



# California Public Utilities Commission Low Income Needs Assessment

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Kelly Hymes

CA Public Utilities Commission

Kathleen Gaffney

KEMA, Inc.



# Overview:

## Low Income Needs Assessment

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- Background on CARE & LIEE Programs
- Purpose of the Needs Assessment
- Objectives
- Methods
- Challenges & Successes
- Recommendations
- Using What We Learned
- Q&A



# Background: CPUC CARE Program

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- California Alternate Rates for Energy (CARE) program provides qualified low-income households with a 20% discount on their monthly energy bill.
- Households with an annual income of 200% or less of the federal poverty guidelines are eligible for CARE.
- Recipients are exempt from the CARE component of the Public Goods Charge for both gas and electricity.
- With the exemptions, some electric customers receive up to a 44% discount.



# Background: CPUC LIEE Program

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- Provides qualified (same as CARE) low-income households with energy efficient appliances, weatherization measures, energy education, and minor home repairs at no cost to the participants.
- Serves single family, multi-family and mobile home occupants – both owners and renters.
- Purpose is to help eligible households reduce energy consumption, which results in monthly bill savings.
- LIEE participants are automatically enrolled in CARE.
- LIEE leverages with other similar programs, including the federally-funded Low-Income Home Energy Assistance Program (LIHEAP).



# Background: LIEE Program Measures

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## **Furnaces**

- Repair - Gas
- Replacement - Gas
- Repair - Electric
- Replacement - Electric

## **Weatherization**

- Caulking
- Door Weatherstripping
- Attic Access Weatherstripping
- Attic Insulation
- Minor Home Repairs
- Water Heater Blanket
- Water Heater Pipe Wrap

## **Water Heating Savings**

- Low Flow Showerhead
- Faucet Aerators

## **Miscellaneous Measures**

- Refrigerators
- Permanent Evaporative Coolers
- Portable Evaporative Coolers
- Compact Fluorescent Lights
- Compact Fluorescent Porch Lights

## **Infiltration & Space Conditioning**

- Cover Plates/Gaskets
  - Air Conditioner (Drop)
  - HVAC Air Filter Replacement

## **Energy Education**

- Outreach & Assessment
- In-Home Education
- Education Workshops

## **Landlord Rebate Pilots**

- Refrigerators
- Air Conditioner Replacement - Room
- Air Conditioner Replacement - Central

## **Rapid Deployment Pilots (Initiated since 5/21/02)**

- Air Conditioner Replacement - Room
- Air Conditioner Replacement - Central
- Duct Sealing and Repair
- Whole House Fans
- Water Heater Replacement - Gas
- Water Heater Replacement - Electric
- Set-back Thermostats
- Evaporative Cooler Maintenance

# Background:

## Low Income Energy Programs

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- Established by statute in the California Public Utilities Code
- Operated by PG&E, SCG, SDG&E, and SCE since the 1980's. Also operated by small and multi-jurisdictional utilities throughout the state.
- Funded by all non low-income ratepayers through the Public Goods Charge on utility bills.
- Implemented by the utilities with CPUC oversight and input by the Low Income Oversight Board (LIOB).



# Background:

## CPUC CARE Program 2001-2007

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- Over 4.9 Million Households eligible
- Over 4 million households served since 2001
- Goal is to Enroll 100% of all eligible



# Background:

## CPUC LIEE Program 2001-2007

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- 1,010,747 homes treated
- \$720,513,496 expensed
- 286,539 MWh saved
- 13,247 MTherms saved



# Purpose of Needs Assessment

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- Commission directed Energy Division to facilitate and manage a low-income needs assessment of the CARE and LIEE programs.
  - Phase 1: identify the study objectives, current relevant data, and data gaps to be filled in Phase 2; design Phase 2; and create an RFP for hiring the Phase 2 contractor.
  - Phase 2: primary data-gathering phase.
- Additionally, the Public Utilities Code requires a periodic assessment of the programs to consider whether we are adequately considering expenditures, hardship, language needs, and economic burden.



# Study Objectives

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- Estimate eligible population and penetration rates
- Characterize eligible population
- Assess energy-related needs, barriers to program participation, and willingness to participate
- Determine energy savings potential
- Develop recommendations
  - Program targeting, outreach and design
  - Tracking eligibility and penetration over time
  - Further study



# Methods

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- Completed Census and Utility Data Analysis
  - Determined estimates of program penetration statewide, by IOU and by SMJU
- Conducted Onsite Surveys
  - Completed 1,500 on-site surveys with eligible households across the state
- Conducted Characterization and Needs Assessment Analyses
- Conducted Energy Savings Potential Analysis
- Conducted Segmentation Analysis



# Challenges / Successes

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- Reliance on Census and utility data
- Statewide data collection effort
- Comprehensive and indepth characterization
- Wide range of energy-related needs



# Sampling Design/Strategy

<b>Strata</b>	<b>Household Density</b> (Number of Homes / Sq. mi.)	<b>Low Income Incidence</b> (Percent of Households Below 150% of FPL)	<b>Recruitment Method</b>	<b>Targeted Number of Completed Surveys Per Day</b>	<b>Relative Cost</b>	<b>Percent of Low Income Population</b>	<b>Sample Size</b>	<b>Percent of Sample</b>
Very Dense	> 3,000	> 20%	Canvass	3	1.0	31%	768	51%
	> 1,500	> 30%						
Dense	> 3,000	10-20%	Phone	4	1.0	20%	276	18%
	1,500-3,000	10-30%						
Sprawl	500-1,500	>10 %	Phone	3	1.3	15%	162	11%
Sparse	200-500	> 10%	Phone	2	1.8	6%	66	4%
Very Sparse	< 200	> 10%	Phone	1	3.8	20%	186	12%
Low Incidence	Any	< 10%	Phone	1	4.1	8%	48	3%



# Survey Design/Approach

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- Determine information requirements
- Survey design and translation
- Training
- Recruitment
- Sample management
- Two person teams
- Quality control
- Debriefing



# Household Size & Income

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<b>Household Size</b>	<b>Percent of Low Income Households</b>	<b>Average Household Income</b>	<b>Average Household Income Per Person</b>
1 person	20%	\$15,177	\$15,177
2 persons	21%	\$20,206	\$10,103
3 persons	14%	\$22,151	\$7,383
4 persons	16%	\$23,989	\$5,997
5 or more persons	29%	\$25,454	\$4,289
All Households	100%	\$21,601	\$8,411



# Languages Spoken

<b>English</b>	92.7%	<b>European</b>	5.2%
<b>Non-English</b>	57.8%	Russian	1.1%
		French	1.0%
<b>Spanish</b>	42.7%	Portuguese	0.9%
<b>Asian</b>	10.1%	Armenian	0.8%
Cantonese	2.4%	German	0.6%
Tagalog	2.3%	Hebrew	0.6%
Vietnamese	1.9%	Polish	0.6%
Korean	1.6%	Italian	0.5%
Mandarin	1.4%	Other Eastern European	0.3%
Hindi	0.6%	Swedish	0.3%
Samoan	0.5%	Turkish	0.1%
Japanese	0.4%	Greek	0.1%
Cambodian	0.3%	Middle Eastern	1.2%
Indonesian	0.3%	Arab	0.6%
Thai	0.2%	Farsi	0.6%
Hmong	0.1%	<b>Other</b>	1.4%



# Other Household Characteristics

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- Urban/rural
- Climate zone
- Race/ethnicity
- Linguistic isolation
- Literacy
- Income sources
- Eligibility/disability status
- Employment
- Education
- Housing tenure



# Housing and Energy Use Characteristics

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- Ownership
- Dwelling type
- Size of home
- Age of home
- Major end uses and appliances
- Building shell characteristics
- Energy consumption characteristics
  - Seasonal, above-baseline



# Energy Use

<b>Percent of Low Income Households</b>	<b>Electricity</b>	<b>Natural Gas</b>	<b>Propane</b>	<b>Solar</b>	<b>Wood</b>	<b>None/Not Applicable</b>
Primary Space Heating Equipment	18%	68%	3%	0%	3%	9%
Water Heating Equipment(1)	6%	76%	3%	1%	0%	14%
Cooling Equipment	52%	3%	0%	0%	0%	45%
Refrigerator	100%	0%	0%	0%	0%	0%
Stand-Alone Freezer	10%	0%	0%	0%	0%	90%
Range/Oven(2)	34%	71%	2%	0%	0%	0%
Dishwasher	2%	27%	2%	0%	0%	69%
Clothes Washer	4%	55%	3%	0%	0%	38%
Clothes Dryer	27%	32%	1%	0%	0%	40%

(1) Includes households that do not pay for hot water, but water heating fuel is unknown.

(2) Includes households that use both electricity and natural gas for range/ovens.



# Energy Costs

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<b>Annual Energy Costs</b>	<b>Percent of All California Households</b>	<b>Percent of Low Income Households</b>
\$1 - \$249	5%	10%
\$250 - \$499	11%	17%
\$500 - \$749	16%	20%
\$750 - \$999	14%	15%
\$1,000 - \$1,249	16%	13%
\$1,250 - \$1,499	8%	7%
\$1,500 - \$1,999	14%	9%
\$2,000 or greater	17%	10%
Average (midpoint)	\$1,175	\$948



# Needs Assessment

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- Program eligibility, penetration
- Energy burden and energy insecurity
- Health, hardship and safety
- Energy efficiency measure potential, energy savings potential
- Willingness, barriers to participate
- Accessibility



# Energy Burden, Insecurity, Health, Hardship and Safety

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- Average low income household in California spends about 4% of their total household income on energy
- About 40% spend more than 5% of their household income on energy and two thirds are “insecure”
- Most have some concern related to “comfort,” about one in every three or four have concerns related to health and safety
- Key segments:
  - Poorest, disabled, illiterate households
  - Smaller homes, older homes, mobile homes, households with evaporative coolers
  - High annual electricity use, high winter gas use



# Measure Potential

<b>Measure</b>	<b>Number of Households Needing Measure (2006)</b>
AC or Evaporative Cooler Cover	241,421
Caulking	1,086,396
Ceiling Insulation	1,166,870
Central AC Replacement	8,047
CFLs	3,661,557
Duct Testing & Sealing	120,711
Evaporative Cooler Replacement	321,895
Faucet Aerators	2,293,503
Furnace Repair	523,080
Furnace Replacement	160,948
Hardwired Porch Light Fixture	1,247,343
Low Flow Showerhead	1,327,817
Refrigerator Replacement	1,368,054
Room AC Replacement	523,080
Water Heater Blankets	2,052,081
Water Heater Pipe Wrap	2,253,266
Water Heater Replacement	40,237
Weatherstripping	2,213,029



# Energy Savings Potential

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- Available potential is estimated at 584 GWh (91% of total potential) and 81 million therms (90% of total potential).
- Average savings potential per home is estimated to be 150 kWh and 22 therms.
- Available potential is estimated to be about 2.6 percent of total electricity usage and about 6.6 percent of total natural gas usage.
  - Comparable to average savings per home being achieved by the current LIEE Program.



# Willingness to Participate

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- Very high interest and willingness to participate in both CARE and LIEE
  - Correlates with current participation in other public assistance programs
- Assessment determined that approximately 10% of low income households would be unwilling to participate



# Participation Barriers

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- Lack of awareness and misunderstanding of program eligibility criteria, benefits
- Participation process (application, multiple visits, income documentation)
- Fear (e.g. distrust among elderly, immigrant residency issues)
- Welfare stigma and reluctance to accept aid



# Accessibility

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- Frequently used information channels (e.g., newspaper, community center, church)
- Non-English language information channels
- Frequently used energy-conservation related information channels
- Sources for energy bill payment assistance



# Recommendations

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- Aggressive outreach
- Targeted marketing
- Match requirements/services with need
- Coordinated delivery
- Improved processes



# Using What We Learned

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- Improving Outreach – One E-App
- Increasing Targeting – Segmentation
- Improving Delivery through “out of the box” thinking – the California Energy Efficiency Strategic Plan.



# Questions

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- For more information:  
Kelly A. Hymes                      Kathleen Gaffney  
[khy@cpuc.ca.gov](mailto:khy@cpuc.ca.gov)                      [kathleen.gaffney@kema.com](mailto:kathleen.gaffney@kema.com)
- Or check the CPUC website at:  
<http://www.cpuc.ca.gov>
- Or the LIOB website at:  
<http://www.liob.org>
- Or the CPUC Energy Efficiency website at:  
<http://www.californiaenergyefficiency.com>