

Who is Participating, and Who is Not?

An analysis of demographic data from California residential energy-efficiency programs, 2010-2012

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Research Question

How do the **demographic characteristics** of participants compare to the general population?

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Characteristics of the . . .

Household	Home
Income	Type
Education	Size
Ethnicity/race	Age
Primary language	Recent remodel
Own v. rent	
Occupant age & #	
Children in home	
Years lived in home	

Methods

Approach	Research synthesis (meta-study)
Sources	Published research/evaluation reports
Sample frame	CALMAC filtered search – 54 reports
Sample size	18 reports 40 programs, 5 utilities, 2010-2012 SCE, PG&E, SDG&E, SCG, LADWP
Comparison pop.	U.S. Census ACS/California, 2012 CA Res. Appliance Sat. Study (RASS), 2009 Evaluation gen pop/non-part surveys

Findings: Focus on Four Program Types

	Whole-house Retrofit	Refrigerator Recycling	Plug Load/ Appliances	Online/ Paper Audits
Authorized Budget, 2010-2012	\$100m	\$68m	\$141m	\$32m

* These four programs represent **43%** (\$341m) of authorized residential program budgets, 2010-2012

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- * Excluded – out of scope: Low-income

Findings: Participants vs. Comparison Population

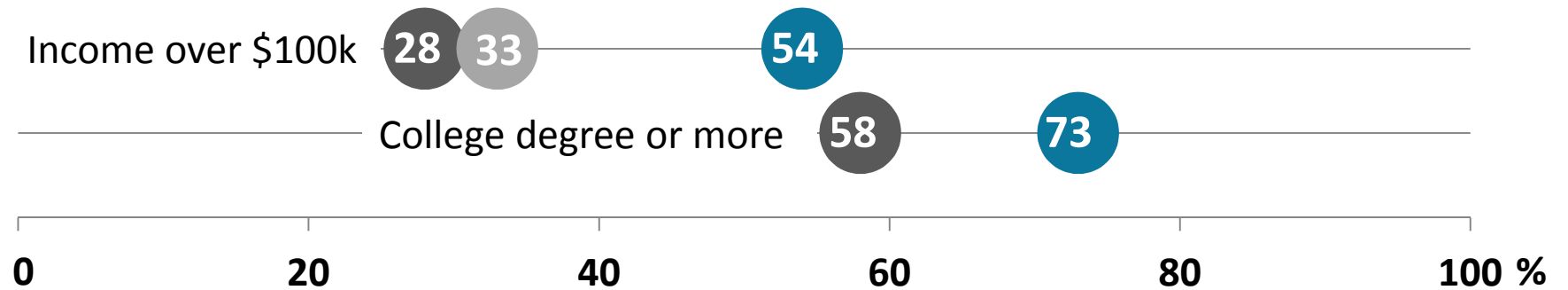
	Whole-house Retrofit	Fridge Recycling	Plug Load/ Appliances	Online/ Paper Audits
Income > \$100,000	↑	=	↑	↑/=
College degree	↑	↑/=	↑	↑/=
White	↑	?		↑
English speakers				
Homeowners	n/a	↑	↑	↑
Children in home	↑	=		
Yrs in home				

Whole-house Retrofit

Whole-house Retrofit: SCE, PG&E, SDG&E

More **participants** had high incomes, college degrees

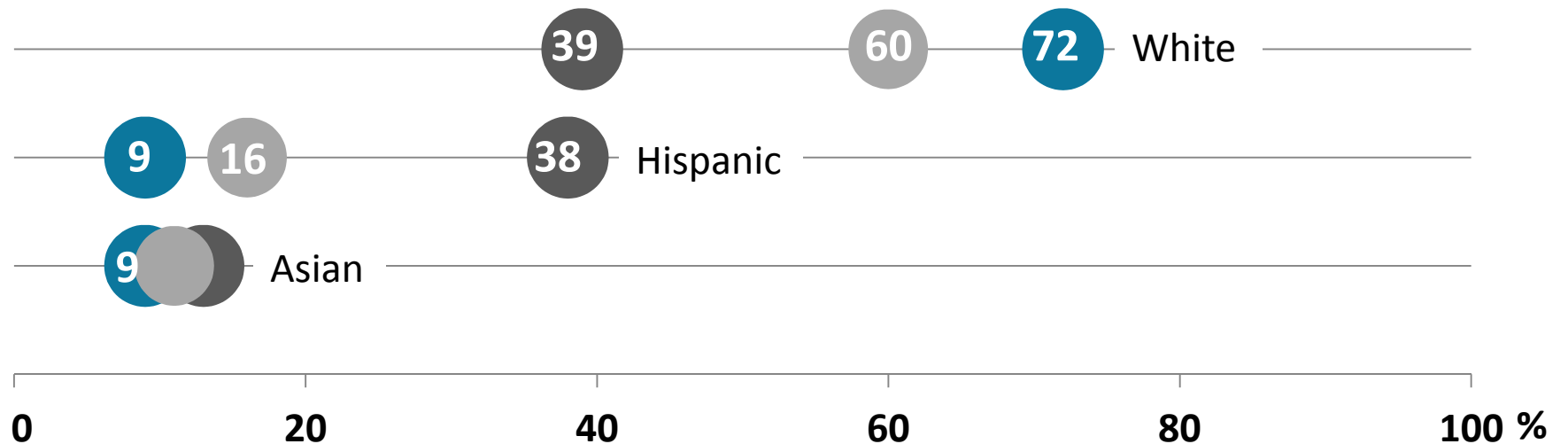
Compared to California ACS census data and RASS single-family homeowners



Whole-house Retrofit: SCE, PG&E

Many more **participants** were white, fewer were Hispanic, and about the same percent were Asian

Compared to California ACS census data and RASS single-family homeowners



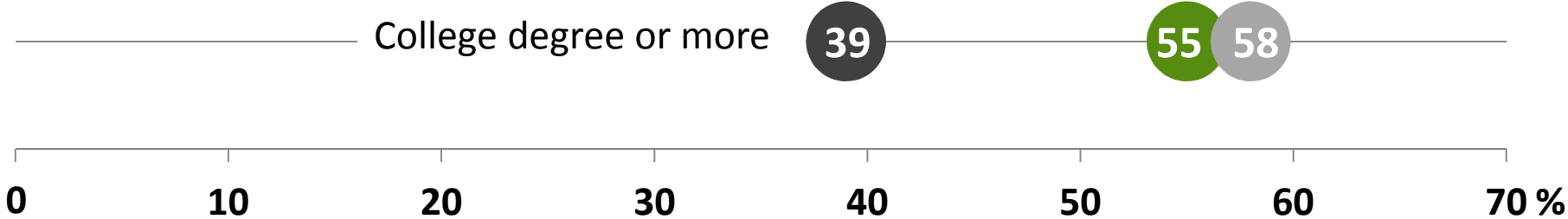
Refrigerator Recycling

Refrigerator Recycling: SCE, PG&E, SDG&E

Participants' educational attainment was similar to RASS single-family homeowners

And higher than California ACS census data

Combine with income slide



Refrigerator Recycling: SCE, PG&E, SDG&E

Process and impact evaluations found very different proportions of white participants

Compared California ACS census data and RASS single-family homeowners

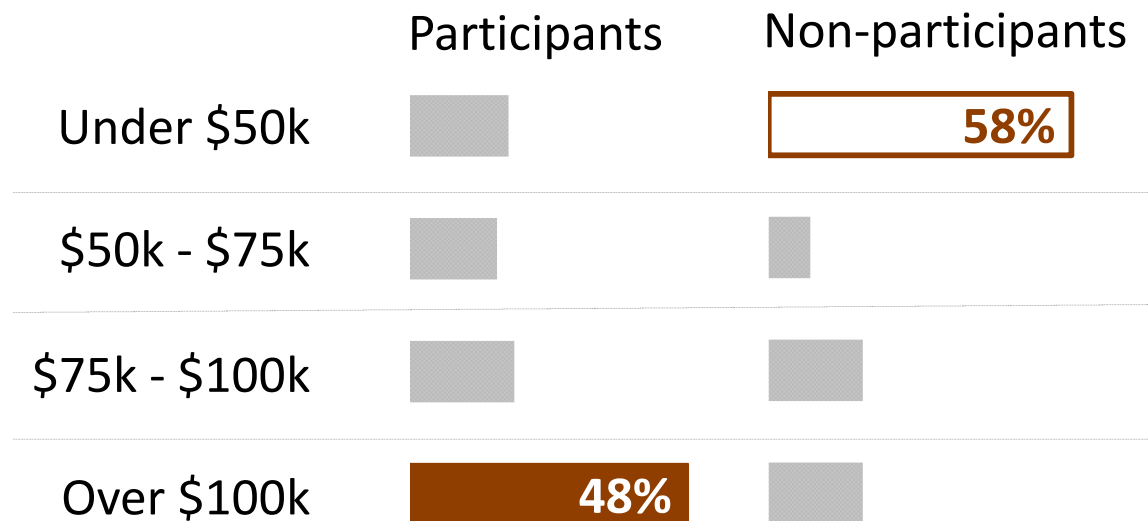


Plug-load and Appliances

Appliances: SCE, PG&E, LADWP

Nearly half of participants had incomes over \$100k

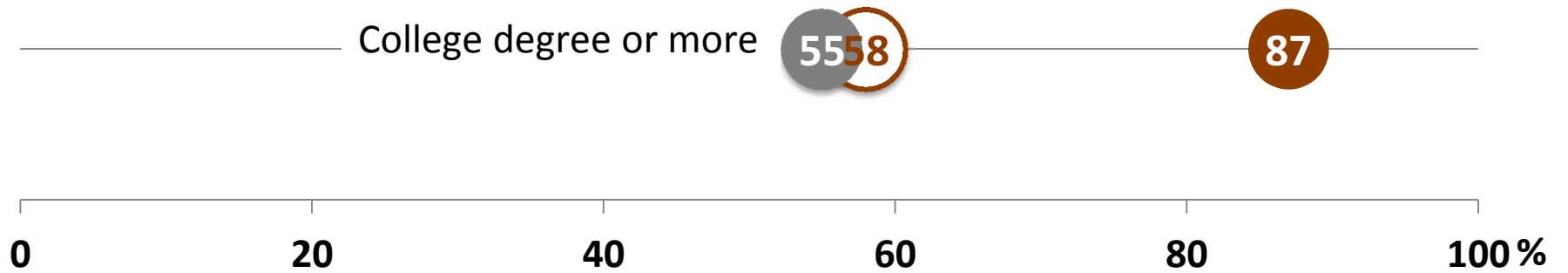
A majority of non-participants had incomes under \$50k



Appliances: SCE, PG&E

Most participants had a college degree

Non-participants were similar to RASS single-family homeowners

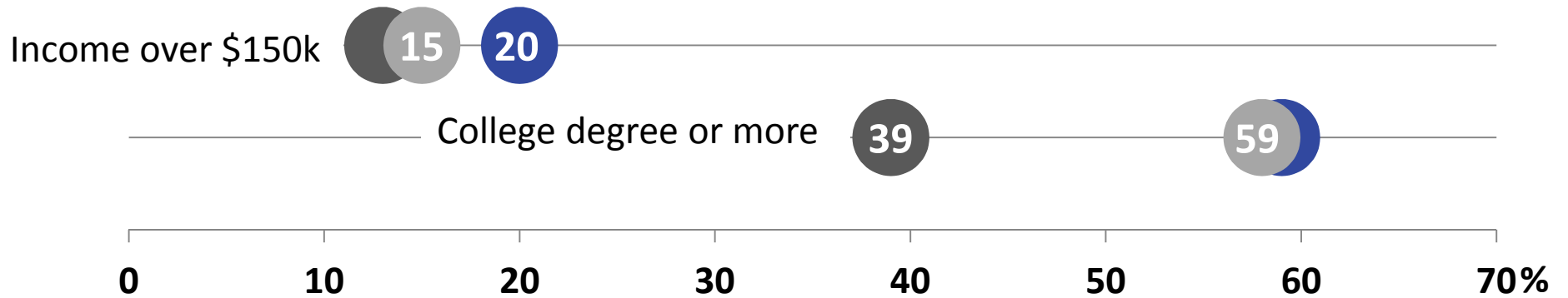


Online/Paper Home Energy Audits

Online/Paper Audits: SCE

Slightly more participants had high incomes

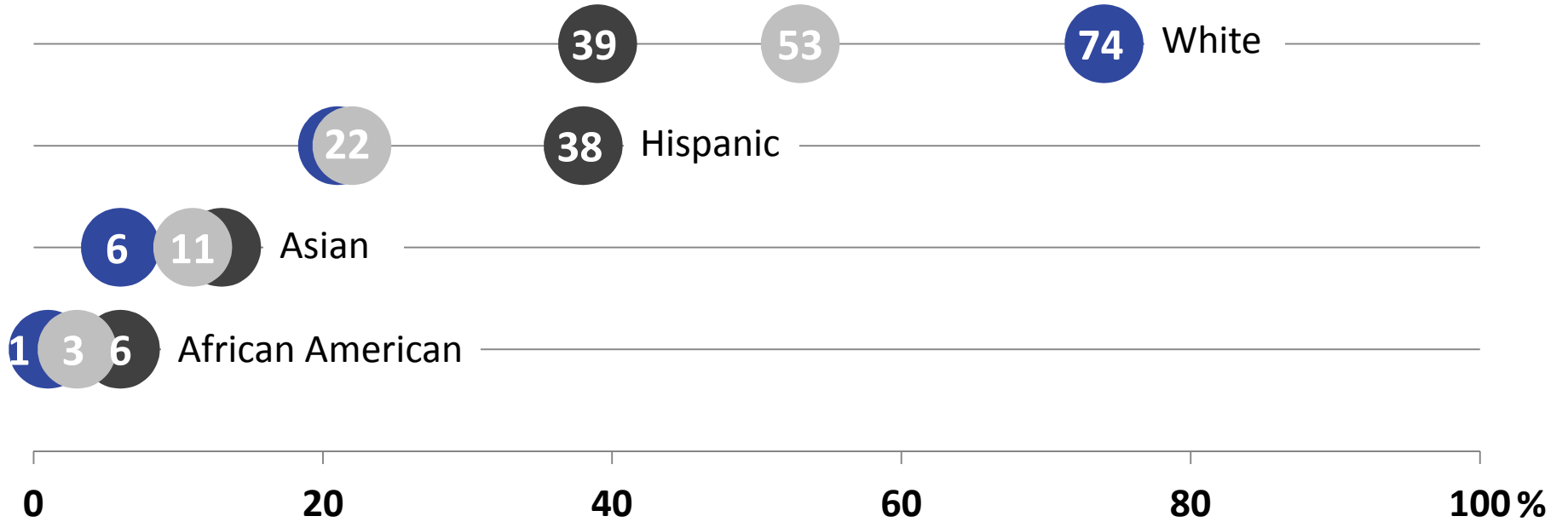
The percent with college degrees is comparable to RASS single-family homeowners and much higher than California ACS census data



Online/Paper Audits: SCE

Many more **participants** were white, fewer were Hispanic, Asian and African American

The size of the difference varies by comparison population, California ACS census data vs. RASS single-family homeowners



Four Program Comparisons

Targeted Program Community Language Education & Outreach (CLEO)

Tagged Program Manufactured and Mobile Homes

Experiment: Appliance Recycling Retailer Trial
Implementation Approach

Accidental Experiment: Whole-house ARRA funding
Incentive Amounts

Findings: Participants vs. Comparison Population

	Language Outreach (CLEO)	Mfg. & Mobile Homes	Recycling Retailer Trial	Whole-house ARRA \$
Income > \$100,000	↓	↓	↑/=	↓
College degree	=	↓		
White	↓	↑		
English speakers	↓			
Homeowners	=	n/a		
Children in home		=		
Yrs in home	=			

Community Language Education & Outreach: SCE



\$5m

Budget allocation
2010-2012
20% decrease

CLEO 中文 節能知識講座

免費 減低住宅月付電費和瓦斯費
南加州電力/瓦斯公司, 多項退款及優惠。
由電力和瓦斯公司等提供, 鼓勵綠化獨立自住屋輔助。

講座時間: 6月9日2013年(星期日)共二場
第一場: 由 1:30pm 至 2:30pm 國語
第二場: 由 3:00pm 至 4:00pm 廣東話

地點: 橙縣 華僑文教中心 Tel: 714-754-9999
2901 W. MacArthur Blvd Suite 115, Santa Ana, CA 92704

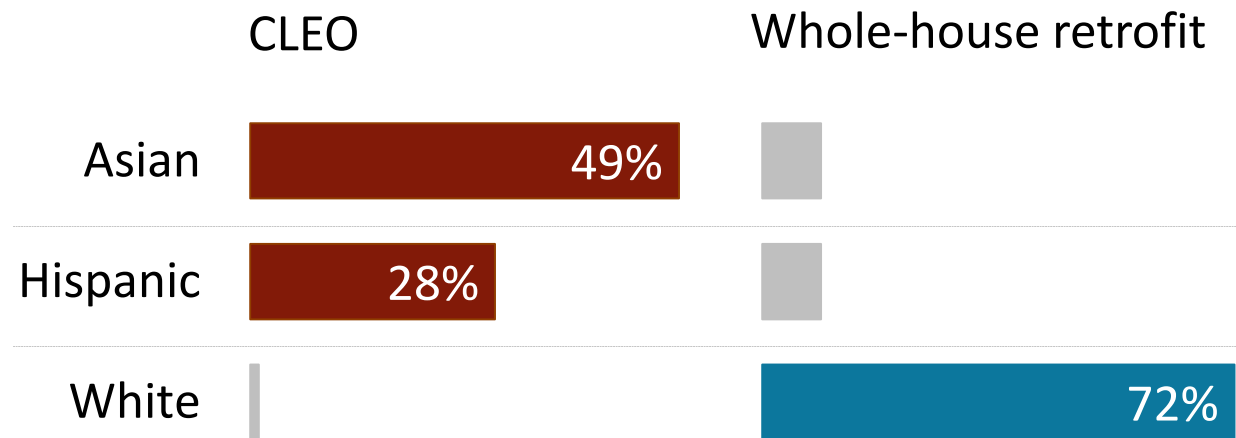
預約電話: 1-888-898-6788 週一至週五9:00am-5:00pm
www.cleosave.com

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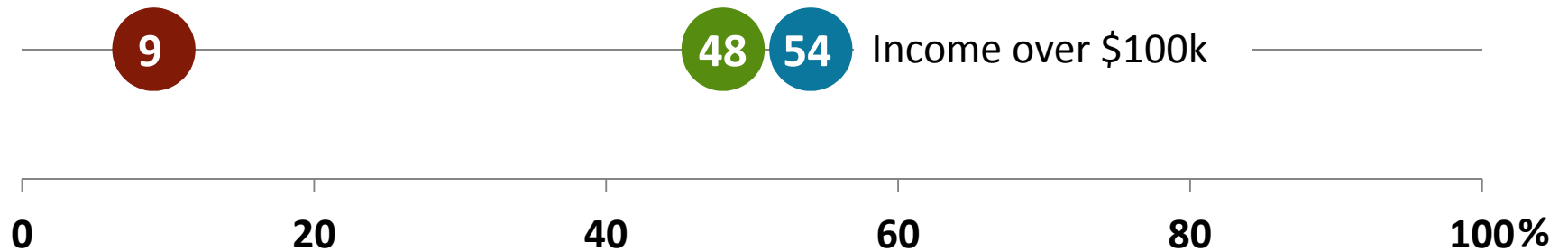
Community Language Education & Outreach: SCE

CLEO participants were *very* different from **whole-house** participants in their racial/ethnic make-up



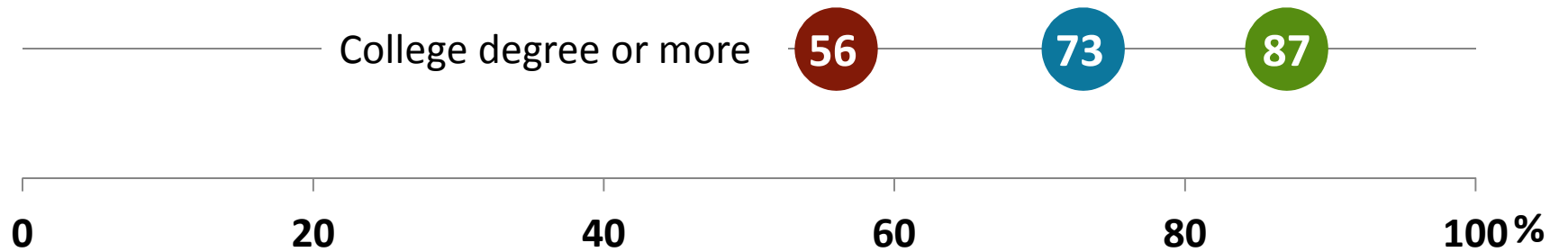
Community Language Education & Outreach: SCE

CLEO participants had much lower incomes than **plug-load/appliance** and **whole-house** participants



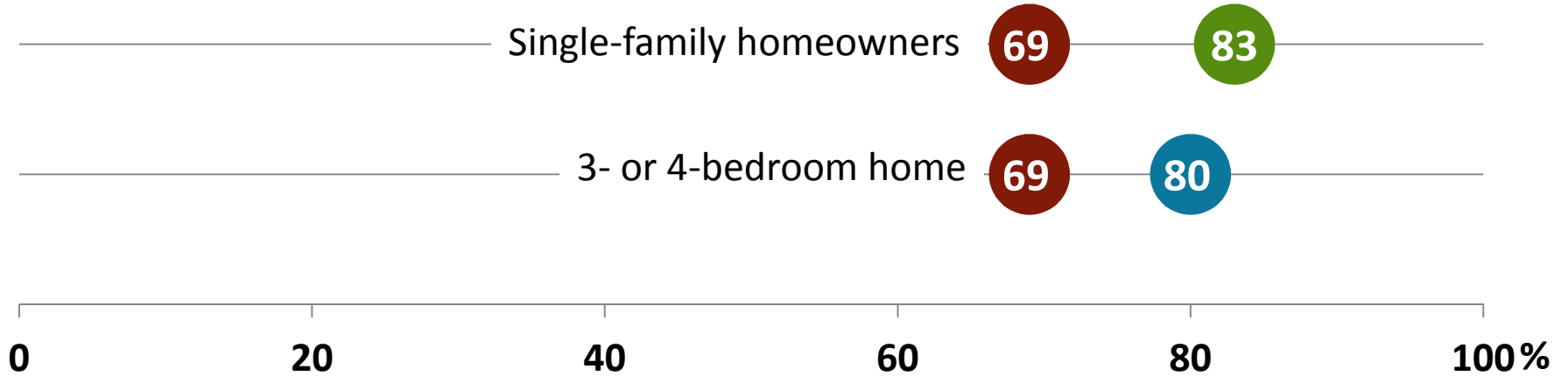
Community Language Education & Outreach: SCE

Fewer **CLEO** participants had a college degree than **whole-house** and **plug-load/appliance** participants



Community Language Education & Outreach: SCE

CLEO participants were still predominantly single-family homeowners, like **plug load/appliance** participants, and with 3- or 4-bedroom homes, comparable to **whole-house** participants



Manufactured and Mobile Homes: PG&E, SCE, SDG&E



\$18m

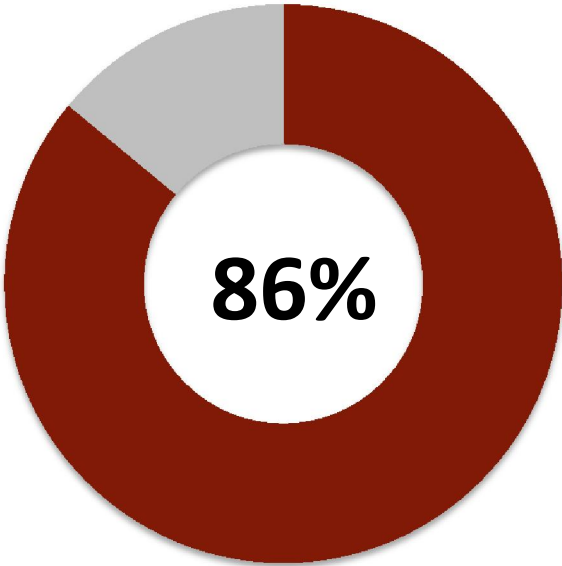
Budget allocation
2010-2012



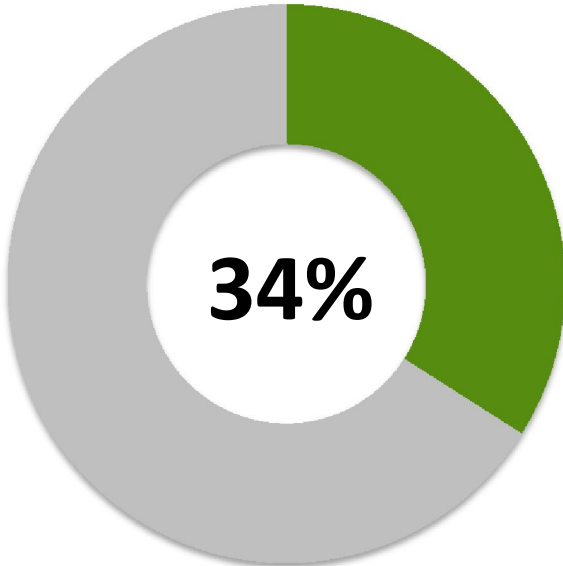
Manufactured and Mobile Homes

More **mfg'd & mobile home** participants had incomes under \$50k than **plug-load/appliance** participants

Mfg'd & mobile home

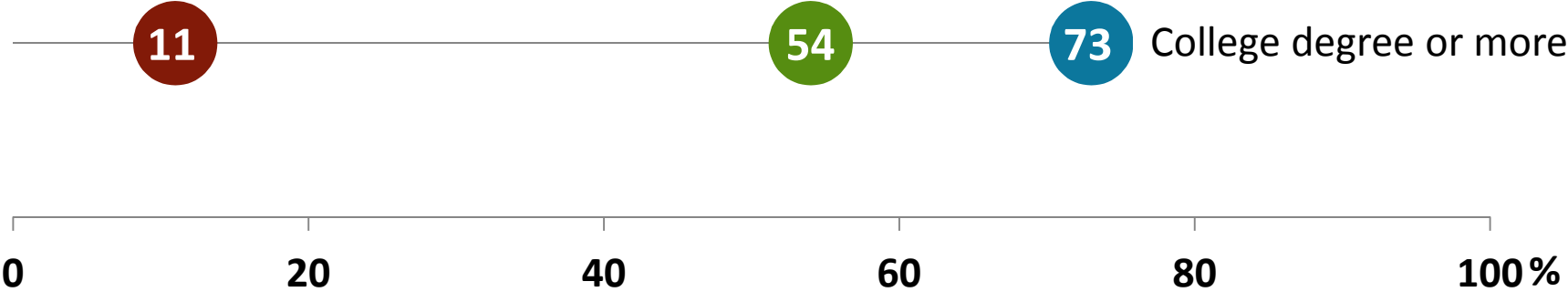


Plug load & appliance



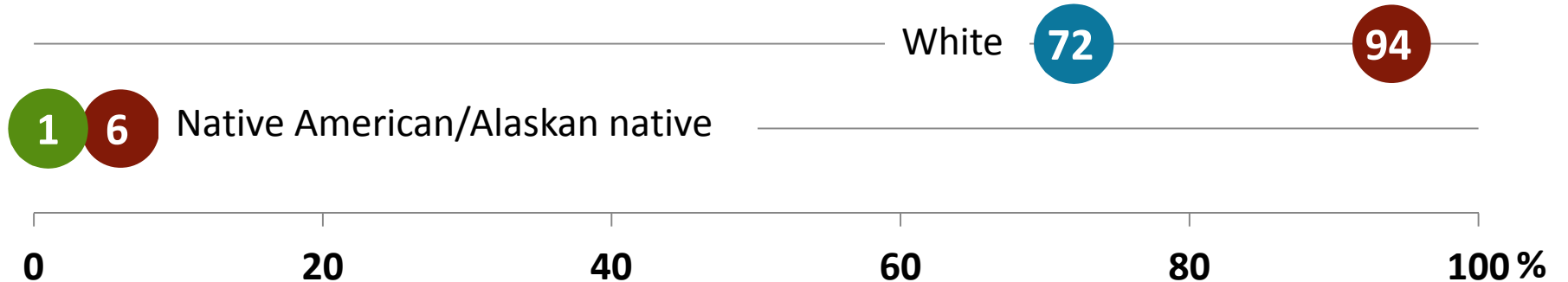
Manufactured and Mobile Homes

Fewer **mfg'd & mobile home** participants had college degrees than **plug-load/appliance** and **whole-house** participants



Manufactured and Mobile Homes

More **mfg'd & mobile home** participants were white, and Native American/Alaskan, than **plug-load/appliance** participants



Refrigerator Recycling: Retail v. Standard



Refrigerator Recycling: Retail v. Standard



Retail participants had **Higher incomes, larger homes**

Retail refrigerators were **Larger, younger, side-by-side units**

Whole-house Retrofit: ARRA funding experiment

Was ARRA funding available for whole-house retrofits?

	YES	NO
Average incentives	\$10,000	\$4,500
Projects initiated per quarter	~800-1,000	~250

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<i>Participant . . .</i>	Income	Lower	Higher
	Home value	Lower	Higher
	Location	Inland	Coastal

Implications

- There are opportunities to broaden program participation to current nonparticipants
- Nonparticipants are demographically diverse. They are not necessarily “hard-to-reach”; but we will need to redefine our intentions
- This will require changes in program design and evaluation
- Could we begin program design by asking: which demographic groups lag in measure adoption and program participation?

Our Next Steps

- White paper on California findings to-date
- Expand current study to other U.S. states, non-IOU, multi-family, and low-income programs
- Design/implement new study to explore next research question: Is there an “efficiency divide”?
- Work with program designers to foster program design with demographics in mind

Ask for our data workbook!

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