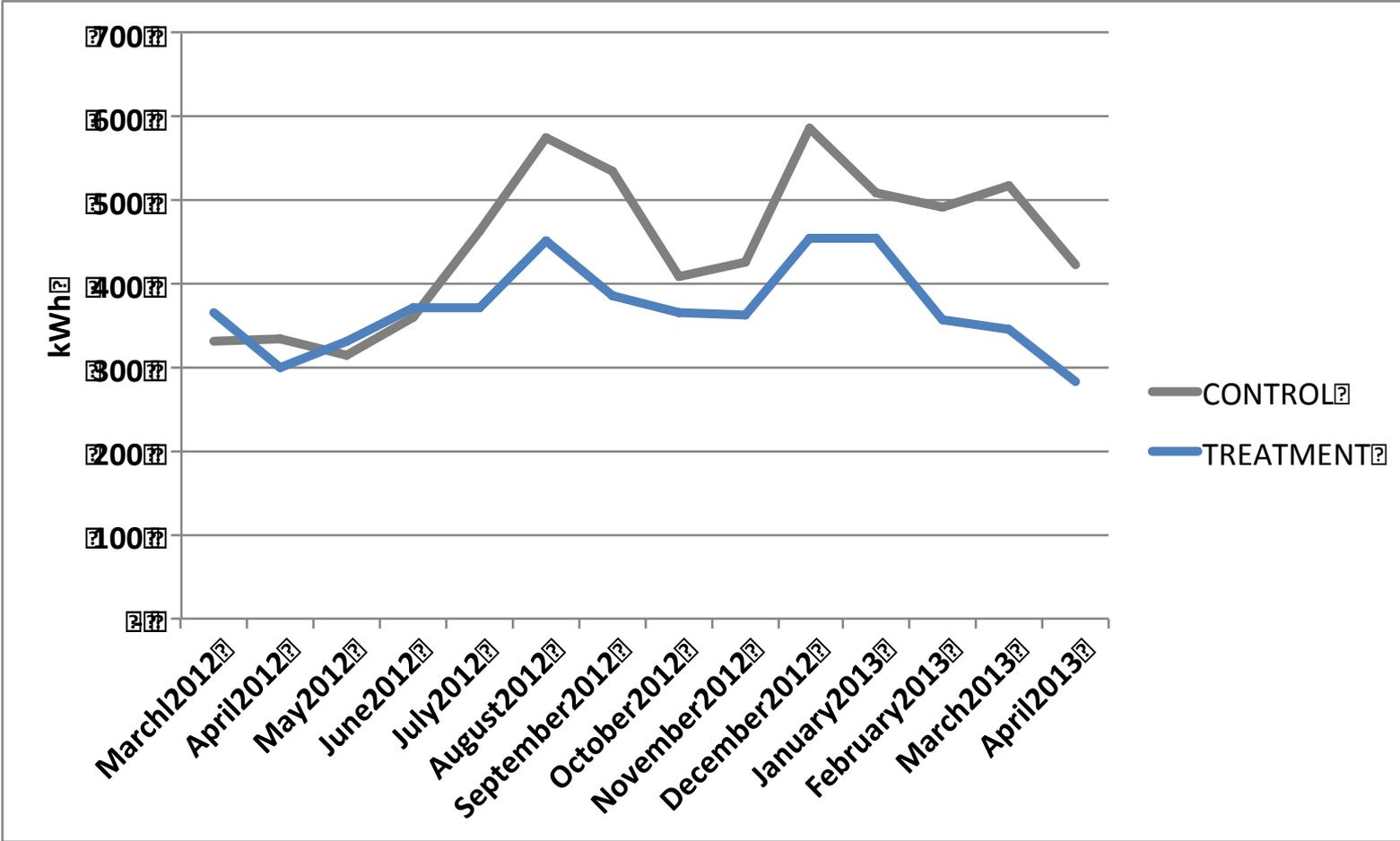
## Motivations for Program Participation by Demographic Characteristics

## Variability in Adoption (VIA) method



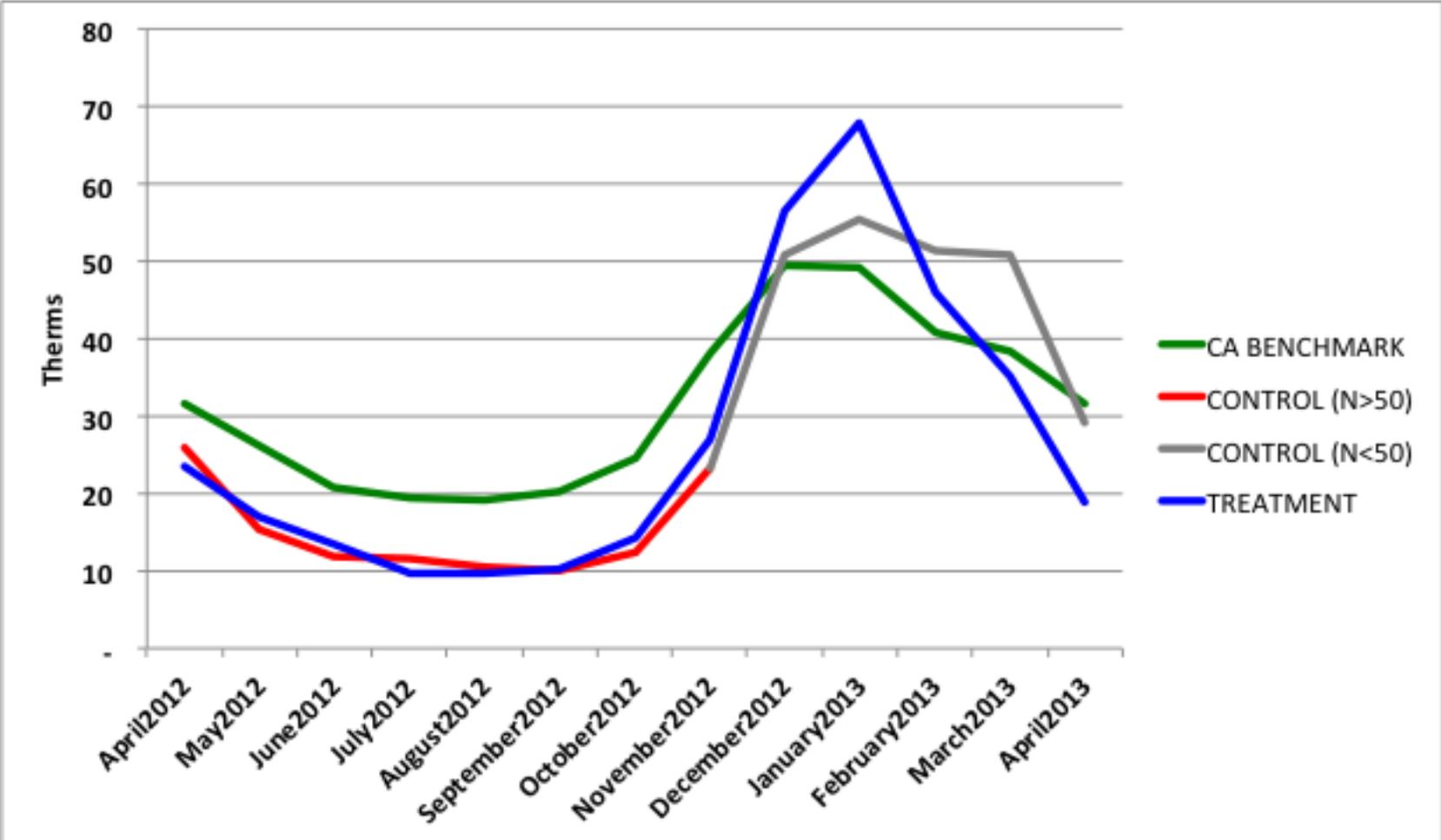
# Electricity consumption of treatment vs. control group

Total savings = 14%



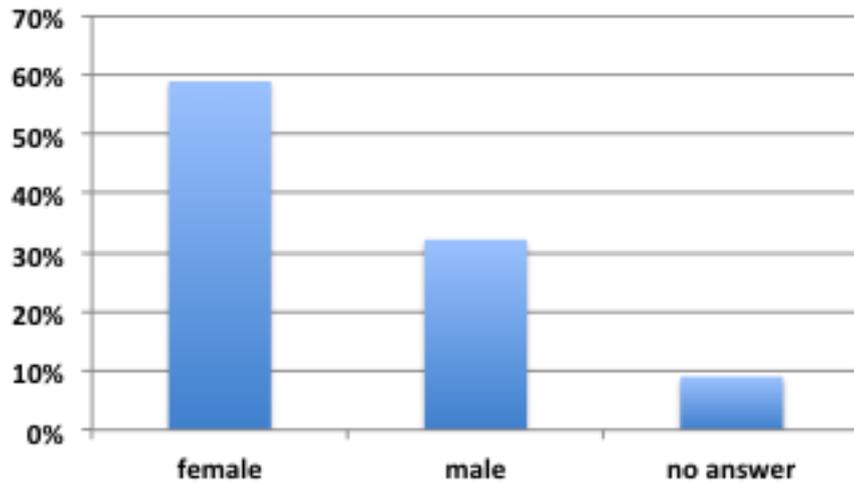
# Natural gas consumption of treatment vs. control group

Total savings = 0%

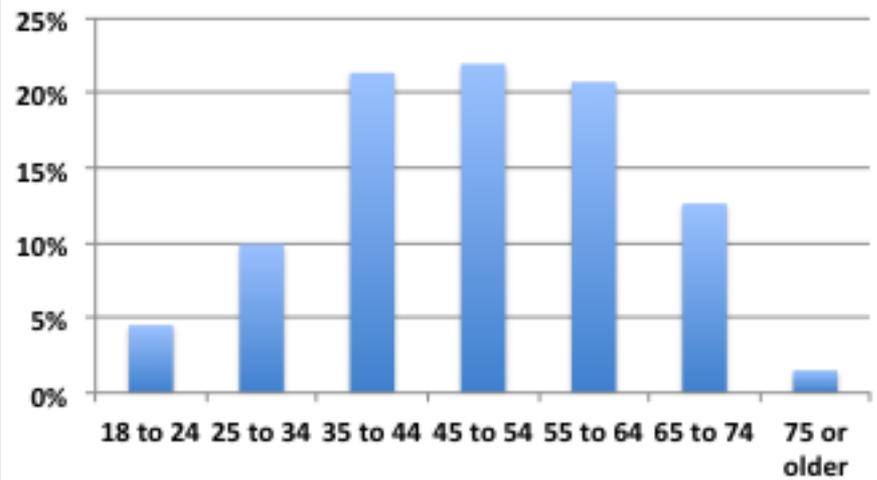


Natural Gas Consumption of Treatment and Control Group, and California Benchmark

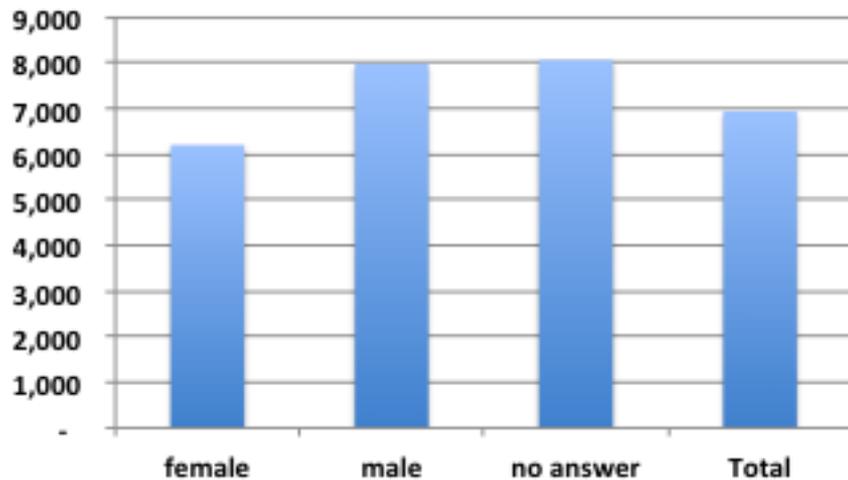
### Participants by Gender



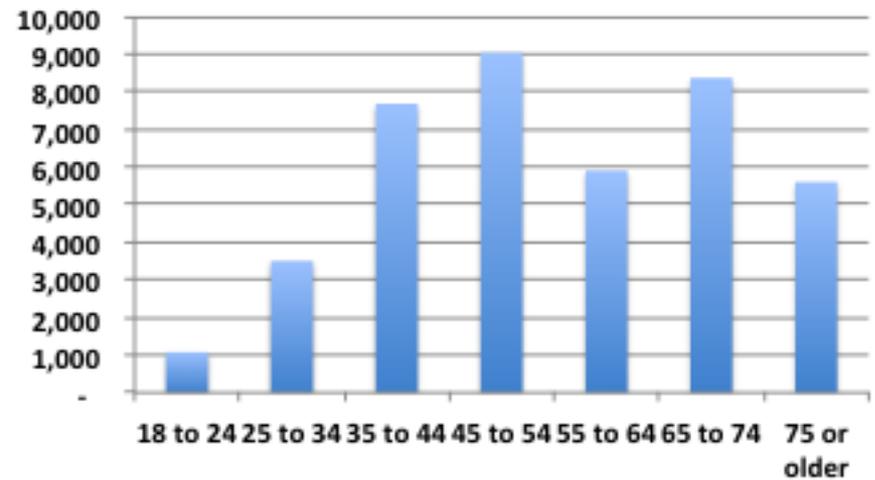
### Participants by Age



### Average Points by Gender

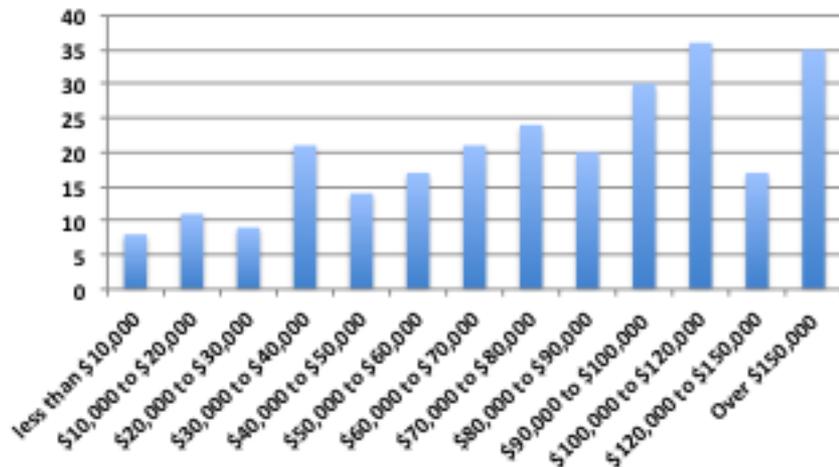


### Average Points by Age

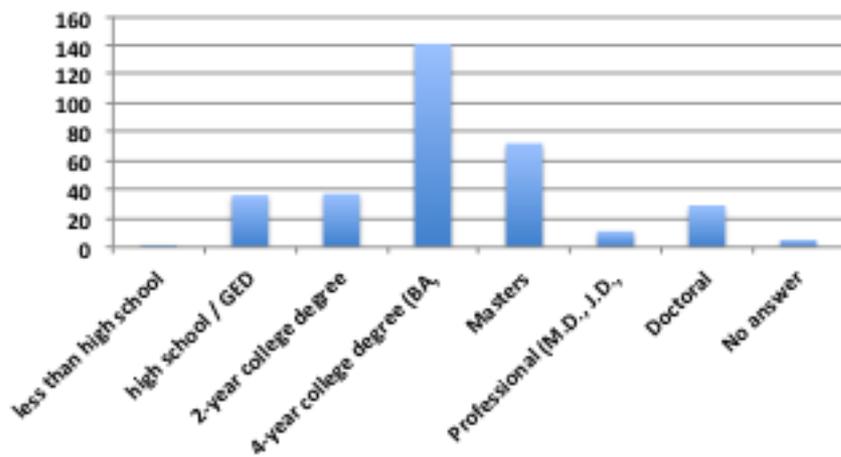


## Points Earned by Sex and Age of Respondent

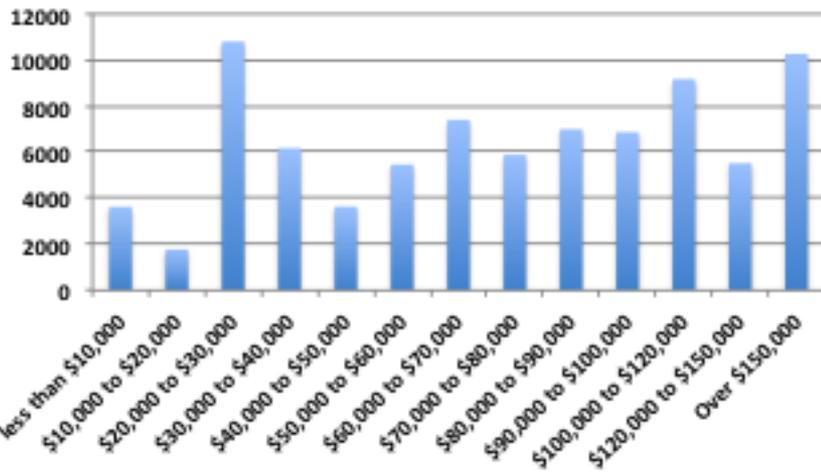
**Participants by Annual Household Income**



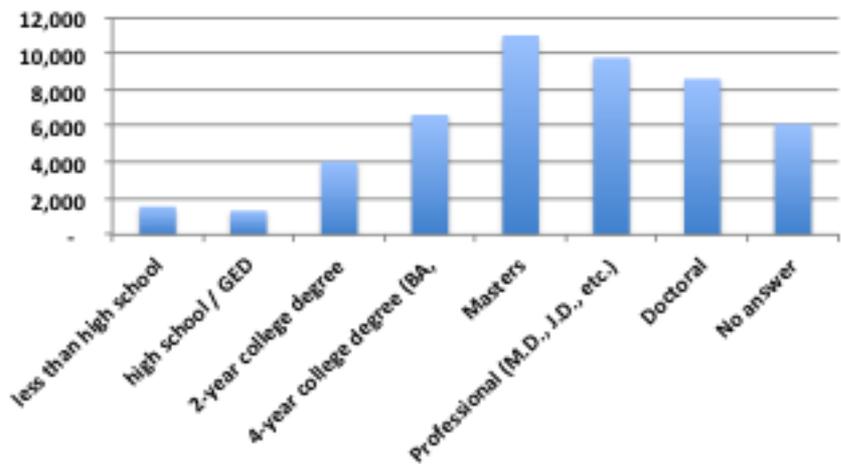
**Participants by Education**



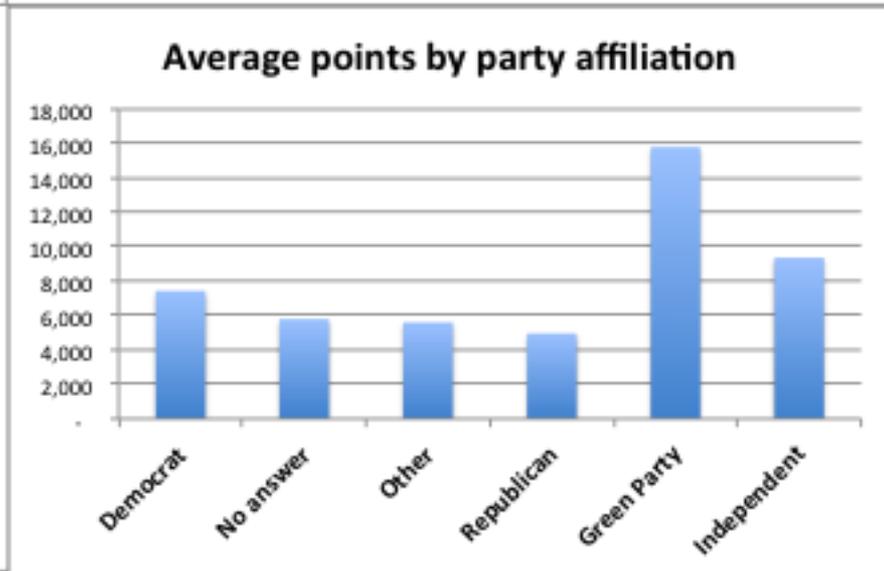
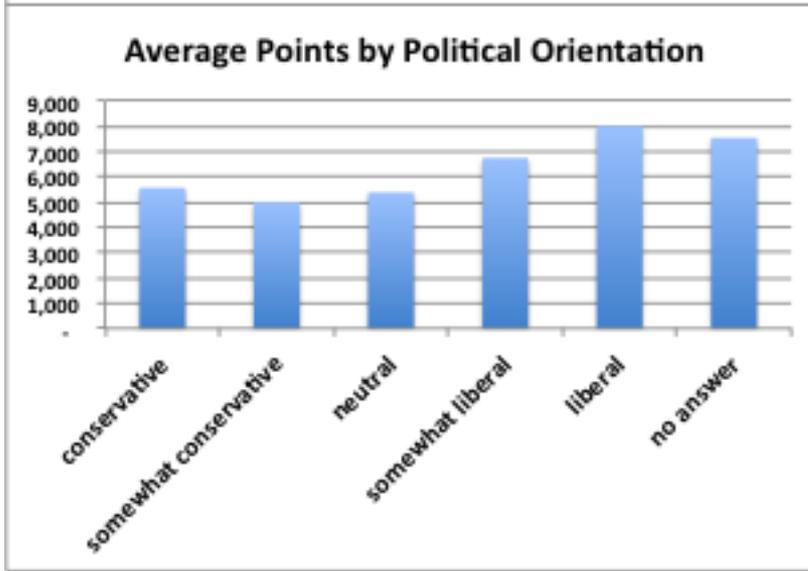
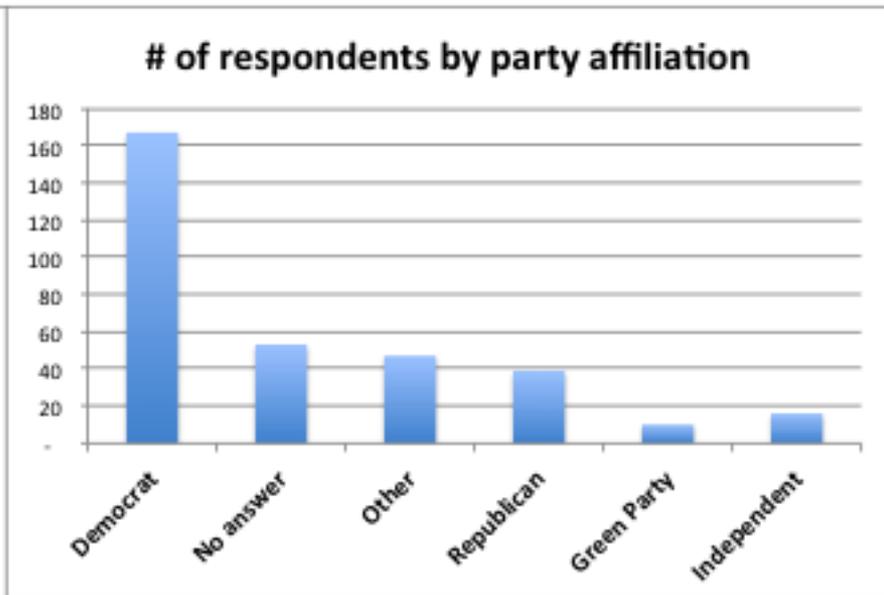
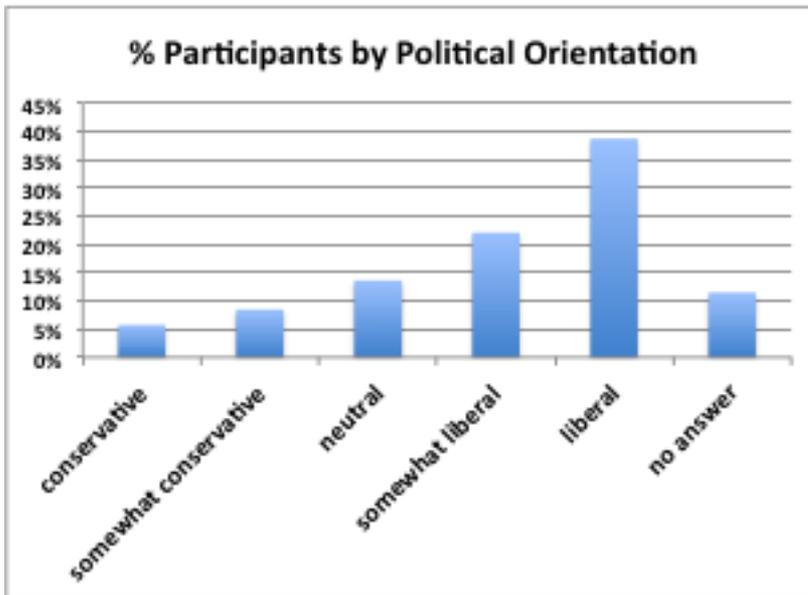
**Average Points by Annual Household Income**



**Average Points by Education**



**Participation and Average Points by Income and Education**



Participation and Average Points by Political Orientation and Political Party

# Summary of Research Findings

1. Electricity savings were large (14%); but no natural gas savings
2. Motor vehicle fuel savings were likely large (good anecdotal evidence)
3. Competitions appeal to a diverse cities and diverse participants within cities
4. Current program appeals more to women and older residents
5. Political identity affects participation (sign ups) but not performance
6. Medium-sized cities perform better.
7. More highly educated cities tend to perform better
8. Participation spikes during moments of intense competition
9. Local capacity is critical – need strong community governance structure
10. Equity, competing values and competing priorities are critical barriers

# Recommendations

1. Important to build local capacity – perhaps over multiple years
2. Teams should be central focus – especially well-developed schools program to foster intra-community competition
3. Focus messaging on making community a better place – appeals to liberal and conservative values
4. Need to strike balance between “plug and play” and local creativity
5. Need to increase motivation for all cities (current funding model is helpful)
6. Software critically important as enabling technology
7. Do a few strategies well
8. Important build internal capacity over time - experiment, learn, adapt
9. Find ways to encourage more active participation in low income communities and communities with fewer resources and capacity



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