

Appendices

California Commercial Market Share Tracking Study

**Prepared for
California Public Utilities Commission**

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Appendix A

2010-2012 CPUC CMST Lighting Contractor Survey

2010-2012 CPUC CMST LIGHTING CONTRACTOR SURVEY

INTRODUCTION AND FINDING CORRECT RESPONDENT

OUTCOME1 This is &NAME calling on behalf of the CPUC, the California Public Utilities Commission from Itron, Incorporated. THIS IS NOT A SALES CALL NOR A SERVICE CALL. I need to speak with the person in your organization that is most familiar with its involvement in the commercial and industrial lighting business either as a lighting equipment vendor or contractor.
Our records show that to be <%CONTACT>.....

1	Yes	PBLOCK HI
2	No	PBLOCK HI
88	Refused	PBLOCK HI
99	Don't Know	PBLOCK HI

PBLOCK HI

TCONNAME Who would be the person most familiar with your company's commercial and industrial lighting business?

Enter NEW CONTACT NAME and move on	May_I
------------------------------------	-------

May_I May I speak with him/her?

1	Yes	Intro3:s
2	No (not available right now@, set cb)	Abandoned Appointment
3	No one knows about commercial lighting	T&T

Intro3:s Hello, my name is <INTERVIEWER NAME> calling on behalf of the CPUC, California Public Utilities Commission from Itron Consulting. This is not a sales call. We are interested in speaking with the person most knowledgeable about your organization's involvement in the commercial and industrial lighting business as either a lighting equipment vendor or a contractor. I was told that would be you. Is this correct?

1	Yes	PERSON
2	No, there is someone else	T&T
88	No and I don't know who to refer you to	T&T

ENDPBLOCK

PERSON Today we are conducting a study with organizations like yours for the CPUC. AT NO TIME WILL WE TRY TO SELL YOU ANYTHING. This is strictly a fact finding study being conducted by the CPUC. We need to speak with the person in your organization that is most familiar with its involvement in the commercial and industrial lighting business, either as a lighting equipment vendor or contractor. Would that be you?

1	Yes	DISPLAY
2	Yes, need to make an appointment	APPT
3	No, but I will give you the name	PBLOCK HI
4	Refuses to do the study	T&T

Thank & Terminate Thank you for your time and help today.

		END
--	--	-----

DISPLAY Before we start, I would like to inform you that for quality control purposes, this call may be monitored or recorded by my supervisor. We will be referring to commercial and industrial as C&I during this survey.

		PERF1
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SCREENER

PERF1 Do you perform installations of lighting equipment for C&I customers in California?

1	Yes	PERF2_A
2	No	PERF2_A
88	Refused	PERF2_A
99	Don't know	PERF2_A

PERF2_A Do you sell lighting equipment to C&I customers, including multifamily residential facilities in California?

1	Yes	PERF2_B
2	No	PERF2_B
88	Refused	PERF2_B
99	Don't know	PERF2_B

PERF2_B Do you sell lighting to other contractors for installation in commercial or industrial facilities?

1	Yes	Scrn_Addr
2	No	Scrn_Addr
88	Refused	Scrn_Addr
99	Don't know	Scrn_Addr

IF PERF1 = 2 AND PERF2_A = 2 AND PERF2_B = 2, THANK AND TERMINATE

Scrn_Addr Our records show your firm is located at &ADDRESS in &CITY. Is that correct?

1	Yes	BUS_NAME
2	No	CORRECT
88	Refused	COMMENT
99	Don't know	CORRECT

COMMENT	We were attempting to reach <BUSINESS> at <ADDRESS> and <CITY> and since you cannot confirm this address those are all of the questions we have for your today. On behalf of the CPUC thank you for your time.	
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CORRECT May I have your correct address?

&CORRECT	Corrected Address	COMPARE
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ONCE THE CORRECT RESPONDENT IS ON THE PHONE

Throughout this survey, when I ask you to provide information about "your firm" or "your company", unless otherwise instructed, please provide information for the specific location of your company that you are at presently.

BUS_NAME

BUS_NAME May I please confirm your company name?

77	Record as &BUSINESS_NAME	VERIFY
88	Refused	VERIFY
99	Don't Know	VERIFY

VERIFY For verification purposes, may I have your name?

77	Record Name	JOB_TITLE
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JOB_TITLE What is your job title?

1	Sales Manager	Q3
2	President/CEO	Q3
3	Owner / Co-Owner / Partner /Member of LLP	Q3
4	General Manager	Q3
5	Lighting Manager	Q3
6	Estimator	Q3
77	Other	Q3
88	Refused	Q3
99	Don't Know	Q3

QUALIFICATION FOR SURVEY

TENPERCENT Would you say that at least 10 % of your revenue is from CA C&I lighting sales and installations?

1	Yes	Q3
2	No	T&T
88	Refused	T&T
99	Don't know	T&T

IF TENPERCENT IN (2, 88, 99) THANK AND TERMINATE. ELSE GO TO Q3A

Q3 Approximately what % of your firm's overall revenue is from lighting sales and installations nationwide?

0-100	Record share of revenue from 0 to 100%	AQ2
101	Refused	AQ2
102	Don't Know	Q3aa

Q3aa Would you say it is...

1	0-10%	AQ2
2	11-20%	AQ2
3	21-40%	AQ2
4	41-60%	AQ2
5	61-80%	AQ2
6	81-100%?	AQ2
88	Refused	AQ2
99	Don't Know	AQ2

AQ2 What % of that revenue is from lighting sales and installations in CA?

0-100	Record share of revenue from 0 to 100%	CHECK
101	Refused	CHECK
102	Don't Know	AQ2a

AQ2a Would you say it is...

1	0-10%	CHECK
2	11-20%	DISPLAY
3	21-40%	DISPLAY
4	41-60%	DISPLAY
5	61-80%	DISPLAY
6	81-100%?	DISPLAY
88	Refused	DISPLAY
99	Don't Know	LINC2CK

LINC2CK Would you say that at least 10 % of your revenue is from CA C&I lighting sales and installations?

1	Yes	Q3
2	No	T&T
88	Refused	T&T
99	Don't know	T&T

IF LINC2CK in (2, 88, 99) or (AQ2 < 10) or (Q3*AQ2 < 10) or (midpointQ3aa*AQ2 < 10) or CHECK (Q3*midpointAQ2a < 10) or (midpointQ3aa*midpointAQ2a < 10) or AQ2A(1) or THEN READ, "Those are all the questions I have for you today." ELSE IF AQ2 ^= 0, CONTINUE TO DISPLAY

DISPLAY Adding up to 100 percent, what percent of your firm's California lighting revenue is from the residential, small C&I (less than 50,000 sq. ft.), and large C&I (greater than 50,000 sq. ft.) sectors? (MUST add to 100%)?

LINC2A	RECORD % Residential	CHECK
LINC2B	RECORD % Small Commercial (<50,000 sq. ft.)	CHECK
LINC2C	RECORD % Large Commercial or Industrial (>= 50,000 sq. ft.)	CHECK
101	Refused	CHECK
102	Don't Know	CHECK

**CHECK IF LINC2A < 101 & LINC2B < 101 & LINC2C < 101;
 COMPUTE LINC2 = LINC2A + LINC2B + LINC2C;
 IF LINC2 <> 100, THEN READ, "I must have recorded something incorrectly."
 REDO LINC2A; LINC2B; LINC2C;
 CONTINUE WITH CHECK;
 IF LINC2B < 101 & LINC2C < 101;
 COMPUTE LINC2ADD = LINC2B + LINC2C;**

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Approximately how many projects involving installation or replacement of lighting fixtures did your firm complete **Q4** in California's commercial and industrial sector in the past two years from your location? Your best estimate is fine.

77	Record # of projects	G4A
88888	Refused	Q4a
99999	Don't Know	Q4a

Q4a Would you say it is...

1	0 to 25	G5
2	26 to 50	G5
3	51 to 75	G5
4	76 to 100	G5
5	101 to 150	G5
6	151 to 200	G5
7	Over 200	G5
88	Refused	G5
99	Don't Know	G5
99	Don't Know	G5

G4A What geographical regions do you predominantly work in California installing and/or selling C&I lighting?
(ACCEPT MULTIPLES)

1	North Coastal	G5
2	South Coastal	G5
3	North Inland	G5
4	South Inland	G5
5	Mountains	G5
6	Desert	G5
7	Inland Valley	G5
77	Other	G5
88	Refused	G5
99	Don't Know	G5

G5 About how many full-time employees does your company employ at this location?

77	RECORD # employees	G3
88888	Refused	G3
99999	Don't Know	G3

G3 Aside from this location where I have reached you, does your firm have other locations in California?

1	Yes	G6
2	No	G7
88	Refused	G7
99	Don't know	G7

G6 About how many full-time employees does your company employ in all of its locations in California?

77	# employees	G7
88888	Refused	G7
99999	Don't Know	G7

G7 What type of commercial businesses do you typically work with? [IF NEEDED: "For example offices, industrial, retail stores, etc."] **ALLOW FOR UP TO 3 MULTIPLE RESPONSES**

1	Offices (non-medical)	Q3A
2	Restaurant/Food Service	Q3A
3	Food Store (grocery/liquor/convenience)	Q3A
4	Agricultural (farms, greenhouses)	Q3A
5	Retail Stores	Q3A
6	Warehouse	Q3A
7	Hospitals	Q3A
8	Health Care (Medical/Dental Offices, nursing homes, etc.)	Q3A
9	Education (preschools, K-12)	Q3A
10	Universities (Colleges, Community Colleges, Vocational Schools)	Q3A
11	Lodging (hotel/rooms)	Q3A
12	Public Assembly (church, fitness, theatre, library, museum, convention)	Q3A
13	Services (hair, nail, massage, spa, gas, repair)	Q3A
14	Industrial (food processing plant, Manufacturing)	Q3A
15	Laundry (Coin Operated, Commercial Laundry Facility, Dry Cleaner)	Q3A
16	Condo Assoc./Apartment Mgr (Garden Style, Mobile Home Park, High-rise, Townhouse)	Q3A
17	Public Service (fire, police, postal, military)	Q3A
77	Other/Do not use unless necessary	Q3A
88	Refused	Q3A
99	Don't Know	Q3A

PROGRAM INFLUENCE

DISPLAY	Now I would like to ask about the effect of California IOU programs and their associated rebates on the types of lighting projects carried out by your commercial and industrial customers. For this study, IOU or Independently Owned Utilities, will be referring to your utility, PG&E, SCE, or SDG&E.	Q3A
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Q3A Of the lighting projects your firm has completed in California's C&I sector these past two years, what percent received rebates from IOU programs?

77	Record Percent	Q3B
101	Refused	Q3B
102	Don't Know	Q3B

IF % FROM Q3A = 100, THEN SKIP TO LL1 ON NEXT TAB; ELSE ASK Q3B

Q3B Of the lighting projects that did not receive rebates from the California IOUs in the last two years, were there any that would have been eligible to receive rebates?

1	Yes	Q3C
2	No	LL1
88	Refused	LL1
99	Don't Know	DISPLAY

Q3C Of the lighting projects you completed that did not receive a rebate, what percentage were eligible for a rebate through California's IOU programs?

77	Record Percent	Q3D
101	Refused	Q3D
102	Don't Know	Q3D

Q3D Why do you believe these customers did not apply for a rebate?

77	Record Answer	DISPLAY
88	Refused	DISPLAY
99	Don't Know	DISPLAY

DISPLAY For the next few questions, I would like you to think only about the lighting projects that were eligible for a rebate but did not receive a rebate.

Q3E Do you think that even though these lighting projects did not receive a rebate, that the IOU rebate programs in some way influenced either your recommendation to your customer, or the customer's decision to install program eligible lighting equipment?

1	Yes	Q3F
2	No	Q3G
88	Refused	Q3G
99	Don't Know	Q3G

Q3F About what percent of these non-rebated program-eligible lighting projects do you think were influenced by the California IOU rebate programs?

77	Record Percent	Q3G
101	Refused	Q3G
102	Don't Know	Q3G

Q3G On a scale of 0 to 10 where 10 is extremely influenced and 0 is not at all influenced, how influential were the California IOU rebate programs on these non-rebated, program-eligible lighting projects?

1-10	Record from 0-10	Q3H
88	Refused	Q3H
99	Don't Know	Q3H

Q3H Do contractors tend to install less efficient lighting technologies when the program subsidy and assistance isn't part of the project?

1	Yes	LL1_A
2	No	LL1_A
88	Refused	LL1_A
99	Don't Know	LL1_A

LINEAR LIGHTING

DISPLAY The next set of questions are going to relate specifically to your organization's commercial lighting sales and installations that include full fixture change outs, lamp replacements, or the installations of lighting and ballasts. We will refer to these as lighting systems. We are only interested in the sales and installations from this location and only for the sales and installations of lighting equipment in California.

Adding up to 100 percent, what percent of this location's commercial and industrial lighting business is in new construction and what percent is retrofit/remodel?

LL1_A	RECORD % New construction	LL2
LL1_B	RECORD % Retrofit/remodel	LL2
88	Refused	LL2
99	Don't Know	LL2

**IF LL1_A < 101 & LL1_B < 101;
 COMPUTE LL1 = LL1_A + LL1_B;
 IF LL1 <> 100 THEN READ, "I must have recorded something incorrectly."
 REDO LL1_A; LL1_B;**

LL2 For the years 2011 and 2012, what percentage of the fixtures sold or installed by this location for commercial and industrial projects went into linear applications? That is, general overhead lighting typically served by linear fluorescent fixtures.

77	Record Percent	LINTEC1
101	Refused	LINTEC1
102	Don't Know	LINTEC1

LINTEC1 During the period 2011-2012, did you sell or install any of the following types of linear technologies in your California commercial lighting projects from this location?

LINTEC1_A Did you sell or install T5 lighting systems?

1	Yes	LINTEC1_B
2	No	LINTEC1_B
88	Refused	LINTEC1_B
99	Don't Know	LINTEC1_B

LINTEC1_B How about high-performance T8 (HPT8) lighting systems as certified by the Consortium of Energy Efficiency (or CEE)?

1	Yes	LINTEC1_C
2	No	LINTEC1_C
88	Refused	LINTEC1_C
99	Don't Know	LINTEC1_C

LINTEC1_C Did you sell or install reduced-watt T8s (IF NEEDED: 28W & 25W , 30Ws also but not common)?

1	Yes	LINTEC1_D
2	No	LINTEC1_D
88	Refused	LINTEC1_D
99	Don't Know	LINTEC1_D

LINTEC1_D How about standard 32 watt, 800-series T8s?

1	Yes	LINTEC1_E
2	No	LINTEC1_E
88	Refused	LINTEC1_E
99	Don't Know	LINTEC1_E

LINTEC1_E Did you sell or install standard 32 watt, 700-series T8s (IF NEEDED: affected by 2012 Stds)?

1	Yes	LINTEC1_F
2	No	LINTEC1_F
88	Refused	LINTEC1_F
99	Don't Know	LINTEC1_F

LINTEC1_F Did you install any T12s (IF NEEDED: affected by 2012 Stds)?

1	Yes	LINTEC1_G
2	No	LINTEC1_G
88	Refused	LINTEC1_G
99	Don't Know	LINTEC1_G

LINTEC1_G Did you sell or install LED panels that can be used instead of linear technologies?

1	Yes	LINTEC1_H
2	No	LINTEC1_H
88	Refused	LINTEC1_H
99	Don't Know	LINTEC1_H

LINTEC1_H How about LED retrofit kits for linear fluorescent fixtures?

1	Yes	LINTEC2
2	No	LINTEC2
88	Refused	LINTEC2
99	Don't Know	LINTEC2

LINTEC2 Adding up to 100 percent, I'd like for you to tell me what percentage each of these technologies made up of all your linear fixture installations and sales in California from this location.

READ TECHNOLOGIES SELECTED IN LINTEC1_A THROUGH LINTEC1_H

IF LINTEC1_A = 1, ASK LINTEC2_A; ELSE SKIP TO LINTEC2_B

LINTEC2_A What percentage of linear systems were T5 lighting systems?

77	Record percent	LINTEC2_B
101	Refused	LINTEC2_B
102	Don't Know	LINTEC2_B

IF LINTEC1_B = 1, ASK LINTEC2_B; ELSE SKIP TO LINTEC2_C

LINTEC2_B What percentage of linear systems were high performance T8 (HPT8) lighting systems as certified by CEE?

77	Record percent	LINTEC2_C
101	Refused	LINTEC2_C
102	Don't Know	LINTEC2_C

IF LINTEC1_C = 1, ASK LINTEC2_C; ELSE SKIP TO LINTEC2_D

LINTEC2_C What percentage of linear systems were reduced-watt T8s (IF NEEDED: 28W & 25W , 30Ws also but not common)?

77	Record percent	LINTEC2_D
101	Refused	LINTEC2_D
102	Don't Know	LINTEC2_D

IF LINTEC1_D = 1, ASK LINTEC2_D; ELSE SKIP TO LINTEC2_E

LINTEC2_D What percentage of linear systems were standard 32 watt, 800-series T8s?

77	Record percent	LINTEC2_E
101	Refused	LINTEC2_E
102	Don't Know	LINTEC2_E

IF LINTEC1_E = 1, ASK LINTEC2_E; ELSE SKIP TO LINTEC2_F

LINTEC2_E What percentage of linear systems were standard 32 watt, 700-series T8s (IF NEEDED: affected by 2012 Stds)?

77	Record percent	LINTEC2_F
101	Refused	LINTEC2_F
102	Don't Know	LINTEC2_F

IF LINTEC1_F = 1, ASK LINTEC2_F; ELSE SKIP TO LINTEC2_G

LINTEC2_F What percentage of linear systems were T12s (IF NEEDED: affected by 2012 Stds)?

77	Record percent	LINTEC2_G
101	Refused	LINTEC2_G
102	Don't Know	LINTEC2_G

IF LINTEC1_G = 1, ASK LINTEC2_G; ELSE SKIP TO LINTEC2_H

LINTEC2_G What percentage of all the linear systems were LED panels that can be used instead of linear technologies?

77	Record percent	LINTEC2_H
101	Refused	LINTEC2_H
102	Don't Know	LINTEC2_H

IF LINTEC1_H = 1, ASK LINTEC2_H; ELSE SKIP TO PRCNTCHK

LINTEC2_H What percentage of linear systems were LED retrofit kits for linear fluorescent fixtures?

77	Record percent	PRCNTCHK
101	Refused	PRCNTCHK
102	Don't Know	PRCNTCHK

PRCNTCHK NOTE: IF LINTEC2_A THROUGH LINTEC2_H ^= 101 OR 102, THEN SUM LINTEC2_A THROUGH LINTEC2_H. IF SUM OF LINTEC2_A THROUGH LINTEC2_H ^= 100%, READ, "I must have recorded something incorrectly. Can we quickly review those numbers? They should add up to 100 percent." **REVISE PERCENTAGES WITH RESPONDENT.**

LINTEC3

LINTEC3 LOOP THROUGH FOR ALL MEASURES LINTEC1_A THROUGH LINTEC1_H = 1 WITH LINTEC3_A THROUGH LINTEC3_H

DISPLAY From July 2012 to now, did the share of total lighting systems installed in California from this location for the following technologies increase, decrease, or stay about the same?

LINTEC3_A T5 lighting systems

1	Increase	LINTEC3_B
2	Decrease	LINTEC3_B
3	Same	LINTEC3_B
88	Refused	LINTEC3_B
99	Don't Know	LINTEC3_B

LINTEC3_B High-performance T8 (HPT8) lighting systems as certified by CEE

1	Increase	LINTEC3_C
2	Decrease	LINTEC3_B
3	Same	LINTEC3_B
88	Refused	LINTEC3_B
99	Don't Know	LINTEC3_B

LINTEC3_C Reduced-watt T8s (IF NEEDED: 28W & 25W , 30Ws also but not common)

1	Increase	LINTEC3_D
2	Decrease	LINTEC3_D
3	Same	LINTEC3_D
88	Refused	LINTEC3_D
99	Don't Know	LINTEC3_D

LINTEC3_D Standard 32 watt, 800-series T8s

1	Increase	LINTEC3_E
2	Decrease	LINTEC3_E
3	Same	LINTEC3_E
88	Refused	LINTEC3_E
99	Don't Know	LINTEC3_E

LINTEC3_E Standard 32 watt, 700-series T8s (IF NEEDED: affected by 2012 Stds)

1	Increase	LINTEC3_F
2	Decrease	LINTEC3_F
3	Same	LINTEC3_F
88	Refused	LINTEC3_F
99	Don't Know	LINTEC3_F

LINTEC3_F T12s (IF NEEDED: affected by 2012 Stds)

1	Increase	LINTEC3_G
2	Decrease	LINTEC3_G
3	Same	LINTEC3_G
88	Refused	LINTEC3_G
99	Don't Know	LINTEC3_G

LINTEC3_G LED panels that can be used instead of linear technologies

1	Increase	LINTEC3_H
2	Decrease	LINTEC3_H
3	Same	LINTEC3_H
88	Refused	LINTEC3_H
99	Don't Know	LINTEC3_H

LINTEC3_H LED retrofit kits for linear fluorescent fixtures

1	Increase	T12Intro
2	Decrease	T12Intro
3	Same	T12Intro
88	Refused	T12Intro
99	Don't Know	T12Intro

T12Intro I would now like to ask you about your familiarity with a change in the law that affects the production and availability of certain less efficient linear fluorescent lamps.

AWARENESS OF T12 PHASE OUT

T12_1 Are you aware of the new law that came into effect in July of 2012 that has phased out the production of most T12 linear fluorescent lamps?

1	Yes	T12_3
2	No	T12_1A
88	Refused	T12_1A
99	Don't Know	T12_1A

T12_1A You may have heard that the Department of Energy has issued a mandate that prohibits the production of less efficient fluorescent lighting systems. As of last July, the production of many T12 lamps has been phased out. Does this sound familiar?

1	Yes	T12_3
2	No	MCIntro
88	Refused	MCIntro
99	Don't Know	MCIntro

T12_3 Do you inform your customers of the T12 linear fluorescent lamp phase out?

1	Yes	T12_12
2	No	T12_3A
88	Refused	T12_3A
99	Don't Know	T12_3A

T12_3A Why don't you inform your customers about the T12 lamp phase out?

77	Open End	T12_12
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EFFECT ON PROJECT TIMING AND VOLUME

T12_12 Do you think the T12 phase out has had an influence on your customers' decisions to retrofit their existing T12 systems earlier than they otherwise would have?

1	Yes	T12_13
2	No	T12_14
88	Refused	T12_14
99	Don't Know	T12_14

T12_13 On average, how much earlier are your customers retrofitting their lighting systems due to the T12 phase out?

1	6 months earlier than they would have	T12_14
2	between 6 months and 1 year earlier	T12_14
3	1 to 2 years earlier	T12_14
4	2 to 4 years earlier	T12_14
5	4 to 7 years earlier	T12_14
77	Other - RECORD	T12_14
88	Refused	T12_14
99	Don't Know	T12_14

T12_14 Do you feel you are doing more projects over the past six months compared to before the T12 phase out (IF NEEDED: before July 2012)?

1	Yes	T12_15
2	No	MCSIntro
88	Refused	MCSIntro
99	Don't Know	MCSIntro

T12_15 What percent more projects have you done in the past six months compared to what you were doing prior to the T12 phase out?

77	Record percent	MCSIntro
88	Refused	MCSIntro
99	Don't Know	MCSIntro

MEASURE COST STUDY

ASK ONLY IF PERF1 = 1; ELSE SKP TO LEDIntro

MCSIntro Now I am going to ask you about the average time required or retrofit certain lighting-related equipment. We are looking for an estimate of time in man-hours per item installed. Make sure if there is a helper or more than one person working on a job that you incorporate all man hours into your estimate. For each of the following questions, assume that a pre-inspection has been completed and a work plan has already been developed.

MCS1 On average, how long does it take to install wall-mounted occupancy sensors in terms of man-hours per sensor? Please include in the time required for: wiring, installation, programming, and commissioning.

66	None	MCS2
77	Open - Numeric	MCS2
88	Refused	MCS2
99	Don't Know	MCS2

MCS2 On average, how long does it take to install ceiling-mounted occupancy sensors in terms of man-hours per sensor? [IF NEEDED: Again, please include in the time required for: wiring, installation, programming, and commissioning.]

66	None	MCS3
77	Open - Numeric	MCS3
88	Refused	MCS3
99	Don't Know	MCS3

MCS3 On average, how long does it take to install fixture-integrated occupancy sensors inside existing fixtures in terms of man-hours per sensor. Please include the time required for: dismantling and re-assembling the fixture, in addition to wiring, installation, programming, and commissioning.

66	None	MCS4
77	Open - Numeric	MCS4
88	Refused	MCS4
99	Don't Know	MCS4

MCS6 On average, how long does it take to replace an HID with a T5 fixture in terms of man-hours per fixture where the fixtures are accessible with a ladder? Please include the time required for: removal of existing fixture+lamp, decommissioning the old fixture, wiring the new fixture, installation of the new fixture, and commissioning.

66	None	MCS7
77	Open - Numeric	MCS7
88	Refused	MCS7
99	Don't Know	MCS7

MCS7 On average, how long does it take to replace an HID with a T5 fixture in terms of man-hours per fixture where the ceiling height requires a lift instead of a ladder? [IF NEEDED: Again, please include the time required for: removal of existing fixture + lamp, decommissioning the old fixture, wiring the new fixture, installation of the new fixture, and commissioning.]

66	None	MCS8
77	Open - Numeric	MCS8
88	Refused	MCS8
99	Don't Know	MCS8

MCS8 On average, how long does it take to replace a 4-ft T12 fixture with a T5 or T8 fixture in terms of man-hours per fixture where the fixtures are recessed in "T-bar Ceilings" and accessible with a ladder? Please include the time required for: removal of existing fixture+lamp+ballast, wiring the new fixture and ballast, installation, and commissioning.

66	None	MCS9
77	Open - Numeric	MCS9
88	Refused	MCS9
99	Don't Know	MCS9

MCS9 On average, how long does it take to replace a 4-ft T12 fixture with a T5 or T8 fixture in terms of man-hours per fixture where the fixtures are surface-mounted on "T-bar Ceilings" and accessible with a ladder? [IF NEEDED: Again, please include the time required for: removal of existing fixture+lamp+ballast, wiring the new fixture and ballast, installation, and commissioning.]

66	None	MCS10
77	Open - Numeric	MCS10
88	Refused	MCS10
99	Don't Know	MCS10

MCS10 On average, how long does it take to replace a low efficiency linear ballast with a high efficiency ballast in terms of man-hours per ballast where the fixtures are recessed in "T-bar Ceilings" and accessible with a ladder? Please include the time required for: removal of existing ballast, wiring the new ballast, installation, and commissioning.

66	None	MCS11
77	Open - Numeric	MCS11
88	Refused	MCS11
99	Don't Know	MCS11

MCS11 On average, how long does it take to replace a low efficiency linear fluorescent ballast with high efficiency ballast in terms of man-hours per ballast in "high bay" ceilings where a lift is required? [IF NEEDED: Please include the time required for: removal of existing ballast, wiring the new ballast, installation, and commissioning.]

66	None	MCS12
77	Open - Numeric	MCS12
88	Refused	MCS12
99	Don't Know	MCS12

MCS12 On average, how long does it take to replace existing T8 lamps with new T8 lamps for 2-lamp fixtures recessed in "T-bar Ceilings" accessible with a ladder, in terms of man-hours per fixture? Please include the time required for: removal of existing lamps, installation of new lamps, and commissioning.

66	None	MCS13
77	Open - Numeric	MCS13
88	Refused	MCS13
99	Don't Know	MCS13

MCS13 On average, how long does it take to replace existing T8 lamps new T8 lamps for 2-lamp fixtures in "high bay" ceilings where a lift is required, in terms of man-hours per fixture. [IF NEEDED: Please include the time required for: removal of existing lamp, installation of new lamp, and commissioning.]

66	None	MCS14
77	Open - Numeric	MCS14
88	Refused	MCS14
99	Don't Know	MCS14

MCS14 On average, how long does it take to "de-lamp" a typical 3-lamp fixture in "T-bar Ceilings" accessible with a ladder, in terms of man-hours per fixture. Please include the time required for: removal of existing lamp and holders.

66	None	MCS15
77	Open - Numeric	MCS15
88	Refused	MCS15
99	Don't Know	MCS15

MCS15 On average, how long does it take to "de-lamp" a typical 3-lamp fixture in "High Bay Ceilings" where a lift is required in terms of man-hours per fixture. [IF NEEDED: Please include the time required for: removal of existing lamp and holders.]

66	None	MCS16
77	Open - Numeric	MCS16
88	Refused	MCS16
99	Don't Know	MCS16

MCS16 On average, how long does it take to prepare removed linear fluorescent lamps/ballasts/fixtures for disposal, in terms of man-hours per 100 lamps/fixtures/ballasts. Please include the time required for: collecting items for disposal, managing broken items, packaging, and arranging for pick-up. This estimate should not include the time it takes for the disposal companies to pick up and dispose of the equipment.

66	None	MCS17
77	Open - Numeric	MCS17
88	Refused	MCS17
99	Don't Know	MCS17

MCS17 Can you please provide us with the names of disposal companies you are familiar with? If you have any contact information, could you provide that to us as well?

66	None	LEDIntro
77	Open - Text	LEDIntro
88	Refused	LEDIntro
99	Don't Know	LEDIntro

LED LIGHTING

LEDIntro Now I am going to specifically ask you about your sales and installation of LED products in existing buildings and new construction and how they are viewed by your commercial and industrial customers in California. Please answer these questions for installations for commercial and industrial customers in California completed by this location of your company.

IF LINTEC2_G > 0 and LETEC2_G < 101 ASK LE1; ELSE SKIP TO LE3A

LE1 Between 2011 and 2012, did the share of your general overhead fixture installations or retrofits accounted for by LED technologies increase, decrease, or stay about the same?

1	Increase	LE1A
2	Decrease	LE1A
3	Same	LE3A
88	Refused	LE1A
99	Don't Know	LE1A

IF LE1 ^= 3 ASK LE1A; ELSE SKIP TO LE3A

LE1A What percent of linear fixtures installed did LED panels account for in 2012?

77	Record percent	LE2
88	Refused	LE2
99	Don't Know	LE2

LE3A During 2012, did any of your customers request installation or proposals for installation of LED panels for use in general lighting applications on their own? That is, before your firm made its own recommendations?

1	Yes	LE3B
2	No	LE4
88	Refused	LE4
99	Don't Know	LE4

LE3B And how would you characterize the frequency of such requests? Would you say it was in...

1	All cases where LED technology was appropriate	LE4
2	Most cases where LED technology was appropriate	LE4
3	Some cases where LED technology was appropriate	LE4
4	A few cases where LED technology was appropriate	LE4
5	Very few cases where LED technology was appropriate	LE4
6	No cases	LE4
88	Refused	LE4
99	Don't Know	LE4

LE4 What do you think is the most important reason that your customers are interested in LED panels in general lighting applications? DO NOT READ. SELECT ONE ONLY.

1	Energy savings	LE6
2	Availability of models that fit the application	LE6
3	Recent decreases in prices	LE6
4	Better light output compared to alternatives	LE6
5	Better looking fixtures compared to alternatives	LE6
6	Utility program support	LE6
7	Marketing by manufacturers	LE6
8	Customer concern for energy costs	LE6
9	Longer useful life/lower maintenance costs	LE6
10	Lower operating costs	LE6
11	Better control, dim ability	LE6
12	Lower UV radiation, less effect on displayed retail items	LE6
77	Other (specify)	LE6
88	Refused	LE6
99	Don't Know	LE6

LE6 What do you think is the most important reason that some of your customers may hesitate to purchase LED panels for use in general overhead applications? DO NOT READ. SELECT ONE ONLY.

1	Lack of appropriate models	LE8
2	High price	LE8
3	Unproven performance	LE8
4	Poor light output	LE8
5	Poor aesthetics	LE8
6	Customers unfamiliar with the technology	LE8
77	Other (specify)	LE8
88	Refused	LE8
99	Don't know	LE8

LE8 In your view, what advantages does LED technology, in its current state, offer versus linear fluorescents in general commercial lighting applications? DO NOT READ. ACCEPT MULTIPLES.

1	Longer useful life	LE9
2	Lower maintenance costs	LE9
3	Lower lumen degradation	LE9
4	Better control over lighting levels	LE9
5	Better control over light color	LE9
6	More flexibility for use in different applications	LE9
7	Better fit to existing fixtures or spaces	LE9
8	Fixtures look better	LE9
9	Lower cost to operate	LE9
77	Other (specify)	LE9
88	Refused	LE9
99	Don't know	LE9

Now I'd like to ask you some questions about your use of LED technologies in applications other than general overhead lighting in commercial facilities.

LE9 Which of the following LED technologies that are not overhead lighting systems do you sell or install? (MULTIPLES ALLOWED)

1	Bulbs for medium screw-based fixtures	LE10_A
2	Outdoor Fixtures	LE10_A
3	High bay lighting fixtures	LE10_A
77	Other	LE10_A
66	None	LE10_A
88	Refused	LE10_A
99	Don't Know	LE10_A

Now I'd like you to tell me what percentage of LED technologies your firm installed in 2012 were in various applications.

IF LE9 = 1, ASK LE10A; ELSE SKIP TO LE10B

LE10A In roughly what percentage of your projects did you sell or install LED bulbs for use in medium screw based fixtures?

77	Record percent	LE10_B
88	Refused	LE10_B
99	Don't Know	LE10_B

IF LE9 = 2, ASK LE10B; ELSE SKIP TO LE10C

LE10B What percentage of the total outdoor fixtures your firm installed in 2012 was accounted for by LED technologies?

77	Record percent	LE10_C
88	Refused	LE10_C
99	Don't Know	LE10_C

IF LE9 = 3, ASK LE10C; ELSE SKIP TO LE10D

LE10C What percentage of the total high bay lighting fixtures your firm installed in 2012 was accounted for by LED technologies?

77	Record percent	LE10_D
88	Refused	LE10_D
99	Don't Know	LE10_D

IF LE9 = 77, ASK LE10H; ELSE SKIP TO LE18

LE10H What percentage of the total [OTHER APPLICATION] your firm installed in 2012 was accounted for by LED technologies?

77	Record percent	LE10_E
88	Refused	LE10_E
99	Don't Know	LE10_E

DISPLAY Now, I'd like to ask a few general questions about your view of the market for LED technologies among commercial and industrial customers.

LE18 In which customer segments has demand for LED products been strong? DO NOT READ. SELECT MULTIPLES.

1	Office space	LE22
2	Institutional (schools, hospitals, municipalities)	LE22
3	Retail	LE22
4	Storage	LE22
5	Hospitality (hotels, restaurants)	LE22
77	Other (specify)	LE22
88	Refused	LE22
99	Don't know	LE22

IF RESPONDENT REPORTS INSTALLING LEDs IN LINEAR FIXTURES IN 2012 [LINTEC1_G=1 OR LINTEC1_H=1] OR REPORTS INSTALLING LEDs IN SPECIALTY APPLICATIONS (LE9 = 1|2|3|77), ASK LE22; ELSE SKIP TO LE27.

LE22 Generally, how satisfied have your customers been with the LED technologies they have installed? Would you say it is ...

1	Very satisfied	LE23
2	Somewhat satisfied	LE23
3	Somewhat dissatisfied	LE23
4	Very dissatisfied	LE23
88	Refused	LE23
99	Don't know	LE23

LE27 Given the trends you have observed in LED technology, by what percentage do you think LED fixture prices would need to decrease from their current levels in order for their share of the market for general lighting applications to double?

77	Record percent	LE28
101	Refused	LE28
102	Don't Know	LE28

Now I would like to ask you about your views on LED technologies in your business.
LE28 First, how important do you think promotion of LED technologies is to the competitive position of your firm over the next three years. Do you think it will be ...

1	Very important	LE29
2	Somewhat important	LE29
3	Not very important	LE29
4	Not at all important	LE29
88	Refused	LE29
99	Don't Know	LE29

LE29 Are you aware of any programs operated by utilities or government agencies in your area that provide incentives for the installation of LEDs in commercial and industrial facilities?

1	Yes	LE30
2	No	LE31
88	Refused	LE31
99	Don't Know	LE31

LE30 Has your firm completed projects with the assistance of these programs?

1	Yes	LE31
2	No	LE31
88	Refused	LE31
99	Don't Know	LE31

LE31 How important do you think utility or government program support is to increasing the market share for LED technologies in the commercial and industrial market? Would you say it is...

1	Very important	LE32
2	Somewhat important	LE32
3	Not very important	LE32
4	Not at all important	LE32
88	Refused	LE32
99	Don't Know	LE32

LE32 Finally, do you refer to either of the following technical resources in selecting LED lighting for use in your projects?

1	Energy Star qualified LED Products List	T&T
2	Design Lights Consortium Qualified Products List	T&T
88	Refused	T&T
99	Don't Know	T&T

Thank you for your time. Those are all the questions we have for you today.

Appendix B

Joint Lighting Contractor Survey Banners

	ALL (Percent)
<PERF1> Do you perform installations of lighting equipment for C&I customers in California?	
YES	99.15
NO	0.85
<i>n</i>	95
<PERF2_A> Do you sell lighting equipment to C&I customers, including multifamily residential facilities in California?	
YES	53.53
NO	46.47
<i>n</i>	95
<PERF2_B> Do you sell lighting to other contractors for installation in commercial or industrial facilities?	
YES	9.01
NO	90.99
<i>n</i>	95
<JOB_TITLE> What is your job title?	
Sales Manager	0.37
President/CEO	17.57
Owner / Co-Owner / Partner /Member of LLP	29.12
General Manager	8.51
Estimator	11.74
Project Manager	10.41
Vice President	9.82
OTHER	12.47
<i>n</i>	95
<Q3> Approximately what % of your revenue is from lighting sales and installations?	
81 to 100 percent	2.77
61 to 80 percent	10.25
41 to 60 percent	21.09

	21 to 40 percent	46.61
	11 to 20 percent	15.81
	0 to 10 percent	3.48
	<i>n</i>	95
<AQ2> What % of your firm's lighting revenue is from lighting sales and installations in CA?		
	81 to 100 percent	97.84
	61 to 80 percent	0.70
	41 to 60 percent	0.71
	11 to 20 percent	0.75
	<i>n</i>	95
<TENPERCENT> Would you say that at least 10 % of your revenue is from CA C&I lighting sales and installations?		
	YES	98.56
	NO	1.44
	<i>n</i>	95
<LINC2A> What percent of your firm's California lighting revenue is from the RESIDENTIAL sector?		
	81 to 90 percent	2.27
	71 to 80 percent	7.20
	61 to 70 percent	0.84
	51 to 60 percent	3.96
	41 to 50 percent	6.90
	31 to 40 percent	1.67
	21 to 30 percent	4.68
	11 to 20 percent	9.38
	1 to 10 percent	22.84
	0 percent	40.28
	<i>n</i>	95
<LINC2B> What percent of your firm's California lighting revenue is from SMALL C&I (less than 50,000 sq. ft.)?		
	91 to 100 percent	9.38
	81 to 90 percent	8.33
	71 to 80 percent	11.22
	61 to 70 percent	4.00
	51 to 60 percent	8.97
	41 to 50 percent	18.98
	31 to 40 percent	10.22
	21 to 30 percent	7.05
	11 to 20 percent	12.87
	1 to 10 percent	6.58
	0 percent	2.41

<i>n</i>	95
<LINC2C> What percent of your firm's California lighting revenue is from LARGE C&I (50,000 sq. ft. or greater)?	
91 to 100 percent	3.05
81 to 90 percent	1.54
71 to 80 percent	2.46
61 to 70 percent	8.93
51 to 60 percent	1.30
41 to 50 percent	18.46
31 to 40 percent	2.54
21 to 30 percent	5.13
11 to 20 percent	14.60
1 to 10 percent	14.04
0 percent	27.95
<i>n</i>	95
<Q4> Approximately how many projects involving installation or replacement of lighting fixtures did your firm complete in California's commercial and industrial sector in the past two years from your location? Your best estimate is fine.	
over 200	27.34
151 to 200	12.15
101 to 150	1.51
76 to 100	4.83
51 to 75	6.97
26 to 50	12.52
0 to 25	33.68
DON'T KNOW	1.00
<i>n</i>	95
<G5> About how many full-time employees does your company employ at this location?	
Greater than 200 employees	2.27
101 to 200	5.52
51 to 100	14.18
26 to 50	5.90
11 to 25	18.08
1 to 10	49.80
0 employees	0.40
Refused	3.84
<i>n</i>	95
<G3> Aside from this location where I have reached you, does your firm have other locations in California?	
YES	19.31

	NO	80.69
	<i>n</i>	95
<G6> About how many full-time employees does your company employ in all of its locations in California?		
	Greater than 200 employees	24.74
	101 to 200	25.04
	51 to 100	1.01
	26 to 50	1.36
	11 to 25	16.33
	1 to 10	31.52
	<i>n</i>	16
<Q3A> Of the lighting projects your firm has completed in California's C&I sector these past two years, what percent received rebates from IOU programs?		
	91 to 100 percent	2.77
	71 to 80 percent	2.38
	51 to 60 percent	5.03
	41 to 50 percent	2.59
	31 to 40 percent	0.21
	21 to 30 percent	1.03
	11 to 20 percent	2.85
	1 to 10 percent	31.80
	0 percent	43.94
	DON'T KNOW	7.40
	<i>n</i>	95
<Q3B> Of the lighting projects that did not receive rebates from the California IOUs in the last two years, were there any that would have been eligible to receive rebates?		
	YES	43.08
	NO	35.46
	DON'T KNOW	21.46
	<i>n</i>	83
<Q3C> Of the lighting projects you completed that did not receive a rebate, what percentage was eligible for a rebate through California's IOU programs?		
	76 to 100 percent	5.65
	51 and 75 percent	1.80
	26 and 50 percent	20.09
	11 and 25 percent	23.79
	1 and 10 percent	27.21
	DON'T KNOW	21.47
	<i>n</i>	33

<Q3E> Do you think that even though these lighting projects did not receive a rebate, that the IOU rebate programs in some way influenced either your recommendation to your customer, or the customer's decision to install program eligible lighting equipment?	
YES	45.51
NO	47.89
DON'T KNOW	6.60
<i>n</i>	57
<Q3F> About what percent of these non-rebated program-eligible lighting projects do you think were influenced by the California IOU rebate programs?	
76 to 100 percent	23.24
51 and 75 percent	12.71
26 and 50 percent	7.47
11 and 25 percent	20.26
1 and 10 percent	16.35
DON'T KNOW	19.97
<i>n</i>	26
<Q3G> On a scale of 0 to 10 where 10 is extremely influenced and 0 is not at all influenced, how influential were the California IOU rebate programs on these non-rebated, program-eligible lighting projects?	
10 Extremely Influential	14.66
7 - 9	5.78
4 - 6	17.96
1 - 3	18.48
Zero - Not at all influential	33.18
DON'T KNOW	9.94
<i>n</i>	57
<Q3H> Do contractors tend to install less efficient lighting technologies when the program subsidy and assistance isn't part of the project?	
YES	36.61
NO	62.35
DON'T KNOW	1.04
<i>n</i>	57
<LL1_A> What percent of this location's commercial and industrial lighting business is in new construction?	
76 to 100 percent	13.33
51 and 75 percent	22.07
26 and 50 percent	12.76
11 and 25 percent	17.42
1 and 10 percent	34.42
<i>n</i>	79

<LL1_B> What percent of this location's commercial and industrial lighting business is in retrofit/remodel?		
	76 to 100 percent	52.06
	51 and 75 percent	13.45
	26 and 50 percent	18.86
	11 and 25 percent	9.91
	1 and 10 percent	5.72
	<i>n</i>	90
<LL2> For the years 2011 and 2012, what percentage of the fixtures sold or installed by this location for commercial and industrial projects went into linear applications? That is, general overhead lighting typically served by linear fluorescent fixtures.		
	91 to 100 percent	11.52
	81 to 90 percent	9.25
	71 to 80 percent	20.59
	61 to 70 percent	8.15
	51 to 60 percent	3.29
	41 to 50 percent	9.41
	31 to 40 percent	5.31
	21 to 30 percent	5.44
	11 to 20 percent	19.22
	1 to 10 percent	2.25
	0 percent	2.07
	DON'T KNOW	3.51
	<i>n</i>	95
<LINTEC1_A> Did you sell or install T5 lighting systems?		
	YES	80.63
	NO	19.37
	<i>n</i>	95
<LINTEC1_B> Did you sell or install high-performance T8 (HPT8) lighting systems as certified by the Consortium of Energy Efficiency (or CEE)?		
	YES	71.98
	NO	24.11
	DON'T KNOW	3.91
	<i>n</i>	95
<LINTEC1_C> Did you sell or install reduced-watt T8s (IF NEEDED: 28W & 25W, 30Ws also but not common)?		
	YES	69.54
	NO	28.13
	DON'T KNOW	2.33
	<i>n</i>	95

<LINTEC1_D> Did you sell or install standard 32 watt, 800-series T8s?		
	YES	84.08
	NO	15.80
	DON'T KNOW	0.11
	<i>n</i>	95
<LINTEC1_E> Did you sell or install standard 32 watt, 700-series T8s (IF NEEDED: affected by 2012 Stds)?		
	YES	42.99
	NO	39.12
	DON'T KNOW	17.89
	<i>n</i>	95
<LINTEC1_F> Did you sell or install any T12s (IF NEEDED: affected by 2012 Stds)?		
	YES	28.55
	NO	67.84
	DON'T KNOW	3.61
	<i>n</i>	95
<LINTEC1_G> Did you sell or install LED panels that can be used instead of linear technologies?		
	YES	65.34
	NO	34.66
	<i>n</i>	95
<LINTEC1_H> Did you sell or install LED retrofit kits for linear fluorescent fixtures?		
	YES	30.86
	NO	69.14
	<i>n</i>	95
<LINTEC2_A> What percentage of linear systems were T5 lighting systems?		
	91 to 100 percent	0.37
	81 to 90 percent	0.74
	71 to 80 percent	1.57
	61 to 70 percent	3.67
	51 to 60 percent	1.37
	41 to 50 percent	5.61
	31 to 40 percent	1.07
	21 to 30 percent	13.76
	11 to 20 percent	18.88
	1 to 10 percent	31.59
	0 percent	17.16
	DON'T KNOW	4.19
	<i>n</i>	95

<LINTEC2_B> What percentage of linear systems were high performance T8 (HPT8) lighting systems as certified by CEE?		
	91 to 100 percent	2.97
	81 to 90 percent	3.96
	71 to 80 percent	0.11
	51 to 60 percent	0.19
	41 to 50 percent	3.00
	31 to 40 percent	8.95
	21 to 30 percent	11.07
	11 to 20 percent	18.38
	1 to 10 percent	21.06
	0 percent	27.13
	DON'T KNOW	3.18
	<i>n</i>	95
<LINTEC2_C> What percentage of linear systems were reduced-watt T8s (IF NEEDED: 28W & 25W, 30Ws also but not common)?		
	71 to 80 percent	0.32
	51 to 60 percent	4.56
	41 to 50 percent	0.21
	31 to 40 percent	6.85
	21 to 30 percent	9.22
	11 to 20 percent	5.26
	1 to 10 percent	36.27
	0 percent	34.04
	DON'T KNOW	3.27
	<i>n</i>	95
<LINTEC2_D> What percentage of linear systems were standard 32 watt, 800-series T8s?		
	91 to 100 percent	0.45
	71 to 80 percent	4.23
	61 to 70 percent	7.09
	51 to 60 percent	3.85
	41 to 50 percent	2.74
	31 to 40 percent	18.09
	21 to 30 percent	11.09
	11 to 20 percent	18.96
	1 to 10 percent	11.05
	0 percent	20.46
	DON'T KNOW	1.98
	<i>n</i>	95

<LINTEC2_E> What percentage of linear systems were standard 32 watt, 700-series T8s (IF NEEDED: affected by 2012 Stds)?		
	91 to 100 percent	0.68
	81 to 90 percent	0.75
	71 to 80 percent	0.71
	41 to 50 percent	2.60
	31 to 40 percent	1.35
	21 to 30 percent	11.26
	11 to 20 percent	6.34
	1 to 10 percent	17.08
	0 percent	57.17
	DON'T KNOW	2.07
	<i>n</i>	95
<LINTEC2_F> What percentage of linear systems were T12s (IF NEEDED: affected by 2012 Stds)?		
	91 to 100 percent	0.03
	21 to 30 percent	4.37
	11 to 20 percent	1.04
	1 to 10 percent	21.13
	0 percent	71.45
	DON'T KNOW	1.98
	<i>n</i>	95
<LINTEC2_G> What percentage of all the linear systems was LED panels that can be used instead of linear technologies?		
	91 to 100 percent	0.03
	61 to 70 percent	0.71
	31 to 40 percent	1.01
	11 to 20 percent	16.25
	1 to 10 percent	39.38
	0 percent	40.64
	DON'T KNOW	1.98
	<i>n</i>	95
<LINTEC2_H> What percentage of linear systems was LED retrofit kits for linear fluorescent fixtures?		
	51 to 60 percent	0.64
	41 to 50 percent	0.60
	21 to 30 percent	1.51
	11 to 20 percent	8.97
	1 to 10 percent	17.16
	0 percent	69.14
	DON'T KNOW	1.98
	<i>n</i>	95

<LINTEC3_A> From July 2012 to now, did the share of total lighting systems installed in California from this location increase, decrease, or stay about the same for T5 lighting systems		
	Increase	26.56
	Decrease	15.17
	Same	58.27
	<i>n</i>	83
<LINTEC3_B> From July 2012 to now, did the share of total lighting systems installed in California from this location increase, decrease, or stay about the same for High-performance T8 (HPT8) lighting systems as certified by CEE		
	Increase	39.90
	Decrease	9.96
	Same	50.14
	<i>n</i>	63
<LINTEC3_C> From July 2012 to now, did the share of total lighting systems installed in California from this location increase, decrease, or stay about the same for Reduced-watt T8s (IF NEEDED: 28W & 25W , 30Ws also but not common)		
	Increase	26.92
	Decrease	13.78
	Same	59.30
	<i>n</i>	65
<LINTEC3_D> From July 2012 to now, did the share of total lighting systems installed in California from this location increase, decrease, or stay about the same for Standard 32 watt, 800-series T8s		
	Increase	10.52
	Decrease	21.01
	Same	68.48
	<i>n</i>	80
<LINTEC3_E> From July 2012 to now, did the share of total lighting systems installed in California from this location increase, decrease, or stay about the same for standard 32 watt, 700-series T8s (IF NEEDED: affected by 2012 Stds)		
	Increase	2.85
	Decrease	22.41
	Same	74.74
	<i>n</i>	37
<LINTEC3_F> From July 2012 to now, did the share of total lighting systems installed in California from this location increase, decrease, or stay about the same for T12s (IF NEEDED: affected by 2012 Stds)		
	Decrease	26.00
	Same	74.00
	<i>n</i>	19
<LINTEC3_G> From July 2012 to now, did the share of total lighting systems installed in California from this location increase, decrease, or stay about the same for LED panels that can be used instead of linear technologies		
	Increase	51.96

	Decrease	14.75
	Same	31.75
	DON'T KNOW	1.54
	<i>n</i>	52
<LINTEC3_H> From July 2012 to now, did the share of total lighting systems installed in California from this location increase, decrease, or stay about the same for LED retrofit kits for linear fluorescent fixtures		
	Increase	74.91
	Decrease	0.07
	Same	25.02
	<i>n</i>	30
<T12_1> Are you aware of the new law that came into effect in July of 2012 that has phased out the production of most T12 linear fluorescent lamps?		
	YES	85.60
	NO	14.40
	<i>n</i>	95
<T12_1A> You may have heard that the Department of Energy has issued a mandate that prohibits the production of less efficient fluorescent lighting systems. As of last July, the production of many T12 lamps has been phased out. Does this sound familiar?		
	YES	65.89
	NO	27.39
	DON'T KNOW	6.72
	<i>n</i>	17
<T12_3> Do you inform your customers of the T12 linear fluorescent lamp phase out?		
	YES	81.87
	NO	16.49
	DON'T KNOW	1.65
	<i>n</i>	90
<T12_12> Do you think the T12 phase out has had an influence on your customers' decisions to retrofit their existing T12 systems earlier than they otherwise would have?		
	YES	62.62
	NO	30.65
	DON'T KNOW	6.74
	<i>n</i>	95
<T12_13> On average, how much earlier are your customers retrofitting their lighting systems due to the T12 phase out?		
	6 months earlier than they would have	17.92
	between 6 months and 1 year earlier	34.61
	1 to 2 years earlier	17.97
	2 to 4 years earlier	6.95
	4 to 7 years earlier	6.41
	OTHER	3.83

	DON'T KNOW	12.30
	<i>n</i>	53
<T12_14> Do you feel you are doing more projects over the past six months compared to before the T12 phase out (IF NEEDED: before July 2012)?		
	YES	22.03
	NO	75.37
	DON'T KNOW	2.60
	<i>n</i>	95
<T12_15> What percent more projects have you done in the past six months compared to what you were doing prior to the T12 phase out?		
	76 to 100 percent	1.35
	26 and 50 percent	24.10
	11 and 25 percent	49.06
	1 and 10 percent	12.02
	DON'T KNOW	13.46
	<i>n</i>	18
<MCS1> On average, how long does it take to install wall-mounted occupancy sensors in terms of man-hours per sensor? Please include in the time required for: wiring, installation, programming, and commissioning.		
	less than 1 hour	58.58
	1 to 2 hours	23.74
	2 to 3 hours	4.84
	3 to 4 hours	4.49
	Refused	2.49
	DON'T KNOW	5.86
	<i>n</i>	92
<MCS2> On average, how long does it take to install ceiling-mounted occupancy sensors in terms of man-hours per sensor?		
	less than 1 hour	52.37
	1 to 2 hours	31.07
	2 to 3 hours	6.60
	3 to 4 hours	1.62
	5 to 6 hours	3.99
	Refused	2.49
	DON'T KNOW	1.87
	<i>n</i>	92
<MCS3> On average, how long does it take to install fixture-integrated occupancy sensors inside existing fixtures in terms of man-hours per sensor. Include the time required for: dismantling and re-assembling the fixture, in addition to wiring, installation, programming, and commissioning.		
	less than 1 hour	66.02
	1 to 2 hours	17.14

	2 to 3 hours	1.29
	3 to 4 hours	6.07
	Refused	2.49
	DON'T KNOW	6.98
	<i>n</i>	92
<MCS6> On average, how long does it take to replace an HID with a T5 fixture in terms of man-hours per fixture where the fixtures are accessible with a ladder? Please include the time required for: removal of existing fixture+lamp, decommissioning the old fixture, wiring the new fixture, installation of the new fixture, and commissioning.		
	less than 1 hour	39.19
	1 to 2 hours	37.45
	2 to 3 hours	16.34
	3 to 4 hours	0.66
	4 to 5 hours	0.47
	5 to 6 hours	1.44
	Refused	2.49
	DON'T KNOW	1.95
	<i>n</i>	92
<MCS7> On average, how long does it take to replace an HID with a T5 fixture in terms of man-hours per fixture where the ceiling height requires a lift instead of a ladder?		
	less than 1 hour	37.04
	1 to 2 hours	28.80
	2 to 3 hours	16.46
	3 to 4 hours	8.09
	4 to 5 hours	2.03
	5 to 6 hours	1.88
	6 to 7 hours	0.62
	7 to 8 hours	0.38
	9 to 10 hours	0.47
	Refused	2.49
	DON'T KNOW	1.74
	<i>n</i>	92
<MCS8> On average, how long does it take to replace a 4-ft T12 fixture with a T5 or T8 fixture in terms of man-hours per fixture where the fixtures are recessed in "T-bar Ceilings" and accessible with a ladder? Please include the time required for: removal of existing fixture+lamp+ballast, wiring the new fixture and ballast, installation, and commissioning.		
	less than 1 hour	59.16
	1 to 2 hours	28.50
	2 to 3 hours	3.91
	3 to 4 hours	2.30
	5 to 6 hours	1.44

	8 to 9 hours	0.47
	Refused	2.49
	DON'T KNOW	1.74
	<i>n</i>	92
<MCS9> On average, how long does it take to replace a 4-ft T12 fixture with a T5 or T8 fixture in terms of man-hours per fixture where the fixtures are surface-mounted on "T-bar Ceilings" and accessible with a ladder?		
	less than 1 hour	67.37
	1 to 2 hours	21.11
	2 to 3 hours	4.63
	3 to 4 hours	2.19
	6 to 7 hours	0.47
	Refused	2.49
	DON'T KNOW	1.74
	<i>n</i>	92
<MCS10> On average, how long does it take to replace a low efficiency linear ballast with a high efficiency ballast in terms of man-hours per ballast where the fixtures are recessed in "T-bar Ceilings" and accessible with a ladder? Please include the time required for: removal of existing ballast, wiring the new ballast, installation, and commissioning.		
	less than 1 hour	80.61
	1 to 2 hours	14.51
	4 to 5 hours	0.47
	Refused	2.49
	DON'T KNOW	1.93
	<i>n</i>	92
<MCS11> On average, how long does it take to replace a low efficiency linear fluorescent ballast with high efficiency ballast in terms of man-hours per ballast in "high bay" ceilings where a lift is required?		
	less than 1 hour	63.04
	1 to 2 hours	18.84
	2 to 3 hours	8.60
	3 to 4 hours	1.84
	8 to 9 hours	0.08
	9 to 10 hours	0.47
	Refused	2.49
	DON'T KNOW	4.65
	<i>n</i>	92
<MCS12> On average, how long does it take to replace existing T8 lamps with new T8 lamps for 2-lamp fixtures recessed in "T-bar Ceilings" accessible with a ladder, in terms of man-hours per fixture? Please include the time required for: removal of existing lamps, installation of new lamps, and commissioning.		
	less than 1 hour	87.87
	1 to 2 hours	7.57
	Refused	2.50

DON'T KNOW	2.06
<i>n</i>	90
<MCS13> On average, how long does it take to replace existing T8 lamps new T8 lamps for 2-lamp fixtures in "high bay" ceilings where a lift is required, in terms of man-hours per fixture.	
less than 1 hour	75.77
1 to 2 hours	12.74
2 to 3 hours	4.64
3 to 4 hours	1.21
4 to 5 hours	0.81
9 to 10 hours	0.47
Refused	2.49
DON'T KNOW	1.87
<i>n</i>	91
<MCS14> On average, how long does it take to "de-lamp" a typical 3-lamp fixture in "T-bar Ceilings" accessible with a ladder, in terms of man-hours per fixture. Please include the time required for: removal of existing lamp and holders.	
less than 1 hour	88.48
1 to 2 hours	4.44
2 to 3 hours	1.44
6 to 7 hours	0.47
Refused	2.49
DON'T KNOW	2.68
<i>n</i>	92
<MCS15> On average, how long does it take to "de-lamp" a typical 3-lamp fixture in "High Bay Ceilings" where a lift is required in terms of man-hours per fixture.	
less than 1 hour	76.77
1 to 2 hours	9.91
2 to 3 hours	3.44
3 to 4 hours	1.44
6 to 7 hours	0.47
7 to 8 hours	2.99
Refused	2.49
DON'T KNOW	2.49
<i>n</i>	92
<MCS16> On average, how long does it take to prepare removed linear fluorescent lamps/ballasts/fixtures for disposal, in terms of man-hours per 100 lamps/fixtures/ballasts. Please include the time required for: collecting items for disposal, managing broken items, packaging, and arranging for pick-up. This estimate should not include the time it takes for the disposal companies to pick up and dispose of the equipment.	
less than 1 hour	13.45
1 to 2 hours	11.97
2 to 3 hours	6.61

3 to 4 hours	11.76
4 to 5 hours	1.54
5 to 6 hours	9.48
6 to 7 hours	0.62
7 to 8 hours	8.42
9 to 10 hours	0.20
15 to 20 hours	2.67
20 to 30 hours	1.24
30 to 40 hours	2.02
40 to 60 hours	5.71
more than 60 hours	8.84
Refused	2.49
DON'T KNOW	12.97
<i>n</i>	92
<LE1> Between 2011 and 2012, did the share of your general overhead fixture installations or retrofits accounted for by LED technologies increase, decrease, or stay about the same?	
Increased	81.51
Stayed the same	18.49
<i>n</i>	48
<LE1A> What percent of linear fixtures installed did LED panels account for in 2012?	
76 to 100 percent	1.52
26 and 50 percent	7.44
11 and 25 percent	13.02
1 and 10 percent	63.22
DON'T KNOW	14.79
<i>n</i>	37
<LE3A> During 2012, did any of your customers request installation or proposals for installation of LED panels for use in general lighting applications on their own? That is, before your firm made its own recommendations?	
YES	69.88
NO	30.12
<i>n</i>	86
<LE3B> And how would you characterize the frequency of such requests? Would you say it was in...	
All cases where LED technology was appropriate	19.34
Most cases where LED technology was appropriate	13.99
Some cases where LED technology was appropriate	25.29
A few cases where LED technology was appropriate	29.17
Very few cases where LED technology was appropriate	12.20
<i>n</i>	53

<LE4> What do you think is the most important reason that your customers are interested in LED panels in general lighting applications?		
	Energy Savings	57.36
	Availability of models that fit the application	0.21
	Recent decreases in prices	3.82
	Better light output compared to alternatives	2.62
	Better looking fixtures compared to alternatives	4.04
	Customer concern for energy costs	6.08
	Longer useful life/lower maintenance costs	12.70
	Lower operating costs	8.20
	Better control (dim ability)	0.88
	OTHER	2.45
	DON'T KNOW	1.64
	<i>n</i>	95
<LE6> What do you think is the most important reason that some of your customers may hesitate to purchase LED panels for use in general overhead applications?		
	Lack of appropriate models	0.60
	High price	86.75
	Unproven performance	1.57
	Poor light output	1.30
	Poor aesthetics	0.13
	Customers unfamiliar with the technology	2.96
	OTHER	3.93
	DON'T KNOW	2.77
	<i>n</i>	95
<LE10A> In roughly what percentage of your projects did you sell or install LED bulbs for use in medium screw based fixtures?		
	91 to 100 percent	1.50
	81 to 90 percent	11.44
	71 to 80 percent	2.98
	61 to 70 percent	4.16
	41 to 50 percent	9.36
	21 to 30 percent	3.76
	11 to 20 percent	9.87
	1 to 10 percent	50.40
	0 percent	6.53
	<i>n</i>	44

<LE10B> What percentage of the total outdoor fixtures your firm installed in 2012 was accounted for by LED technologies?		
	91 to 100 percent	0.11
	71 to 80 percent	2.94
	61 to 70 percent	1.98
	41 to 50 percent	2.60
	21 to 30 percent	25.93
	11 to 20 percent	8.83
	1 to 10 percent	48.40
	0 percent	5.79
	DON'T KNOW	3.42
	<i>n</i>	63
<LE10C> What percentage of the total high bay lighting fixtures your firm installed in 2012 was accounted for by LED technologies?		
	91 to 100 percent	5.67
	51 to 60 percent	1.33
	41 to 50 percent	5.79
	31 to 40 percent	1.29
	21 to 30 percent	13.52
	11 to 20 percent	15.30
	1 to 10 percent	45.13
	0 percent	11.98
	<i>n</i>	29
<LE10H> What percentage of the total [OTHER APPLICATION] your firm installed in 2012 was accounted for by LED technologies?		
	91 to 100 percent	50.07
	81 to 90 percent	4.09
	51 to 60 percent	5.32
	41 to 50 percent	11.68
	21 to 30 percent	5.63
	1 to 10 percent	22.54
	Refused	0.67
	<i>n</i>	10
<LE22> Generally, how satisfied have your customers been with the LED technologies they have installed? Would you say it is ...		
	Very satisfied	55.69
	Somewhat satisfied	35.91
	Somewhat dissatisfied	1.19
	DON'T KNOW	7.21
	<i>n</i>	83
<LE27> Given the trends you have observed in LED technology, by what percentage do you think LED		

fixture prices would need to decrease from their current levels in order for their share of the market for general lighting applications to double?		
	91 to 100 percent	1.97
	71 to 80 percent	3.06
	51 to 60 percent	0.44
	41 to 50 percent	45.81
	31 to 40 percent	9.11
	21 to 30 percent	18.72
	11 to 20 percent	13.75
	1 to 10 percent	1.04
	0 percent	0.75
	DON'T KNOW	5.35
	<i>n</i>	95
<LE28> First, how important do you think promotion of LED technologies is to the competitive position of your firm over the next three years. Do you think it will be ...		
	Very important	32.89
	Somewhat important	39.73
	Not very important	20.53
	Not at all important	4.87
	DON'T KNOW	1.98
	<i>n</i>	95
<LE29> Are you aware of any programs operated by utilities or government agencies in your area that provide incentives for the installation of LEDs in commercial and industrial facilities?		
	YES	42.60
	NO	56.96
	DON'T KNOW	0.44
	<i>n</i>	95
<LE30> Has your firm completed projects with the assistance of these programs?		
	YES	38.20
	NO	61.80
	<i>n</i>	40
<LE31> How important do you think utility or government program support is to increasing the market share for LED technologies in the commercial and industrial market? Would you say it is...		
	Very important	53.63
	Somewhat important	31.59
	Not very important	5.86
	Not at all important	5.26
	DON'T KNOW	3.66
	<i>n</i>	95

<LE32> Finally, do you refer to either of the following technical resources in selecting LED lighting for use in your projects?	
Energy Star qualified LED Products List	24.74
Design Lights Consortium Qualified Products List	7.39
BOTH	24.35
NEITHER	43.51
<i>n</i>	95
<GENDER> BY OBSERVATION ONLY...	
Male	95.83
Female	4.17
<i>n</i>	95

Appendix C

2010-2012 CPUC CMST HVAC Contractor Survey

2010-2012 CPUC CMST HVAC CONTRACTOR SURVEY

INTRODUCTION AND FINDING CORRECT RESPONDENT

OUTCOME1 This is <INTERVIEWER NAME> calling on behalf of the CPUC, the California Public Utilities Commission from Itron, Incorporated. THIS IS NOT A SALES CALL NOR A SERVICE CALL. I need to speak with the person in your organization that is most familiar with your sales and installation of packaged and split system AC units.

1	Yes	PBLOCK HI
2	No	PBLOCK HI
88	Refused	PBLOCK HI
99	Don't Know	PBLOCK HI

PBLOCK HI

TCONNAME Who would be the person most familiar with your organization's sales and installation procedures for HVAC equipment?

	Enter NEW CONTACT NAME and move on	May I
--	------------------------------------	-------

May I May I speak with him/her?

1	Yes	Intro3:s
2	No (not available right now@, set cb)	Abandoned Appointment
3	No one knows about commercial HVAC	T&T

Intro3:s Hello, my name is <INTERVIEWER NAME> calling on behalf of the CPUC, California Public Utilities Commission from Itron Consulting. THIS IS NOT A SALES CALL. We are interested in speaking with the person most knowledgeable about your organization's involvement in the sales and installation of HVAC equipment. I was told that would be you. Is this correct?

1	Yes	PERSON
2	No, there is someone else	T&T
88	No and I don't know who to refer you to	T&T

ENDPBLOCK

PERSON Today we are conducting a study with organizations like yours for the CPUC. AT NO TIME WILL WE TRY TO SELL YOU ANYTHING. This is strictly a fact finding study being conducted by the CPUC. We need to speak with the person in your organization that is most familiar with its involvement in the sales and installation of HVAC equipment. Would that be you?

1	Yes	DISPLAY
2	Yes, need to make an appointment	APPT
3	No, but I will give you the name	PBLOCK HI
4	Refuses to do the study	T&T

Thank & Terminate	Thank you for your time and help today.	END
------------------------------	---	-----

DISPLAY	Before we start, I would like to inform you that for quality control purposes, this call may be monitored or recorded by my supervisor.	Scrn_Addr
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SCREENER

IF ^UNRECORDED<ADDRESS> ASK;

Scrn_Addr Our records show your firm is located at <ADDRESS> in <CITY>. Is that correct?

1	Yes	BUS_NAME
2	No	CORRECT
88	Refused	COMMENT
99	Don't know	CORRECT

COMMENT	We were attempting to reach <BUSINESS> at <ADDRESS> and <CITY> and since you cannot confirm this address those are all of the questions we have for your today. On behalf of the CPUC thank you for your time.	T&T
----------------	--	-----

CORRECT May I have your correct address?

&CORRECT	Corrected Address	COMPARE
---------------------	-------------------	---------

COMPARE IF ADDRESSSES ARE CLOSE, CONTINUE

		COMMENT1
--	--	----------

IF UNRECORDED<ADDRESS> ASK;

STREET_ADDR May I have the street address of this location?

77	Record as <BUSINESS_NAME>	COMMENT1
88	Refused	COMMENT1
99	Don't Know	COMMENT1

ONCE THE CORRECT RESPONDENT IS ON THE PHONE

COMMENT1	Throughout this survey, when I ask you to provide information about "your firm" or "your company", unless otherwise instructed, please provide information for the specific location of your company that you are at presently.	BUS_NAME
-----------------	---	-----------------

BUS_NAME May I please confirm your company name?

77	Record as <BUSINESS_NAME>	VERIFY
88	Refused	VERIFY
99	Don't Know	VERIFY

VERIFY For verification purposes, may I have your name?

77	Record Name	JOB_TITLE
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JOB_TITLE What is your job title?

1	Scheduler/Office Manager	PERF1
2	HVAC Service/Field Technician	PERF1
3	Mechanical Engineer	PERF1
4	Design Engineer	PERF1
5	Refrigerant Technician	PERF1
6	Operations Manager	PERF1
7	Residential Services Manager	PERF1
8	Commercial Services Manager	PERF1
9	Sales Manager	PERF1
10	General Manager	PERF1
11	President/CEO	PERF1
12	Owner / Co-Owner / Partner /Member of LLP	PERF1
77	OTHER - RECORD	PERF1
88	Refused	PERF1
99	Don't Know	PERF1

PERF1 Do you perform installations of HVAC equipment for commercial or industrial customers in California?

1	Yes	PERF2_A
2	No	PERF2_A
88	Refused	PERF2_A
99	Don't know	PERF2_A

Do you sell HVAC equipment to commercial or industrial customers, which may include multifamily residential facilities

PERF2_A in California?

1	Yes	PERF2_B
2	No	PERF2_B
88	Refused	PERF2_B
99	Don't know	PERF2_B

PERF2_B Do you conduct HVAC sales to other contractors for installation in commercial or industrial facilities in California?

1	Yes	PERF1_A
2	No	PERF1_A
88	Refused	PERF1_A
99	Don't know	PERF1_A

PERF1_A Do you perform installations of HVAC equipment for residential customers in California?

1	Yes	PERF1_D
2	No	PERF1_D
88	Refused	PERF1_D
99	Don't know	PERF1_D

PERF1_D Do you perform installations of HVAC equipment for public sector entities in California?

1	Yes	G3
2	No	G3
88	Refused	G3
99	Don't know	G3

G3 Aside from this location where I have reached you, does your firm have other locations in California?

1	Yes	TENPERCENT
2	No	TENPERCENT
88	Refused	TENPERCENT
99	Don't know	TENPERCENT

TENPERCENT Would you say that at least 10 % of your firm's revenue is from CA HVAC sales and installations?

1	Yes	G4A
2	No	T&T
88	Refused	T&T
99	Don't know	T&T

G4A In which of the following major metropolitan areas within California does your location provide services? Is it...**[READ LIST AND ACCEPT MULTIPLES]**. [IF NEEDED, "What geographical regions do you predominantly work in California installing, repairing and/or selling HVAC equipment?"]

1	SF Bay Area (North, East, South Bay)	read next
2	Northern Valley (Redding, Yuba City)	read next
3	Sacramento Area	read next
4	Central Valley (Modesto, Fresno, Bakersfield)	read next
5	Desert (Palm Springs, Imperial Valley)	read next
6	LA-Coastal (LA, Orange County)	read next
7	LA-Inland Empire (Ontario, Riverside)	read next
8	San Diego	read next
77	OTHER - RECORD	G6
88	Refused	G6
99	Don't Know	G6

G6 About how many full-time equivalent employees does your company have in all of its locations in California?

77	# employees	G4B
888	Refused	G4B
999	Don't Know	G4B

G4B Does your company provide HVAC services outside of California ?

1	Yes	G4C
2	No	G7
88	Refused	G7
99	Don't Know	G7

G4C In which states besides California does your company provide HVAC services? **[ACCEPT MULTIPLES]**

77	Record States (two letter abbreviations)	G7
88	Refused	G7
99	Don't Know	G7

QUALIFICATION FOR SURVEY

IF PERF1 = 1 OR PERF2_A = 1, ASK G7; ELSE SKIP TO Q3

G7 What are the most common types of commercial and industrial businesses you typically work with? [IF NEEDED: "For example offices, industrial, retail stores, etc."] **ALLOW FOR UP TO 3 MULTIPLE RESPONSES**

1	Offices (non-medical)	Q3
2	Restaurant/Food Service	Q3
3	Food Store (grocery/liquor/convenience)	Q3
4	Agricultural (farms, greenhouses)	Q3
5	Retail Stores	Q3
6	Warehouse	Q3
7	Hospitals	Q3
8	Health Care (Medical/Dental Offices, nursing homes, etc.)	Q3
9	Education (preschools, K-12)	Q3
10	Universities (Colleges, Community Colleges, Vocational Schools)	Q3
11	Lodging (hotel/rooms)	Q3
12	Public Assembly (church, fitness, theatre, library, museum, convention)	Q3
13	Services (hair, nail, massage, spa, gas, repair)	Q3
14	Industrial (food processing plant, Manufacturing)	Q3
15	Laundry (Coin Operated, Commercial Laundry Facility, Dry Cleaner)	Q3
16	Condo Assoc./Apartment Mgr (Garden Style, Mobile Home Park, High-rise, Townhouse)	Q3
17	Public Service (fire, police, postal, military)	Q3
77	Other/Do not use unless necessary	Q3
88	Refused	Q3
99	Don't Know	Q3

Q3 Approximately what % of your firm's overall revenue is from HVAC sales and installations nationwide?

0-100	Record share of revenue from 0 to 100%	AQ2
101	Refused	Q3aa
102	Don't Know	Q3aa

Q3aa Would you say it is...

1	1-10%	AQ2
2	11-20%	AQ2
3	21-40%	AQ2
4	41-60%	AQ2
5	61-80%	AQ2
6	81-100%?	AQ2
66	None	AQ2
88	Refused	AQ2
99	Don't Know	AQ2

AQ2 What % of THAT revenue is from HVAC sales and installations in California? [IF NEEDED: "Of your HVAC sales and installation revenue nationwide, what percent comes from California HVAC sales and installations?"]

0-100	Record share of revenue from 0 to 100%	CHECK
101	Refused	AQ2a
102	Don't Know	AQ2a

AQ2a Would you say it is...

1	1-10%	CHECK
2	11-20%	CHECK
3	21-40%	CHECK
4	41-60%	CHECK
5	61-80%	CHECK
6	81-100%?	CHECK
66	None	CHECK
88	Refused	CHECK
99	Don't Know	CHECK

IF F;
CHECK1: Q 0...100;
ENDIF

IF Q3AA(1);
COMPUTE CHECK1 5;
ENDIF;

IF Q3AA(2);
COMPUTE CHECK1 15;
ENDIF;

IF Q3AA(3);
COMPUTE CHECK1 30;
ENDIF;

IF Q3AA(4);
COMPUTE CHECK1 50;
ENDIF;

IF Q3AA(5);
COMPUTE CHECK1 70;
ENDIF;

IF Q3AA(6);
COMPUTE CHECK1 90;
ENDIF;

IF F;
CHECK2: Q 0....100;
ENDIF;

IF AQ2A(1);
COMPUTE CHECK2 5;
ENDIF;

IF AQ2A(2);
COMPUTE CHECK2 15;
ENDIF;

IF AQ2A(3);
COMPUTE CHECK2 30;
ENDIF;

IF AQ2A(4);
COMPUTE CHECK2 50;
ENDIF;

IF AQ2A(5);
COMPUTE CHECK2 70;
ENDIF;

IF AQ2A(6);
COMPUTE CHECK2 90;
ENDIF;

IF Q3 <<101;
COMPUTE CHECK1 Q3;
IF AQ2 << 101;
ENDIF;

COMPUTE CHECK2 AQ2;
ENDIF;

TEMPORARY CHECK3;
COMPUTE CHECK3 (CHECK1 * CHECK2) / 100;

WHILE CHECK3 << 10;
DISPLAY: "You stated earlier that at least 10 percent of your revenue is from California HVAC sales and installations but when I ask you for what percent of your nationwide sales are in California, I compute that to be only <CHECK3> percent. Can we review these numbers?"

REDO TENPERCENT;
ENDWHILE;

IF AQ2 <> 0;

DISPLAY Adding up to 100 percent, what percent of your firm's California HVAC SALES AND INSTALLATIONS revenue in the past year is from the residential, small C&I (less than 50,000 sq. ft.), and large C&I (greater than 50,000 sq. ft.) sectors? (MUST add to 100%)?

LINC2A	RECORD % Residential	CHECK
LINC2B	RECORD % Small Commercial (<50,000 sq. ft.)	CHECK
LINC2C	RECORD % Large Commercial or Industrial (>= 50,000 sq. ft.)	CHECK
101	Refused	CHECK
102	Don't Know	CHECK

CHECK IF LINC2A < 101 AND LINC2B < 101 AND LINC2C < 101;
COMPUTE LINC2 = LINC2A + LINC2B + LINC2C;
IF LINC2 <> 100, THEN READ, "I must have recorded something incorrectly."
REDO LINC2A; LINC2B; LINC2C;
CONTINUE WITH CHECK;
IF LINC2B < 101 AND LINC2C < 101;
COMPUTE LINC2ADD = LINC2B + LINC2C;

ASK Q14 IF LINC2A > 0. ELSE SKIP TO Q14NR.

Q14 Approximately how many NEW AND REPLACEMENT residential HVAC units does your firm install annually out of this location?

77	Record # of projects	Q14NR
8888	Refused	Q4a
9999	Don't Know	Q4a

Q4a Would you say it is...

1	1 to 25	G14NR
2	26 to 50	G14NR
3	51 to 75	G14NR
4	76 to 100	G14NR
5	101 to 150	G14NR
6	151 to 200	G14NR
7	Over 200	G14NR
66	None	G14NR
88	Refused	G14NR
99	Don't Know	G14NR

ASK Q14NR IF (LINC2B + LINC2C) > 0. ELSE SKIP TO G5A.

Q14NR Approximately how many NEW AND REPLACEMENT non-residential HVAC units does your firm install annually out of this location?

77	Record # of projects	G5
88888	Refused	Q4aNR
99999	Don't Know	Q4aNR

Q4aNR Would you say it is...

1	1 to 25	WC1
2	26 to 50	WC1
3	51 to 75	WC1
4	76 to 100	WC1
5	101 to 150	WC1
6	151 to 200	WC1
7	Over 200	WC1
66	None	WC1
88	Refused	WC1
99	Don't Know	WC1

WC1 What was your average number of employees for the last year at your location?

77	RECORD # employees	WC2
88888	Refused	WC2
99999	Don't Know	WC2

WC2 How many of these employees are field technicians? Field technicians refer to installers or service workers (not administrative, sales, or management staff).

77	RECORD # employees	WC3
88888	Refused	WC3
99999	Don't Know	WC3

IF WC2 = 0, THEN THANK AND TERMINATE

WC4 How many of your technicians at this location are full-time permanent employees?

77	RECORD # employees	WC4
88888	Refused	WC4
99999	Don't Know	WC4

WC5 How many of your technicians at this location are casual or part-time employees, hired for specific jobs, and then are let go when the job is completed?

77	RECORD # employees	WC6
88888	Refused	WC6
99999	Don't Know	WC6

WC6 Are some of your technicians at this location independent contractors rather than employees?

1	Yes	WC7
2	No	G5A
88	Refused	G5A
99	Don't know	G5A

WC7 If so, how many?

77	RECORD # employees	G5A
88888	Refused	G5A
99999	Don't Know	G5A

G5A Of your company's field tech employees at this location, how many hold a State of California C-20 license? [IF NEEDED, "A C-20 license pertains to a license that allows you to work on "warm-air heating ventilation and conditioning equipment" ...]

77	RECORD # employees	G55
88888	Refused	G55
99999	Don't Know	G55

G56 Have you heard of the California IOUs' Quality Installation Program?

1	Yes	G5B
2	No	Installations
88	Refused	Installations
99	Don't Know	Installations

G5D How many of your field techs who hold a State of CA C-20 license at this location perform work through the California IOUs' Residential Quality Installation program?

77	RECORD # installers	G5E
88888	Refused	G5E
99999	Don't Know	G5E

G5E How many of your field techs who hold a State of CA C-20 license at this location perform work through the California IOUs' Commercial Quality Installation program?

77	RECORD # installers	Installations
88888	Refused	Installations
99999	Don't Know	Installations

HVAC INSTALLATIONS

DISPLAY The next set of questions are going to relate specifically to your organization's HVAC sales and installations in residential and non-residential sectors. We are only interested in the sales and installations from this location and only for the sales and installations of HVAC equipment in California.

Adding up to 100 percent, what percent of this location's HVAC business is in new construction, what percent is retrofit/remodel, and what percent is maintenance and repair?

LL1_A	RECORD % New construction	LL2
LL1_B	RECORD % Retrofit/remodel	LL2
LL1_C	RECORD % Maintenance/repair	LL2
101	Refused	LL2
102	Don't Know	LL2

IF LL1_A < 101 & LL1_B < 101 and LL1_C < 101;
COMPUTE LL1 = LL1_A + LL1_B + LL1_C;
IF LL1 <> 100 THEN READ, "I must have recorded something incorrectly."
REDO LL1_A; LL1_B; LL1_C

Adding up to 100 percent, what percent of new installations completed by this location are for...

LL2_A	the RESIDENTIAL sector	RCRD/Ref/DK
LL2_B	the NON-RESIDENTIAL sector	RCRD/Ref/DK

IF LL2_A << 101 AND LL2_B << 101;
COMPUTE LL2_ = LL2_A + LL2_B
IF LL2_ <> 100 THEN READ, "I must have recorded something incorrectly."
REDO LL2_A; LL2_B;

Adding up to 100 percent, what percentage of new installations are for...

LL3_A	units that are replacing operational units (was early retirement)	RCRD/Ref/DK
LL3_B	units that are replacing non-operational units (was replace on burn-out)	RCRD/Ref/DK
LL3_C	new construction	RCRD/Ref/DK

IF LL3_A < 101 & LL3_B < 101 and LL3_C < 101;
COMPUTE LL3_ = LL3_A + LL3_B + LL3_C;
IF LL3_ <> 100 THEN READ, "I must have recorded something incorrectly."
REDO LL3_A; LL3_B; LL3_C

ASK IF LL2_A > 0;

IN1R During a typical residential installation, how long does your technician spend working on each unit?

77	Record Response	IN1NR
88	Refused	IN1NR
99	Don't Know	IN1NR

ASK IF LL2_B > 0;

IN1NR During a typical non-residential installation, how long does your technician spend working on each unit?

77	Record Response	IN2
88	Refused	IN2
99	Don't Know	IN2

I'd like to ask a few questions on the installation services your technicians routinely perform. Does your company have written instructions, for example a manual or handbook on how the install should be performed or do you just refer to the

IN2 manufacturers specifications? Or something else? [DO NOT READ RECORD ALL THAT APPLY]

1	Yes, we have a manual/guidebook/instructions	IN3
2	No, None	LL2
3	No, we use the manufacturers specifications	LL2
77	Record any comments provided	IN3
88	Refused	LL2
99	Don't Know	LL2

IN3 What do the install instructions consist of? Can you describe some of the important points?

77	Record Policy	IN4
88	Refused	IN4
99	Don't Know	IN4

IN4 How are the instructions documented and distributed to your staff?

77	Record Response	DISPLAY
88	Refused	DISPLAY
99	Don't Know	DISPLAY

SMALL, MEDIUM, AND LARGE PACKAGE/SPLIT AC/HP SYSTEMS

IF ((LL1_A + LL1_B) * LL2_B) / 100 ≥ 9% THEN CONTINUE; ELSE SKIP TO WC10

DISPLAY The next set of questions are going to relate specifically to your organization's sales and installations of non-residential, commercial, and industrial HVAC systems. Adding to 100 percent, I will ask you what percent are in each of these three groups. **!!** Small - defined for this survey as units that 5 tons or less, **!!** MEDIUM SIZE ranging from 5.5 to 20 tons, and **!!** LARGE SIZE ranging from 20 to 63 tons.\;

LL2_SM What percent of your 2011, 2012 and 2013 non-residential HVAC systems were installations of small packaged and split-system single zone systems, including heat pumps. "Small" is defined for this survey as units that are 5 tons or less, and having a SEER efficiency rating. This also excluded non-ducted mini-split systems. We are only interested in the sales and installations made from this location, and only the sales and installations of HVAC equipment in CA.

77	Record Percent	LINTEC1
101	Refused	LINTEC1
102	Don't Know	LINTEC1

LL2_MD For the years 2011, 2012 and 2013, what percentage of the HVAC units sold or installed by this location for commercial and industrial projects were air conditioning systems from 65,000-240,000 Btuh? That is, general middle sized air conditioning systems, typically from 5.5-20 tons, that your firm installed in non-residential businesses.

77	Record Percent	LINTEC3_A_MD
101	Refused	LINTEC3_A_MD
102	Don't Know	LINTEC3_A_MD

LL2_LG For the years 2011, 2012 and 2013, what percentage of the HVAC units sold or installed by this location for commercial and industrial projects were air conditioning systems from 240,000-760,000 Btuh? That is, general large sized air conditioning systems, typically from 20-63 tons, that your firm installed in non-residential businesses.

77	Record Percent	LINTECH3_A_LG
101	Refused	LINTECH3_A_LG
102	Don't Know	LINTECH3_A_LG

**While LL2_SM < 101 and LM2_MD < 101 and LL2_LG < 101;
COMPUTE LL2_SM + LL2_MD + LM2_LG;
IF <=> 100, REDO LL2_SM, LL2_MD, and LL2_LG;**

IF LL2_SM > 0 THEN CONTINUE, ELSE SKIP TO LM2_MD;
DISPLAY For systems under 65,000 btuh (5.5 tons or smaller) that your firm installed in 2011, 2012, and 2013, we would like to ask you about the efficiency or SEER level for systems sold or installed.

LINTEC3_A_
SM What share of your single zoned systems were 13 SEER systems?

77	Record percent	LINTEC3_B
88	Refused	LINTEC3_B
99	Don't Know	LINTEC3_B

LINTEC3_B_
SM What share of your single zoned systems were 14 SEER systems?

1	Record	LINTEC3_C
88	Refused	LINTEC3_B
99	Don't Know	LINTEC3_B

LINTEC3_C_
SM What share of your single zoned systems were 15 SEER systems?

1	Record	LINTEC3_D
88	Refused	LINTEC3_D
99	Don't Know	LINTEC3_D

LINTEC3_D_
SM What share of your single zoned systems were 16 SEER and higher systems?

1	Record	DISPLAY_MD
88	Refused	DISPLAY_MD
99	Don't Know	DISPLAY_MD

$LINTEC3_A_SM + LINTEC3_B_SM + LINTEC3_C_SM + LINTEC3_D_SM = 100$

MEDIUM PACKAGE/SPLIT AC/HP SYSTEMS

IF (LL1_A +LL1_B)*NR1/100 > 10% THEN CONTINUE TO THIS TAB OF QUESTIONS

IF LL2_MD > 0 THEN CONTINUE, ELSE SKIP TO LM2_LG;

DISPLAY For systems from 65,000-240,000 btuh (5.5 - 20 tons) that your firm installed in 2011, 2012, and 2013, we would like to ask you about the efficiency or EER level for systems sold or installed.

LINTEC3_A_MD What share of your systems were 11.4 EER or lower systems?

77	Record percent	LINTECH3_B_MD
88	Refused	LINTECH3_B_MD
99	Don't Know	LINTECH3_B_MD

LINTEC3_B_MD What share of your systems were 11.5 - 11.9 EER systems?

1	Record	LINTEC3_C_MD
88	Refused	LINTEC3_C_MD
99	Don't Know	LINTEC3_C_MD

LINTEC3_C_MD What share of your systems were 12-12.4 EER systems?

1	Record	LINTEC3_D_MD
88	Refused	LINTEC3_D_MD
99	Don't Know	LINTEC3_D_MD

LINTEC3_D_MD What share of your systems were 12.5 EER and higher systems?

1	Record	DISPLAY_LG
88	Refused	DISPLAY_LG
99	Don't Know	DISPLAY_LG

$LINTEC3_A_MD + LINTEC3_B_MD + LINTEC3_C_MD + LINTEC3_D_MD = 100$

LARGE PACKAGE/SPLIT AC/HP SYSTEMS

IF LL2_LG = 0 THEN SKIP TO MEASURE COST SCREENER

DISPLAY For systems from 240,000-760,000 btuh (20-63 tons) that your firm installed in 2011, 2012, and 2013, we would like to ask you about the efficiency or EER level for systems sold or installed.

LINTEC3_A_LG What share of your systems were 10.4 EER or lower systems?

77	Record percent	LINTEC3_B_LG
88	Refused	LINTEC3_B_LG
99	Don't Know	LINTEC3_B_LG

LINTEC3_B_LG What share of your systems were 10.5 - 10.7 EER systems?

1	Record	LINTEC3_C_LG
88	Refused	LINTEC3_C_LG
99	Don't Know	LINTEC3_C_LG

LINTEC3_C_LG What share of your systems were 10.8-11 EER systems?

1	Record	LINTEC3_D_MG
88	Refused	LINTEC3_D_MG
99	Don't Know	LINTEC3_D_MG

LINTEC3_D_LG What share of your systems were 11.1 EER and higher systems?

1	Record	SCREENER
88	Refused	SCREENER
99	Don't Know	SCREENER

$LINTEC3_A_LG + LINTEC3_B_LG + LINTEC3_C_LG + LINTEC3_D_LG = 100$

MEASURE COST STUDY

SCREENER Next, I'd like to know if you are knowledgeable on the labor-hours required and general costs associated with a installation on a AC unit for a commercial customer. Would you be able to comment on this topic?

1	Yes	Qintro
2	IF NO, ASK IF ANOTHER RESPONDENT AT COMPANY MAY KNOW. RECORD	WC10
88	Refused	WC10
99	Don't Know	WC10

QIntro Now I am going to ask you about the labor requirements and other costs associated with repairing or replacing certain HVAC equipment. For each of the following questions, assume that a pre-inspection has been completed and a work plan has already been developed.

The following questions apply to retrofitting a split DX or packaged DX system on a low rise , flat roof, commercial building.

COST_Q1 On average, how much does it cost to rent a crane to remove an old outdoor unit and install a new unit? Please exclude any costs related to required permits.

66	None	COST_Q2
77	Open - Numeric	COST_Q2
88	Refused	COST_Q2
99	Don't Know	COST_Q2

COST_Q2 On average, how many man-hours does it take to remove an old unit, assuming a crane is used for the removal? Please include time associated with pulling refrigerant out, disconnecting electrical and controls, disconnecting the unit from the curb, removal of the unit by crane, and taking the unit to the recycler.

66	None	COST_Q3
77	Open - Numeric	COST_Q3
88	Refused	COST_Q3
99	Don't Know	COST_Q3

COST_Q3 On average, what is the disposal fee for the old unit?

66	None	COST_Q4
77	Open - Numeric	COST_Q4
88	Refused	COST_Q4
99	Don't Know	COST_Q4

COST_Q4 On average, how many man-hours does it take to install a new 5 ton unit? Please include the time required for preparing the curb and installing new curb gaskets, moving the unit into place with the crane, attaching refrigerant piping, connecting electrical and gas as necessary, and connecting ductwork. Assume no new curb is required and no new screen is required to conceal the unit.

66	None	COST_Q5
77	Open - Numeric	COST_Q5
88	Refused	COST_Q5
99	Don't Know	COST_Q5

COST_Q5 On average, how many man-hours does it take to install a new 40 ton unit? Please include the time required for preparing the curb and installing new curb gaskets, moving the unit into place with the crane, attaching refrigerant piping, connecting electrical and gas as necessary, and connecting ductwork. Assume no new curb is required and no new screen is required to conceal the unit.

66	None	COST_Q9
77	Open - Numeric	COST_Q9
88	Refused	COST_Q9
99	Don't Know	COST_Q9

COST_Q9 On average, how many man-hours does it take to perform testing/commissioning on a newly installed 5 ton unit to ensure it is running properly? Please include time required for checking belt alignment, starting compressors and making sure pressure is correct, checking combustion efficiency (in the case of gas units), checking for air leaks in the ductwork, making sure amperage is in the acceptable range, and balancing air flow.

66	None	COST_Q10
77	Open - Numeric	COST_Q10
88	Refused	COST_Q10
99	Don't Know	COST_Q10

COST_Q10 On average, how many man-hours does it take to perform testing/commissioning on a newly installed 40 ton unit to ensure it is running properly? Please include time required for checking belt alignment, starting compressors and making sure pressure is correct, checking combustion efficiency (in the case of gas units), checking for air leaks in the ductwork, making sure amperage is in the acceptable range, and balancing air flow.

66	None	COST_Q11
77	Open - Numeric	COST_Q11
88	Refused	COST_Q11
99	Don't Know	COST_Q11

PTAC Intro: The following questions apply to retrofitting a 1-2 ton through-the-wall PTAC (P-TAC) unit in a hotel room. Assume like-for-like replacement of one PTAC unit with another of the same size.

COST_Q11 On average, how much does it cost to remove and dispose of the old unit? Please include the time required for removing the old unit from the wall sleeve and getting it to a recycler.

66	None	COST_Q12
77	Open - Numeric	COST_Q12
88	Refused	COST_Q12
99	Don't Know	COST_Q12

COST_Q12 On average, how long does it take to move the new unit into place and reconnect the wiring? Please include the time required for loading and transporting the new unit, installing it in the old sleeve, and reconnecting wiring. Exclude any time associated with thermostat or EMS.

66	None	COST_Q13
77	Open - Numeric	COST_Q13
88	Refused	COST_Q13
99	Don't Know	COST_Q13

QM Intro: The following questions apply to performance maintenance for a 5 ton outdoor condenser unit (split) or 5 ton packaged unit in accordance with ASHRAE ("Ash-ray") Standard 180. Assume a low rise commercial building with typical maintenance demands [and that any man-hours that typically overlap between refrigerant charging and coil cleaning are evenly split between these two measures].

COST_Q13 On average, how many man-hours does it take to perform basic maintenance on the unit without a refrigerant charge adjustment or coil cleaning? Please include the time required to check refrigerant charge, check belt alignment, change the filter, check level of coil fouling, and check the electric system.

66	None	COST_Q14
77	Open - Text	COST_Q14
88	Refused	COST_Q14
99	Don't Know	COST_Q14

COST_Q14 On average, how long does it take to correct a refrigerant undercharge or overcharge in terms of man hours per unit?

66	None	COST_Q15
77	Open - Text	COST_Q15
88	Refused	COST_Q15
99	Don't Know	COST_Q15

COST_Q15 On average, how long does it take to clean coils in terms of man-hours per unit? Please include the time required to clean the coils both on the inside and the outside.

66	None	WC10_1
77	Open - Text	WC10_1
88	Refused	WC10_1
99	Don't Know	WC10_1

WORKFORCE AND CONTRACTOR EXPERIENCE

WC10_1 Do you require at least 2 years experience in residential installations for your field technicians that you hire?

1	Yes	WC10_2
2	No	WC10_2
88	Refused	WC10_2
99	Don't Know	WC10_2

WC10_2 Do you require at least 2 years experience in commercial installations for your field technicians that you hire?

1	Yes	WC10_3
2	No	WC10_3
88	Refused	WC10_3
99	Don't Know	WC10_3

Now just a few questions about your workforce and contractor experience and training. I am going to read you a list of qualification that you may require before hiring a technician. For each qualification, will you please tell me if it is a requirement for employment and also, does your firm pay field technicians to complete these programs. The first is...

WC10_3 A state certified apprenticeship in sheet metal

1	YES - Required and YES - we pay to complete these programs	WC10_4
2	YES - Require and NO - we DO NOT PAY to complete these programs	WC10_4
3	NOT required but we WILL PAY to complete these programs	WC10_4
4	NOT required and we DO NOT PAY to complete these programs	WC10_4
88	Refused	WC10_4
99	Don't Know	WC10_4

WC10_4 A state certified apprenticeship in plumbing, pipefitting, or steam fitting

1	YES - Required and YES - we pay to complete these programs	WC10_5
2	YES - Require and NO - we DO NOT PAY to complete these programs	WC10_5
3	NOT required but we WILL PAY to complete these programs	WC10_5
4	NOT required and we DO NOT PAY to complete these programs	WC10_5
88	Refused	WC10_5
99	Don't Know	WC10_5

WC10_5 OSHA 10

1	YES - Required and YES - we pay to complete these programs	WC10_6
2	YES - Require and NO - we DO NOT PAY to complete these programs	WC10_6
3	NOT required but we WILL PAY to complete these programs	WC10_6
4	NOT required and we DO NOT PAY to complete these programs	WC10_6
88	Refused	WC10_6
99	Don't Know	WC10_6

WC10_6 OSHA 30

1	YES - Required and YES - we pay to complete these programs	WC10_7
2	YES - Require and NO - we DO NOT PAY to complete these programs	WC10_7
3	NOT required but we WILL PAY to complete these programs	WC10_7
4	NOT required and we DO NOT PAY to complete these programs	WC10_7
88	Refused	WC10_7
99	Don't Know	WC10_7

WC10_7 NATE - North American Technician Excellence

1	YES - Required and YES - we pay to complete these programs	WC10_8
2	YES - Require and NO - we DO NOT PAY to complete these programs	WC10_8
3	NOT required but we WILL PAY to complete these programs	WC10_8
4	NOT required and we DO NOT PAY to complete these programs	WC10_8
88	Refused	WC10_8
99	Don't Know	WC10_8

WC10_8 HVAC Excellence

1	YES - Required and YES - we pay to complete these programs	WC10_9
2	YES - Require and NO - we DO NOT PAY to complete these programs	WC10_9
3	NOT required but we WILL PAY to complete these programs	WC10_9
4	NOT required and we DO NOT PAY to complete these programs	WC10_9
88	Refused	WC10_9
99	Don't Know	WC10_9

WC10_9 RSES - Refrigeration Service Engineers Society

1	YES - Required and YES - we pay to complete these programs	WC10_10
2	YES - Require and NO - we DO NOT PAY to complete these programs	WC10_10
3	NOT required but we WILL PAY to complete these programs	WC10_10
4	NOT required and we DO NOT PAY to complete these programs	WC10_10
88	Refused	WC10_10
99	Don't Know	WC10_10

WC10_10 BPI - Building Performance Institute

1	YES - Required and YES - we pay to complete these programs	WC10_11
2	YES - Require and NO - we DO NOT PAY to complete these programs	WC10_11
3	NOT required but we WILL PAY to complete these programs	WC10_11
4	NOT required and we DO NOT PAY to complete these programs	WC10_11
88	Refused	WC10_11
99	Don't Know	WC10_11

WC10_11 UA Star "Service Technician, Air Conditioning, and Refrigeration

1	YES - Required and YES - we pay to complete these programs	WC10_12
2	YES - Require and NO - we DO NOT PAY to complete these programs	WC10_12
3	NOT required but we WILL PAY to complete these programs	WC10_12
4	NOT required and we DO NOT PAY to complete these programs	WC10_12
88	Refused	WC10_12
99	Don't Know	WC10_12

WC10_11 UA Star "Service Technician, Air Conditioning, and Refrigeration

1	YES - Required and YES - we pay to complete these programs	WC10_12
2	YES - Require and NO - we DO NOT PAY to complete these programs	WC10_12
3	NOT required but we WILL PAY to complete these programs	WC10_12
4	NOT required and we DO NOT PAY to complete these programs	WC10_12
88	Refused	WC10_12
99	Don't Know	WC10_12

WC10_12 ICB/TABB - International Certification Board / Testing, Adjusting, and Balancing Bureau

1	YES - Required and YES - we pay to complete these programs	WC10_13
2	YES - Require and NO - we DO NOT PAY to complete these programs	WC10_13
3	NOT required but we WILL PAY to complete these programs	WC10_13
4	NOT required and we DO NOT PAY to complete these programs	WC10_13
88	Refused	WC10_13
99	Don't Know	WC10_13

WC10_13 NEBB - National Environmental Balancing Bureau

1	YES - Required and YES - we pay to complete these programs	WC10_14
2	YES - Require and NO - we DO NOT PAY to complete these programs	WC10_14
3	NOT required but we WILL PAY to complete these programs	WC10_14
4	NOT required and we DO NOT PAY to complete these programs	WC10_14
88	Refused	WC10_14
99	Don't Know	WC10_14

WC10_14 AABC - Associated Air Balance Council

1	YES - Required and YES - we pay to complete these programs	WC10_77
2	YES - Require and NO - we DO NOT PAY to complete these programs	WC10_77
3	NOT required but we WILL PAY to complete these programs	WC10_77
4	NOT required and we DO NOT PAY to complete these programs	WC10_77
88	Refused	WC10_77
99	Don't Know	WC10_77

WC10_77 Are there any other training programs for which your firm pays for the employees' training?

1	Yes	WC12
2	No	WC12
88	Refused	WC12
99	Don't Know	WC12

WC12 What is the average cost per year per worker that your firm pays for field technician training?

77	RECORD RESPONSE	WC15
88	Refused	WC15
99	Don't Know	WC15

WC15 What is the starting hourly wage for technicians?

77	RECORD RESPONSE	WC16
88	Refused	WC15a
99	Don't Know	WC15a

WC15a Would you say it is...

	< \$12 / hour	WC16
	\$12 - \$17.99 / hour	WC16
	\$18 - \$24.99 / hour	WC16
	> \$25 / hour	WC16
	Other	WC16
	Refused	WC16
	Don't Know	WC16

WC16 What is the average hourly wage for technicians?

77	RECORD RESPONSE	WC17
88	Refused	WC16a
99	Don't Know	WC16a

WC16a Would you say it is...

	< \$12 / hour	WC17
	\$12 - \$17.99 / hour	WC17
	\$18 - \$24.99 / hour	WC17
	> \$25 / hour	WC17
	Other	WC17
	Refused	WC17
	Don't Know	WC17

WC17 Does your company provide health care insurance to construction trades employees?

1	Yes	WC18
2	No	WC18
88	Refused	WC18
99	Don't know	WC18

WC18 What is the average employer contribution per HVAC technician to health care per month?

77	RECORD RESPONSE	WC19
88	Refused	WC19
99	Don't Know	WC19

WC19 How many technicians did you employ at the beginning of 2012?

77	RECORD RESPONSE	WC20
88	Refused	WC20
99	Don't Know	WC20

WC20 How many technicians did you employ at the end of 2012?

77	RECORD RESPONSE	WC21
88	Refused	WC21
99	Don't Know	WC21

WC21 How many technicians were terminated, laid off, or voluntarily left in 2012?

77	RECORD RESPONSE	GOODBYE
88	Refused	GOODBYE
99	Don't Know	GOODBYE

GOODBYE On behalf of the CPUC I would like to thank you for your valuable time and input to this survey. Unless you have any questions for me we are finished.

77	Record	T&T
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Appendix D

HVAC Contractor Survey Banners

	ALL (Percent)
<JOB_TITLE> What is your job title?	
Scheduler/Office Manager	1.09
HVAC Service/Field Technician	0.05
Operations Manager	3.05
Commercial Services Manager	3.42
Sales Manager	8.23
General Manager	8.92
President/CEO	14.92
Owner / Co-Owner / Partner /Member of LLP	34.16
Project Manager	7.79
Administration	7.11
Controller	9.31
OTHER	1.97
<i>n</i>	123
<PERF1> Do you perform installations of HVAC equipment for commercial or industrial customers in California?	
YES	91.47
NO	8.53
<i>n</i>	123
<PERF2_A> Do you sell HVAC equipment to commercial or industrial customers, which may include multifamily residential facilities in California?	
YES	69.92
NO	29.95
REFUSED	0.13
<i>n</i>	123
<PERF2_B> Do you conduct HVAC sales to other contractors for installation in commercial or industrial facilities in California?	
YES	39.76
NO	60.24
<i>n</i>	123
<PERF1_A> Do you perform installations of HVAC equipment for residential customers in California?	
YES	77.81
NO	22.19
<i>n</i>	123
<PERF1_D> Do you perform installations of HVAC equipment for public sector entities in California?	
YES	60.83
NO	39.17
<i>n</i>	123

<G3> Aside from this location where I have reached you, does your firm have other locations in California?		
	YES	18.53
	NO	81.47
	<i>n</i>	123
<TENPERCENT> Would you say that at least 10 % of your firm's revenue is from CA HVAC sales and installations?		
	YES	100.00
	<i>n</i>	123
<G4A> In which of the following major metropolitan areas within California does your location provide services?		
	SF Bay Area (North, East, South Bay)	28.39
	Northern Valley (Redding, Yuba City)	2.68
	Sacramento Area	4.83
	Central Valley (Modesto, Fresno, Bakersfield)	18.60
	Desert (Palm Springs, Imperial Valley)	14.97
	LA-COSTAL (La, Orange County)	32.07
	LA-Inland Empire (Ontario, Riverside)	18.49
	San Diego	20.90
	Central Coast	4.86
	Northern California	1.72
	<i>n</i>	123
<G6> About how many full-time equivalent employees does your company have in all of its locations in California?		
	0 to 1 employees	5.66
	2 to 3 employees	5.94
	4 to 10 employees	20.65
	11 to 30 employees	38.13
	More than 30 employees	29.62
	<i>n</i>	123
<G4B> Does your company provide HVAC services outside of California		
	YES	7.49
	NO	92.52
	<i>n</i>	123
<G4C> In which states besides California does your company provide HVAC services?		
	Southwest	2.72
	South	9.52
	Central US	20.58
	East Coast	9.15
	Entire US	55.19
	Nevada	35.28
	<i>n</i>	9
<G7> What are the most common types of commercial and industrial businesses you typically work with?		
	Offices (non-medical)	70.91
	Restaurant/Food Service	16.16
	Food Store (grocery/liquor/convenience)	1.26
	Agricultural (farms, greenhouses)	12.71
	Retail Stores	37.02
	Warehouse	11.67
	Hospitals	10.36
	Health Care (Medical/Dental Offices, nursing homes, etc.)	5.67
	Education (preschools, K-12)	8.74

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Universities (Colleges, Community Colleges, Vocational Schools)	8.73
Lodging (hotel/rooms)	2.86
Public Assembly (church, fitness ,theatre, library, museum, convention)	7.42
Services (hair, nail, massage, spa, gas, repair)	0.51
Industrial (food processing plant, Manufacturing)	19.56
Condo Assoc/Apartment Mgr. (Garden Style, Mobile Home Park, High-rise, Townhouse)	9.42
Public Service (fire, police, postal, military)	0.51
Research	0.38
OTHER	0.42
<i>n</i>	106
<Q3> Approximately what percent of your firm's overall revenue is from HVAC sales and installations nationwide?	
1 to 15 percent	0.85
16 to 30 percent	1.67
31 to 45 percent	1.30
46 to 60 percent	8.27
61 to 75 percent	13.49
76 to 90 percent	35.68
91 to 100 percent	38.74
<i>n</i>	123
<Q3AA> Would you say it is....	
11 to 20 percent	100.00
<i>n</i>	2
<AQ2> What percent of THAT revenue is from HVAC sales and installations in California?	
16 to 30 percent	2.36
61 to 75 percent	2.93
76 to 90 percent	0.88
91 to 100 percent	93.82
<i>n</i>	123
<LINC2A> Percentage for Residential	
1 to 15 percent	26.44
16 to 30 percent	7.20
31 to 45 percent	2.32
46 to 60 percent	4.50
61 to 75 percent	19.67
76 to 90 percent	29.08
91 to 100 percent	10.80
<i>n</i>	123
<LINC2B> Percentage for SMALL C&I (Less than 50,000 sq. ft.)	
1 to 15 percent	31.28
16 to 30 percent	37.62
31 to 45 percent	5.20
46 to 60 percent	13.14
61 to 75 percent	3.55
76 to 90 percent	8.61
91 to 100 percent	0.61
<i>n</i>	123
<LINC2C> Percentage for LARGE C&I (50,000 or more sq. ft.)	
1 to 15 percent	72.26
16 to 30 percent	10.61
31 to 45 percent	4.32
46 to 60 percent	5.50

	61 to 75 percent	0.25
	76 to 90 percent	7.06
	<i>n</i>	123
<Q14> Approximately how many NEW AND REPLACEMENT residential HVAC units does your firm install annually out of this location?		
	1 to 25 units	30.69
	26 to 50 units	5.37
	51 to 75 units	5.43
	76 to 100 units	3.37
	101 to 300 units	20.01
	More than 300 units	28.93
	REFUSED	0.34
	DON'T KNOW	5.87
	<i>n</i>	123
<A4A> Would you say it is...		
	1 to 25	5.17
	26 to 50	6.38
	51 to 75	1.95
	Over 200	80.59
	REFUSED	3.38
	DON'T KNOW	2.53
	<i>n</i>	10
<Q14NR> Approximately how many NEW AND REPLACEMENT non-residential HVAC units does your firm install annually out of this location?		
	1 to 25 units	29.06
	26 to 50 units	8.43
	51 to 75 units	4.51
	76 to 100 units	25.62
	101 to 300 units	15.46
	More than 300 units	7.94
	REFUSED	0.49
	DON'T KNOW	8.48
	<i>n</i>	123
<QA4ANR> Would you say it is...		
	1 to 25	4.98
	101 to 150	55.78
	Over 200	32.64
	REFUSED	4.09
	DON'T KNOW	2.51
	<i>n</i>	9
<WC1> What was your average number of employees for the last year at your location?		
	1 to 10 employees	5.15
	11 to 20 employees	5.70
	21 to 30 employees	23.39
	31 to 50 employees	42.47
	More than 50 employees	23.10
	DON'T KNOW	0.18
	<i>n</i>	123
<WC2> How many of these employees are field technicians?		
	1 to 5 employees	19.65
	6 to 10 employees	33.65
	11 to 20 employees	22.56

21 to 30 employees	5.22
31 to 50 employees	10.98
More than 50 employees	7.94
<i>n</i>	123
<WC4> How many of your technicians at this location are full-time permanent employees?	
None	2.13
1 to 5 employees	21.46
6 to 10 employees	26.78
11 to 20 employees	19.40
21 to 30 employees	11.09
31 to 50 employees	11.19
More than 50 employees	7.94
<i>n</i>	123
<WC5> How many of your technicians at this location are casual or part-time employees, hired for specific jobs, and then are let go when the job is completed?	
None	81.55
1 to 5 employees	11.36
6 to 10 employees	0.83
More than 11 employees	6.26
<i>n</i>	123
<WC6> Are some of your technicians at this location independent contractors rather than employees?	
YES	4.11
NO	95.89
<i>n</i>	123
<G5A> Of your company's field tech employees at this location, how many hold a State of California C-20 license?	
0	53.45
1	17.13
2	17.82
3	5.91
10	1.78
DON'T KNOW	3.92
<i>n</i>	123
<G56> Have you heard of the CALIFORNIA IOUs' Quality Installation Program?	
YES	32.79
NO	64.08
DON'T KNOW	3.14
<i>n</i>	123
<G5D> How many of your technicians who hold a State of CA C-20 license at this location perform work through the California IOUs' Residential Quality Installation program?	
0	75.23
1	16.57
DON'T KNOW	8.20
<i>n</i>	29
<G5E> How many of your technicians who hold a State of CA C-20 license at this location perform work through the California IOUs' Commercial Quality Installation program?	
0	95.86
1	4.14
<i>n</i>	33
<LL1_A> Adding up to 100 percent, what percent of this location's HVAC business is in... 1) New construction...	
None	17.09
1 to 15 percent	43.98

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	16 to 30 percent	10.27
	31 to 45 percent	6.74
	46 to 60 percent	5.65
	61 to 75 percent	12.15
	76 to 90 percent	1.95
	91 to 100 percent	2.18
	<i>n</i>	123
<LL1_B> ...2) retrofit/remodel...		
	None	2.54
	1 to 15 percent	11.23
	16 to 30 percent	22.36
	31 to 45 percent	4.57
	46 to 60 percent	36.55
	61 to 75 percent	10.84
	76 to 90 percent	10.69
	91 to 100 percent	1.22
	<i>n</i>	123
<LL1_C> ...3) and maintenance repair?		
	None	5.51
	1 to 15 percent	19.01
	16 to 30 percent	37.84
	31 to 45 percent	25.33
	46 to 60 percent	6.77
	61 to 75 percent	2.90
	76 to 90 percent	2.29
	91 to 100 percent	0.36
	<i>n</i>	123
<LL2_A> Adding up to 100 percent, what percent of new installations completed by this location are for...1) the residential sector...		
	None	22.74
	1 to 15 percent	5.58
	16 to 30 percent	2.29
	31 to 45 percent	2.04
	46 to 60 percent	7.94
	61 to 75 percent	16.66
	76 to 90 percent	24.12
	91 to 100 percent	16.41
	REFUSED	0.06
	DON'T KNOW	2.16
	<i>n</i>	123
<LL2_B> ...2) the non-residential sector...		
	None	11.90
	1 to 15 percent	20.07
	16 to 30 percent	27.18
	31 to 45 percent	2.92
	46 to 60 percent	7.19
	61 to 75 percent	1.24
	76 to 90 percent	3.23
	91 to 100 percent	26.15
	REFUSED	0.06
	DON'T KNOW	0.07
	<i>n</i>	123

<LL3_A> Adding up to 100 percent, what percentage of the new installations are for...1) replacing operational units...	
None	13.06
1 to 15 percent	29.49
16 to 30 percent	38.10
31 to 45 percent	3.59
46 to 60 percent	7.37
61 to 75 percent	2.06
76 to 90 percent	4.75
91 to 100 percent	0.50
REFUSED	0.06
DON'T KNOW	1.02
<i>n</i>	<i>123</i>
<LL3_B> ...2) replacing non-operational units...	
None	2.58
1 to 15 percent	11.56
16 to 30 percent	11.33
31 to 45 percent	9.78
46 to 60 percent	22.90
61 to 75 percent	14.85
76 to 90 percent	21.90
91 to 100 percent	3.87
REFUSED	0.06
DON'T KNOW	1.18
<i>n</i>	<i>123</i>
<LL3_C> ...3) new construction	
None	43.51
1 to 15 percent	12.95
16 to 30 percent	9.11
31 to 45 percent	9.24
46 to 60 percent	10.13
61 to 75 percent	8.62
76 to 90 percent	2.60
91 to 100 percent	2.92
REFUSED	0.06
DON'T KNOW	0.86
<i>n</i>	<i>123</i>
<IN1R> During a typical non-residential installation, how long does your technician spend working on each unit?	
1 to 10 hour	43.28
11 to 20 hours	22.27
21 to 30 hours	3.52
31 to 40 hours	16.12
More than 41 hours	1.06
OTHER	9.57
DON'T KNOW	4.18
<i>n</i>	<i>123</i>
<IN1NR> During a typical residential installation, how long does your technician spend working on each unit?	
1 to 10 hour	34.72
11 to 20 hours	28.09
21 to 30 hours	13.25

31 to 40 hours	2.86
More than 41 hours	8.49
OTHER	2.81
DON'T KNOW	9.78
<i>n</i>	<i>123</i>
<IN2> Does your company have written instructions, for example a manual or handbook on how the install should be performed or do you just refer to the manufacturers' specifications?	
We have a manual/guidebook/instructions	28.00
No, None	3.14
We use the manufacturers specifications	89.53
OTHER	14.34
<i>n</i>	<i>123</i>
<IN3> What do the install instructions consist of?	
Prior Experience	0.92
Checklist	6.20
Manufacturer's Procedures	27.77
Standards/ Codes	17.93
Company Manuals	1.22
Verify System Requirements	37.43
Verbally/ No Written	1.04
OTHER	0.04
DON'T KNOW	7.44
<i>n</i>	<i>44</i>
<IN4> How are the instructions documented and distributed to your staff?	
None	8.45
Physical Document	43.60
Meeting/ Verbally	16.03
Equipment Manual	14.95
Electronically	16.76
DON'T KNOW	0.22
<i>n</i>	<i>44</i>
<LL2_SM> What percent of your 2011, 2012 and 2013 non-residential HVAC systems were installations of small packaged and split-system single zone systems, including heat pumps?	
None	3.73
1 to 15 percent	34.97
16 to 30 percent	4.10
31 to 45 percent	4.68
46 to 60 percent	8.29
61 to 75 percent	16.61
76 to 90 percent	13.60
91 to 100 percent	6.78
DON'T KNOW	7.24
<i>n</i>	<i>123</i>
<LL2_MD> For the years 2011, 2012 and 2013, what percentage of the HVAC units sold or installed by this location for commercial and industrial projects were air conditioning systems from 65,000-240,000 kBtuh?	
None	7.54
1 to 15 percent	50.53
16 to 30 percent	18.59
31 to 45 percent	11.48
46 to 60 percent	2.95
61 to 75 percent	1.68

	76 to 90 percent	0.14
	DON'T KNOW	7.10
	<i>n</i>	123
<LL2_LG> For the years 2011, 2012 and 2013, what percentage of the HVAC units sold or installed by this location for commercial and industrial projects were air conditioning systems from 240,000-760,000 kBtuh?		
	None	31.27
	1 to 15 percent	50.05
	16 to 30 percent	6.99
	31 to 45 percent	0.86
	91 to 100 percent	3.73
	DON'T KNOW	7.10
	<i>n</i>	123
<LINTEC3_A_SM> What percent of your single zoned systems were 13 SEER systems?		
	None	0.37
	1 to 15 percent	39.43
	16 to 30 percent	1.94
	31 to 45 percent	2.17
	46 to 60 percent	1.24
	61 to 75 percent	5.87
	76 to 90 percent	33.72
	91 to 100 percent	8.02
	DON'T KNOW	7.24
	<i>n</i>	123
<LINTEC3_B_SM> What percent of your single zoned systems were 14 SEER systems?		
	None	7.32
	1 to 15 percent	72.98
	16 to 30 percent	8.95
	31 to 45 percent	0.73
	46 to 60 percent	2.78
	DON'T KNOW	7.24
	<i>n</i>	123
<LINTEC3_C_SM> What percent of your single zoned systems were 15 SEER systems?		
	None	26.03
	1 to 15 percent	63.45
	16 to 30 percent	2.70
	46 to 60 percent	0.37
	61 to 75 percent	0.21
	DON'T KNOW	7.24
	<i>n</i>	123
<LINTEC3_D_SM> What percent of your single zoned systems were 16 SEER and higher systems?		
	None	41.51
	1 to 15 percent	48.12
	16 to 30 percent	1.54
	31 to 45 percent	1.59
	DON'T KNOW	7.24
	<i>n</i>	123
<LINTEC3_A_MD> What percent of your systems were 11.4 EER or lower systems?		
	None	10.34
	1 to 15 percent	43.46
	16 to 30 percent	0.86
	31 to 45 percent	1.77

46 to 60 percent	6.52
61 to 75 percent	2.08
76 to 90 percent	16.64
91 to 100 percent	7.14
DON'T KNOW	11.19
<i>n</i>	123
<LINTEC3_B_MD> What percent of your systems were 11.5-11.9 EER systems?	
None	7.55
1 to 15 percent	55.17
16 to 30 percent	6.52
31 to 45 percent	0.28
46 to 60 percent	7.81
76 to 90 percent	0.45
DON'T KNOW	22.23
<i>n</i>	123
<LINTEC3_C_MD> What percent of your systems were 12-12.4 EER systems	
None	25.66
1 to 15 percent	49.23
16 to 30 percent	1.49
46 to 60 percent	1.08
DON'T KNOW	22.54
<i>n</i>	123
<LINTEC3_D_MD> What percent of your systems were 12.5 EER and higher systems?	
None	32.03
1 to 15 percent	43.72
16 to 30 percent	0.96
61 to 75 percent	0.30
76 to 90 percent	0.21
91 to 100 percent	0.24
DON'T KNOW	22.54
<i>n</i>	123
<LINTEC3_A_LG> What percent of your systems were 10.4 EER or lower systems?	
None	6.65
1 to 15 percent	66.04
46 to 60 percent	2.19
76 to 90 percent	2.06
91 to 100 percent	11.89
REFUSED	0.30
DON'T KNOW	10.88
<i>n</i>	123
<LINTEC3_B_LG> What percent of your systems were 10.5-10.7 EER systems?	
None	17.77
1 to 15 percent	67.45
16 to 30 percent	1.54
91 to 100 percent	1.92
REFUSED	0.30
DON'T KNOW	11.03
<i>n</i>	123
<LINTEC3_C_LG> What percent of your systems were 10.8-11 EER systems?	
None	20.44
1 to 15 percent	67.45
61 to 75 percent	0.68

	REFUSED	0.41
	DON'T KNOW	11.03
	<i>n</i>	123
<LINTEC3_D_LG> What percent of your systems were 11.1 EER and higher systems?		
	None	14.92
	1 to 15 percent	67.78
	46 to 60 percent	2.19
	76 to 90 percent	0.21
	91 to 100 percent	3.59
	REFUSED	0.30
	DON'T KNOW	11.03
	<i>n</i>	123
<SCREENER> I'd like to know if you are knowledgeable on the labor-hours required and general costs associated with an installation on an AC unit for a commercial customer. Would you be able to comment on this topic?		
	YES	59.56
	NO	34.00
	REFUSED	6.44
	<i>n</i>	59
<COST_Q1> On average, how much does it cost to rent a crane to remove an old outdoor unit and install a new unit?		
	NONE	0.14
	\$100 to \$299	76.77
	\$300 to \$499	5.65
	\$500 to \$699	3.91
	\$700 to \$999	9.95
	\$2000 and up	3.59
	<i>n</i>	123
<COST_Q2> On average, how many man-hours does it take to remove an old unit, assuming a crane is used for the removal?		
	1 to 5 hours	75.86
	6 to 15 hours	13.19
	16 to 30 hours	4.83
	31 to 55 hours	5.26
	more than 56 hours	0.85
	<i>n</i>	123
<COST_Q3> On average, what is the disposal fee for the old unit?		
	\$0, recycle materials	15.53
	\$1 to \$100	63.06
	\$151 to \$200	9.12
	\$201 to \$250	0.27
	OTHER	6.25
	DON'T KNOW	5.77
	<i>n</i>	123
<COST_Q4> On average, how many man-hours does it take to install a new 5 ton unit?		
	1 to 5 hours	63.65
	6 to 10 hours	4.01
	11 to 20 hours	24.47
	Over 20 hours	4.29
	DON'T KNOW	3.59
	<i>n</i>	123
<COST_Q5> On average, how many man-hours does it take to install a new 40 ton unit?		

1 to 20 hours	64.43
21 to 30 hours	8.12
31 to 40 hours	10.29
41 to 50 hours	3.41
more than 50 hours	6.39
OTHER	6.13
DON'T KNOW	1.23
<i>n</i>	<i>123</i>
<COST_Q9> On average, how many man-hours does it take to perform testing/commissioning on a newly installed 5 ton unit to ensure it is running properly?	
NONE	0.37
1 to 3 hours	78.63
4 to 6 hours	11.15
6 to 9 hours	5.84
9 to 12 hours	0.37
More than 12 hours	0.06
DON'T KNOW	3.59
<i>n</i>	<i>123</i>
<COST_Q10> On average, how many man-hours does it take to perform testing/commissioning on a newly installed 40 ton unit to ensure it is running properly?	
1 to 5 hours	77.19
6 to 10 hours	8.22
11 to 20 hours	2.31
Over 20 hours	5.39
OTHER	5.68
DON'T KNOW	1.23
<i>n</i>	<i>123</i>
<COST_Q11> On average, how much does it cost to remove and dispose of the old unit?	
NONE	4.49
\$100 to \$299	65.18
\$300 to \$499	16.22
\$500 to \$699	0.89
\$700 to \$999	2.13
\$1500 to \$1999	0.37
\$2000 and up	0.31
OTHER	6.70
DON'T KNOW	3.73
<i>n</i>	<i>123</i>
<COST_Q12> On average, how long does it take to move the new unit into place and reconnect the wiring?	
1 to 4 hours	84.85
5 to 8 hours	2.54
9 to 12 hours	4.79
OTHER	3.34
DON'T KNOW	4.48
<i>n</i>	<i>123</i>
<COST_Q13> On average, how many man-hours does it take to perform basic maintenance on the unit without a refrigerant charge adjustment or coil cleaning?	
0.1 to 0.5 hours	63.88
0.6 to 1 hours	1.29
1.1 to 1.5 hours	17.75
1.6 to 3.5 hours	12.32

More than 3.5 hours	0.23
OTHER	0.22
DON'T KNOW	4.32
<i>n</i>	123
<COST_Q14> On average, how long does it take to correct a refrigerant undercharge or overcharge in terms of man hours per unit?	
0 to 1 hours	64.80
1.1 to 2 hours	17.74
2.1 to 4 hours	10.53
4.1 to 6 hours	0.21
OTHER	0.22
DON'T KNOW	6.51
<i>n</i>	123
<COST_Q15> On average, how long does it take to clean coils in terms of man-hours per unit?	
0 to 1 hours	66.31
1.1 to 2 hours	14.20
2.1 to 4 hours	14.45
4.1 to 6 hours	4.09
OTHER	0.22
DON'T KNOW	0.73
<i>n</i>	123
<WC10_1> Do you require at least 2 years' experience in residential installations for your field technicians that you hire?	
YES	50.36
NO	48.96
DON'T KNOW	0.68
<i>n</i>	123
<WC10_2> Do you require at least 2 years' experience in commercial installations for your field technicians that you hire?	
YES	55.69
NO	40.70
DON'T KNOW	3.60
<i>n</i>	123
<WC10_3> A state certified apprenticeship in sheet metal	
Yes-Required and YES-we pay to complete these programs	13.57
Yes-Require and NO-we DO NOT PAY to complete these programs	5.78
Not Required but we WILL PAY to complete these programs	8.19
Not Required and we DO NOT PAY to complete these programs	70.86
DON'T KNOW	1.60
<i>n</i>	123
<WC10_4> A state certified apprenticeship in plumbing, pipefitting, or steam fitting	
Yes-Required and YES-we pay to complete these programs	13.59
Yes-Require and NO-we DO NOT PAY to complete these programs	7.53
Not Required but we WILL PAY to complete these programs	2.91
Not Required and we DO NOT PAY to complete these programs	72.20
DON'T KNOW	3.78
<i>n</i>	123
<WC10_5> OSHA 10?	
Yes-Required and YES-we pay to complete these programs	29.80
Yes-Require and NO-we DO NOT PAY to complete these programs	2.06
Not Required but we WILL PAY to complete these programs	6.77

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Not Required and we DO NOT PAY to complete these programs	48.75
REFUSED	0.37
DON'T KNOW	12.26
<i>n</i>	123
<WC10_6> OSHA 30?	
Yes-Required and YES-we pay to complete these programs	22.00
Yes-Require and NO-we DO NOT PAY to complete these programs	1.94
Not Required but we WILL PAY to complete these programs	6.11
Not Required and we DO NOT PAY to complete these programs	50.75
REFUSED	0.37
DON'T KNOW	18.83
<i>n</i>	123
<WC10_7> NATE ... North American Technician Excellence	
Yes-Required and YES-we pay to complete these programs	17.05
Yes-Require and NO-we DO NOT PAY to complete these programs	4.04
Not Required but we WILL PAY to complete these programs	32.01
Not Required and we DO NOT PAY to complete these programs	41.78
REFUSED	0.37
DON'T KNOW	4.75
<i>n</i>	123
<WC10_8> HVAC Excellence?	
Yes-Required and YES-we pay to complete these programs	2.15
Yes-Require and NO-we DO NOT PAY to complete these programs	0.16
Not Required but we WILL PAY to complete these programs	13.09
Not Required and we DO NOT PAY to complete these programs	68.11
REFUSED	0.37
DON'T KNOW	16.12
<i>n</i>	123
<WC10_9> RSES ... Refrigeration Service Engineers Society	
Yes-Required and YES-we pay to complete these programs	0.92
Yes-Require and NO-we DO NOT PAY to complete these programs	1.94
Not Required but we WILL PAY to complete these programs	16.92
Not Required and we DO NOT PAY to complete these programs	74.16
REFUSED	0.37
DON'T KNOW	5.70
<i>n</i>	123
<WC10_10> BPI ... Building Performance Institute	
Yes-Required and YES-we pay to complete these programs	8.16
Yes-Require and NO-we we DO NOT PAY to complete these programs	0.16
Not Required but we WILL PAY to complete these programs	12.88
Not Required and we DO NOT PAY to complete these programs	73.62
REFUSED	0.37
DON'T KNOW	4.81
<i>n</i>	123
<WC10_11> UA STAR ... Service Technician, Air Conditioning, and Refrigeration	
Yes-Required and YES-we pay to complete these programs	1.42
Yes-Require and NO-we DO NOT PAY to complete these programs	3.52
Not Required but we WILL PAY to complete these programs	11.96
Not Required and we DO NOT PAY to complete these programs	73.93
REFUSED	0.37
DON'T KNOW	8.80
<i>n</i>	123

<WC10_12> ICB/TABB ... International Certification Board / Testing, Adjusting, and Balancing Bureau		
Yes-Required and YES-we pay to complete these programs		0.23
Yes-Require and NO-we we DO NOT PAY to complete these programs		0.16
Not Required but we WILL PAY to complete these programs		7.52
Not Required and we DO NOT PAY to complete these programs		86.75
	REFUSED	0.37
	DON'T KNOW	4.99
	<i>n</i>	123
<WC10_13> NEBB ... National Environment Balancing Bureau		
Yes-Required and YES-we pay to complete these programs		0.28
Yes-Require and NO-we DO NOT PAY to complete these programs		0.30
Not Required but we WILL PAY to complete these programs		6.31
Not Required and we DO NOT PAY to complete these programs		87.33
	REFUSED	0.37
	DON'T KNOW	5.42
	<i>n</i>	123
<WC10_14> AABC ... Associated Air Balance Council		
Yes-Required and YES-we pay to complete these programs		0.16
Yes-Require and NO-we DO NOT PAY to complete these programs		0.16
Not Required but we WILL PAY to complete these programs		6.89
Not Required and we DO NOT PAY to complete these programs		87.28
	REFUSED	0.37
	DON'T KNOW	5.15
	<i>n</i>	123
<WC10_77> Are there any other training programs for which your firm pays for the employees' training?		
	NO OTHERS	37.90
	Manufacturer/ Dealer Classes	28.76
	Critical Thinking/ Common Sense	0.29
	Utility Classes	4.24
	Association Trainings/ Certifications	23.94
	General System Training	3.06
	DON'T KNOW	1.80
	<i>n</i>	123
<WC15> What is the STARTING hourly wage for technicians?		
	Less than 12 /hour	7.89
	\$12 to \$17.99 /hour	46.84
	\$18 to \$23.99 /hour	14.84
	\$24 to \$29.99 /hour	6.68
	\$30 to \$35.99 /hour	0.74
	\$36 to \$41.99.99 /hour	12.08
	REFUSED	1.07
	DON'T KNOW	9.86
	<i>n</i>	123
<WC15A> Would you say it is....		
	Less than \$12 hour	36.49
	Between \$12 and \$17.99 per hour	2.01
	Between \$18.00 and \$24.99 per hour	8.81
	Over \$25 per hour	35.40
	REFUSED	2.88
	DON'T KNOW	14.40
	<i>n</i>	17
<WC16> What is the AVERAGE hourly wage for technicians		

Less than 12 /hour	0.18
\$12 to \$17.99 /hour	3.78
\$18 to \$23.99 /hour	23.81
\$24 to \$29.99 /hour	37.18
\$30 to \$35.99 /hour	7.93
\$36 to \$41.99.99 /hour	21.15
REFUSED	0.32
DON'T KNOW	5.65
<i>n</i>	123
<WC16A> Would you say it is....	
Between \$12 and \$17.99 per hour	0.62
Between \$18.00 and \$24.99 per hour	0.20
Over \$25 per hour	54.31
REFUSED	5.28
DON'T KNOW	39.60
<i>n</i>	13
<WC17> Does your company provide health care insurance to construction trades employees?	
YES	64.87
NO	34.76
REFUSED	0.37
<i>n</i>	123

Appendix E

CMST Sampling

The CMST on-site survey sample was based on those sites that indicated on the CSS/CMST telephone survey that they had purchased a high priority measure during the period 2009 to 2012. This Appendix present information on the sites that self-reported purchasing a high priority measure during the telephone survey, the sites visited for a CMST measure, and the sites where CMST measures were found.

Sites visited for a CMST measure satisfy three criteria. Sites visited for a CMST measure are sites that (1) self-reported the purchase of a high priority measure (2) that agreed to an on-site verification and (3) an on-site verification was undertaken. Sites visited for a CMST measure will include sites where the self-reported purchase was verified with the observation and data collection of the self-reported measure. These sites, however, will also include businesses where the verification found that the self-reported telephone information was incorrect and no recent purchase of the CMST equipment has occurred. The tables in this Appendix also provide information on the number and distribution of sites visited for a CMST measure where a CMST measure was identified on-site.

The tables in this Appendix also include information on the number of sites with high priority measures where the recent purchase was not self-reported during the telephone survey. The vast majority of these sites were visited as part of the CSS on-site data collection study. During the CSS on-site data collection, the on-site contact provided data indicating that the site had purchased a high priority measure between 2009 and 2012. The final column in the tables indicates the total number of sites with new high priority measures (those identified and verified from the CMST and those identified during CSS on-sites) by strata.

The tables of sites in this Appendix are presented by high priority measure and IOU. If a site purchased multiple high priority measures during this time period, they will appear in the site counts for multiple tables.

E.1 Linears – PG&E

Table E-1: PG&E Linears

IOU	Business Type	kWh Size	PS CMST Linear	Recruited CMST-Linear Sites	PS CMST-Linear On-Sites Completed	PS CMST-Linear Recruits & OS Linears Found	Non-CMST LF Recruits	Sites with New Linears (Linears not ID'd on PS)	Total Sites with New Linears
PG&E	College	L	0	0	0	0	1	0	0
PG&E	College	M	1	0	0	0	0	0	0
PG&E	College	S	1	0	0	0	0	0	0
PG&E	College	V	0	0	0	0	0	0	0
PG&E	College	U	0	0	0	0	0	0	0
PG&E	Food/Liquor	L	5	2	1	1	5	1	2
PG&E	Food/Liquor	M	17	6	4	3	26	3	6
PG&E	Food/Liquor	S	6	2	2	2	23	2	4
PG&E	Food/Liquor	V	3	1	1	1	8	0	1
PG&E	Food/Liquor	U	0	0	0	0	2	0	0
PG&E	Health/Medical - Clinic	L	0	0	0	0	1	0	0
PG&E	Health/Medical - Clinic	M	18	10	7	5	19	3	8

Table E-1 (Cont'd): PG&E Linears

IOU	Business Type	kWh Size	PS CMST Linear	Recruited CMST-Linear Sites	PS CMST-Linear On-Sites Completed	PS CMST-Linear Recruits & OS Linears Found	Non-CMST LF Recruits	Sites with New Linears (Linears not ID'd on PS)	Total Sites with New Linears
PG&E	Health/Medical - Clinic	S	6	0	0	0	13	4	4
PG&E	Health/Medical - Clinic	V	15	7	6	5	21	1	6
PG&E	Health/Medical - Clinic	U	1	0	0	0	0	0	0
PG&E	Health/Medical - Hospital	L	2	1	0	0	1	0	0
PG&E	Health/Medical - Hospital	M	2	1	0	0	1	0	0
PG&E	Health/Medical - Hospital	S	1	0	0	0	0	0	0
PG&E	Health/Medical - Hospital	V	0	0	0	0	0	0	0
PG&E	Health/Medical - Hospital	U	1	0	0	0	0	0	0
PG&E	Hotel	L	3	1	0	0	3	0	0
PG&E	Hotel	M	3	0	0	0	3	0	0
PG&E	Hotel	S	1	0	0	0	4	0	0
PG&E	Hotel	V	2	2	1	1	0	0	1
PG&E	Hotel	U	0	0	0	0	0	0	0
PG&E	Industrial	L	15	5	3	2	1	0	2
PG&E	Industrial	M	22	3	2	2	0	0	2
PG&E	Industrial	S	10	1	0	0	3	0	0
PG&E	Industrial	V	6	3	2	2	2	0	2
PG&E	Industrial	U	2	0	0	0	0	0	0
PG&E	Misc	L	10	4	2	0	10	0	0
PG&E	Misc	M	39	19	13	8	55	7	15
PG&E	Misc	S	23	14	8	6	43	4	10
PG&E	Misc	V	26	8	2	2	66	4	6
PG&E	Misc	U	2	1	1	1	3	0	1

Table E-1 (Cont'd): PG&E Linears

IOU	Business Type	kWh Size	PS CMST Linear	Recruited CMST-Linear Sites	PS CMST-Linear On-Sites Completed	PS CMST-Linear Recruits & OS Linears Found	Non-CMST LF Recruits	Sites with New Linears (Linears not ID'd on PS)	Total Sites with New Linears
PG&E	Office	L	17	5	1	1	23	5	6
PG&E	Office	M	39	21	14	9	46	6	15
PG&E	Office	S	15	2	1	1	25	2	3
PG&E	Office	V	11	4	3	3	46	3	6
PG&E	Office	U	3	2	1	0	4	0	0
PG&E	Restaurant	L	2	1	0	0	0	0	0
PG&E	Restaurant	M	1	0	0	0	16	0	0
PG&E	Restaurant	S	14	6	6	5	53	3	8
PG&E	Restaurant	V	5	3	2	1	19	2	3
PG&E	Restaurant	U	0	0	0	0	1	0	0
PG&E	Retail	L	2	1	1	0	20	4	4
PG&E	Retail	M	14	6	2	1	54	2	3
PG&E	Retail	S	19	7	4	3	23	0	3
PG&E	Retail	V	14	5	4	4	38	3	7
PG&E	Retail	U	1	0	0	0	3	1	1
PG&E	School	L	3	1	1	1	5	2	3
PG&E	School	M	36	18	15	12	40	6	18
PG&E	School	S	14	8	6	6	18	3	9
PG&E	School	V	2	2	1	1	12	0	1
PG&E	School	U	2	2	0	0	1	0	0
PG&E	Warehouse	L	2	1	1	1	5	0	1
PG&E	Warehouse	M	28	9	7	3	11	3	6
PG&E	Warehouse	S	16	6	5	5	7	2	7
PG&E	Warehouse	V	12	3	3	1	16	0	1
PG&E	Warehouse	U	0	0	0	0	1	1	1
Total			515	204	133	99	801	77	176

E.2 Linears –SCE

Table E-2: SCE Linears

IOU	Business Type	kWh Size	PS CMST Linear	Recruited CMST- Linear Sites	PS CMST- Linear On- Sites Completed	PS CMST- Linear Recruits & OS Linears Found	Non- CMST LF Recruits	Sites with New Linears (Linears not ID'd on PS)	Total Sites with New Linears
SCE	College	L	2	0	0	0	0	0	0
SCE	College	M	0	0	0	0	1	0	0
SCE	College	S	0	0	0	0	0	0	0
SCE	College	V	1	0	0	0	0	0	0
SCE	College	U	0	0	0	0	0	0	0
SCE	Food/Liquor	L	1	1	1	1	22	0	1
SCE	Food/Liquor	M	4	1	1	1	56	8	9
SCE	Food/Liquor	S	11	9	6	4	29	8	12
SCE	Food/Liquor	V	3	2	1	0	10	3	3
SCE	Food/Liquor	U	0	0	0	0	0	0	0
SCE	Health/Medical - Clinic	L	4	2	1	0	4	0	0
SCE	Health/Medical - Clinic	M	23	8	4	4	21	3	7
SCE	Health/Medical - Clinic	S	5	3	2	2	16	2	4
SCE	Health/Medical - Clinic	V	11	4	3	2	22	7	9
SCE	Health/Medical - Clinic	U	0	0	0	0	0	0	0
SCE	Health/Medical - Hospital	L	6	4	3	3	1	0	3
SCE	Health/Medical - Hospital	M	1	0	0	0	0	0	0
SCE	Health/Medical - Hospital	S	1	0	0	0	0	0	0
SCE	Health/Medical - Hospital	V	0	0	0	0	0	0	0
SCE	Health/Medical - Hospital	U	0	0	0	0	0	0	0

Table E-2 (Cont'd): SCE Linears

IOU	Business Type	kWh Size	PS CMST Linear	Recruited CMST-Linear Sites	PS CMST-Linear On-Sites Completed	PS CMST-Linear Recruits & OS Linears Found	Non-CMST LF Recruits	Sites with New Linears (Linears not ID'd on PS)	Total Sites with New Linears
SCE	Hotel	L	4	0	0	0	4	0	0
SCE	Hotel	M	10	2	0	0	3	0	0
SCE	Hotel	S	5	1	0	0	1	0	0
SCE	Hotel	V	1	0	0	0	0	0	0
SCE	Hotel	U	0	0	0	0	0	0	0
SCE	Industrial	L	24	7	1	1	4	0	1
SCE	Industrial	M	48	11	7	7	1	0	7
SCE	Industrial	S	27	6	3	3	1	0	3
SCE	Industrial	V	12	3	3	3	3	0	3
SCE	Industrial	U	1	0	0	0	0	0	0
SCE	Misc	L	14	4	2	2	6	0	2
SCE	Misc	M	25	11	10	6	34	4	10
SCE	Misc	S	38	16	14	11	57	10	21
SCE	Misc	V	41	14	6	3	95	11	14
SCE	Misc	U	1	0	0	0	3	1	1
SCE	Office	L	12	6	3	3	9	1	4
SCE	Office	M	37	14	7	5	30	8	13
SCE	Office	S	25	9	8	7	35	5	12
SCE	Office	V	31	12	6	5	55	13	18
SCE	Office	U	0	0	0	0	2	0	0
SCE	Restaurant	L	0	0	0	0	0	0	0
SCE	Restaurant	M	2	2	0	0	23	2	2

Table E-2 (Cont'd): SCE Linears

IOU	Business Type	kWh Size	PS CMST Linear	Recruited CMST-Linear Sites	PS CMST-Linear On-Sites Completed	PS CMST-Linear Recruits & OS Linears Found	Non-CMST LF Recruits	Sites with New Linears (Linears not ID'd on PS)	Total Sites with New Linears
SCE	Restaurant	S	14	8	5	4	56	11	15
SCE	Restaurant	V	7	5	2	2	15	5	7
SCE	Restaurant	U	0	0	0	0	0	0	0
SCE	Retail	L	2	1	0	0	28	0	0
SCE	Retail	M	19	5	4	2	30	5	7
SCE	Retail	S	22	5	4	3	32	13	16
SCE	Retail	V	29	13	11	10	67	19	29
SCE	Retail	U	3	1	0	0	0	0	0
SCE	School	L	8	6	4	4	9	5	9
SCE	School	M	39	22	14	11	42	7	18
SCE	School	S	12	5	4	2	14	4	6
SCE	School	V	2	0	0	0	2	1	1
SCE	School	U	0	0	0	0	0	0	0
SCE	Warehouse	L	8	2	1	1	12	0	1
SCE	Warehouse	M	31	16	10	8	28	7	15
SCE	Warehouse	S	27	8	8	7	31	6	13
SCE	Warehouse	V	16	4	4	1	12	5	6
SCE	Warehouse	U	1	0	0	0	1	1	1
Total			671	253	163	128	927	175	303

E.3 Linears – SDG&E

Table E-3: SDG&E Linears

IOU	Business Type	kWh Size	PS CMST Linear	Recruited CMST-Linear Sites	PS CMST-Linear On-Sites Completed	PS CMST-Linear Recruits & OS Linears Found	Non-CMST LF Recruits	Sites with New Linears (Linears not ID'd on PS)	Total Sites with New Linears
SDG&E	College	L	1	1	0	0	0	0	0
SDG&E	College	M	1	1	1	1	0	0	1
SDG&E	College	S	1	0	0	0	0	0	0
SDG&E	College	V	0	0	0	0	0	0	0
SDG&E	College	U	1	0	0	0	0	0	0
SDG&E	Food/Liquor	L	0	0	0	0	0	0	0
SDG&E	Food/Liquor	M	1	0	0	0	15	2	2
SDG&E	Food/Liquor	S	11	7	6	6	10	0	6
SDG&E	Food/Liquor	V	2	1	0	0	5	1	1
SDG&E	Food/Liquor	U	0	0	0	0	1	0	0
SDG&E	Health/Medical - Clinic	L	1	1	0	0	1	0	0
SDG&E	Health/Medical - Clinic	M	5	3	2	0	8	0	0
SDG&E	Health/Medical - Clinic	S	5	3	2	0	8	1	1
SDG&E	Health/Medical - Clinic	V	5	3	2	1	14	1	2
SDG&E	Health/Medical - Clinic	U	0	0	0	0	2	0	0
SDG&E	Health/Medical - Hospital	L	1	1	0	0	0	0	0
SDG&E	Health/Medical - Hospital	M	0	0	0	0	0	0	0
SDG&E	Health/Medical - Hospital	S	0	0	0	0	0	0	0
SDG&E	Health/Medical - Hospital	V	2	0	0	0	0	0	0
SDG&E	Health/Medical - Hospital	U	0	0	0	0	0	0	0

Table E-3 (Cont'd): SDG&E Linear

IOU	Business Type	kWh Size	PS CMST Linear	Recruited CMST-Linear Sites	PS CMST-Linear On-Sites Completed	PS CMST-Linear Recruits & OS Linear Found	Non-CMST LF Recruits	Sites with New Linear (Linear not ID'd on PS)	Total Sites with New Linear
SDG&E	Hotel	L	2	0	0	0	0	0	0
SDG&E	Hotel	M	2	1	1	1	3	0	1
SDG&E	Hotel	S	3	0	0	0	0	0	0
SDG&E	Hotel	V	0	0	0	0	0	0	0
SDG&E	Hotel	U	0	0	0	0	1	0	0
SDG&E	Industrial	L	5	3	2	2	0	0	2
SDG&E	Industrial	M	4	1	0	0	3	0	0
SDG&E	Industrial	S	8	0	0	0	1	0	0
SDG&E	Industrial	V	9	2	2	2	1	0	2
SDG&E	Industrial	U	1	0	0	0	0	0	0
SDG&E	Misc	L	4	1	1	1	6	0	1
SDG&E	Misc	M	14	6	2	2	29	4	6
SDG&E	Misc	S	4	3	3	3	25	2	5
SDG&E	Misc	V	15	10	4	3	37	6	9
SDG&E	Misc	U	1	1	0	0	3	0	0
SDG&E	Office	L	3	1	1	1	4	1	2
SDG&E	Office	M	11	3	3	2	14	3	5
SDG&E	Office	S	5	2	1	1	13	0	1
SDG&E	Office	V	9	3	1	1	28	3	4
SDG&E	Office	U	2	0	0	0	5	0	0
SDG&E	Restaurant	L	0	0	0	0	0	0	0
SDG&E	Restaurant	M	6	2	1	1	10	0	1

Table E-3 (Cont'd): SDG&E Linear

IOU	Business Type	kWh Size	PS CMST Linear	Recruited CMST-Linear Sites	PS CMST-Linear On-Sites Completed	PS CMST-Linear Recruits & OS Linear Found	Non-CMST LF Recruits	Sites with New Linear (Linear not ID'd on PS)	Total Sites with New Linear
SDG&E	Restaurant	S	14	9	5	4	25	6	10
SDG&E	Restaurant	V	1	1	0	0	12	3	3
SDG&E	Restaurant	U	0	0	0	0	1	0	0
SDG&E	Retail	L	4	0	0	0	3	0	0
SDG&E	Retail	M	4	0	0	0	8	3	3
SDG&E	Retail	S	5	2	1	1	14	3	4
SDG&E	Retail	V	10	5	3	2	21	3	5
SDG&E	Retail	U	1	0	0	0	2	0	0
SDG&E	School	L	0	0	0	0	0	0	0
SDG&E	School	M	8	6	2	1	10	1	2
SDG&E	School	S	8	2	1	1	7	1	2
SDG&E	School	V	0	0	0	0	4	1	1
SDG&E	School	U	0	0	0	0	0	0	0
SDG&E	Warehouse	L	1	1	0	0	2	0	0
SDG&E	Warehouse	M	2	0	0	0	3	1	1
SDG&E	Warehouse	S	3	1	1	1	6	1	2
SDG&E	Warehouse	V	6	3	1	1	6	3	4
SDG&E	Warehouse	U	1	0	0	0	2	0	0
Total			213	90	49	39	373	50	89

E.4 HVAC – PG&E

Table E-4: PG&E HVAC

IOU	Business Type	kWh Size	PS CMST HVAC	Recruited CMST-Linear Sites	PS CMST-Linear On-Sites Completed	PS CMST-Linear Recruits & OS Linear Found	Non-CMST LF Recruits	Sites with New Linear (Linear not ID'd on PS)	Total Sites with New Linear	Non-CMST LF Recruits
PG&E	College	L	1	1	0	0	0	0	0	0
PG&E	College	M	0	0	0	0	0	0	0	0
PG&E	College	S	1	0	0	0	0	0	0	0
PG&E	College	V	0	0	0	0	0	0	0	0
PG&E	College	U	0	0	0	0	0	0	0	0
PG&E	Food/Liquor	L	2	1	0	0	0	1	1	6
PG&E	Food/Liquor	M	12	8	6	3	0	0	3	24
PG&E	Food/Liquor	S	2	0	0	0	0	0	0	25
PG&E	Food/Liquor	V	1	1	0	0	0	0	0	8
PG&E	Food/Liquor	U	0	0	0	0	0	0	0	2
PG&E	Health/Medical - Clinic	L	2	1	0	0	0	0	0	0
PG&E	Health/Medical - Clinic	M	12	5	2	2	0	2	4	24
PG&E	Health/Medical - Clinic	S	5	3	2	2	0	3	5	10
PG&E	Health/Medical - Clinic	V	6	3	3	2	0	0	2	25
PG&E	Health/Medical - Clinic	U	0	0	0	0	0	0	0	0
PG&E	Health/Medical - Hospital	L	3	2	0	0	0	0	0	0
PG&E	Health/Medical - Hospital	M	4	2	0	0	0	0	0	0
PG&E	Health/Medical - Hospital	S	2	0	0	0	0	0	0	0
PG&E	Health/Medical - Hospital	V	0	0	0	0	0	0	0	0
PG&E	Health/Medical - Hospital	U	0	0	0	0	0	0	0	0

Table E-4 (Cont'd): PG&E HVAC

IOU	Business Type	kWh Size	PS CMST HVAC	Recruited CMST-Linear Sites	PS CMST-Linear On-Sites Completed	PS CMST-Linear Recruits & OS Linear Found	Non-CMST LF Recruits	Sites with New Linear (Linear not ID'd on PS)	Total Sites with New Linear	Non-CMST LF Recruits
PG&E	Hotel	L	4	1	0	0	0	0	0	3
PG&E	Hotel	M	2	0	0	0	0	0	0	3
PG&E	Hotel	S	0	0	0	0	0	0	0	4
PG&E	Hotel	V	0	0	0	0	0	0	0	2
PG&E	Hotel	U	0	0	0	0	0	0	0	0
PG&E	Industrial	L	12	1	1	0	0	0	0	5
PG&E	Industrial	M	15	2	2	2	0	0	2	1
PG&E	Industrial	S	4	2	1	1	0	0	1	2
PG&E	Industrial	V	2	1	1	0	0	0	0	4
PG&E	Industrial	U	1	0	0	0	0	0	0	0
PG&E	Misc	L	12	5	1	0	0	0	0	9
PG&E	Misc	M	40	19	14	6	0	3	9	55
PG&E	Misc	S	18	10	4	2	0	3	5	47
PG&E	Misc	V	8	3	1	0	0	0	0	71
PG&E	Misc	U	1	1	0	0	0	0	0	3
PG&E	Office	L	9	6	3	1	0	0	1	22
PG&E	Office	M	29	19	14	6	0	0	6	48
PG&E	Office	S	16	2	1	0	0	2	2	25
PG&E	Office	V	11	4	2	0	0	1	1	46
PG&E	Office	U	0	0	0	0	0	0	0	6
PG&E	Restaurant	L	2	1	0	0	0	0	0	0
PG&E	Restaurant	M	2	1	1	0	0	0	0	15

Table E-4 (Cont'd): PG&E HVAC

IOU	Business Type	kWh Size	PS CMST HVAC	Recruited CMST-Linear Sites	PS CMST-Linear On-Sites Completed	PS CMST-Linear Recruits & OS Linear Found	Non-CMST LF Recruits	Sites with New Linear (Linear not ID'd on PS)	Total Sites with New Linear	Non-CMST LF Recruits
PG&E	Restaurant	S	11	7	3	1	0	1	2	52
PG&E	Restaurant	V	2	1	0	0	0	0	0	21
PG&E	Restaurant	U	1	0	0	0	0	0	0	1
PG&E	Retail	L	4	1	1	1	0	0	1	20
PG&E	Retail	M	11	6	2	1	0	4	5	54
PG&E	Retail	S	11	3	3	2	0	0	2	27
PG&E	Retail	V	4	2	0	0	0	1	1	41
PG&E	Retail	U	2	0	0	0	0	0	0	3
PG&E	School	L	3	1	1	0	0	1	1	5
PG&E	School	M	37	19	10	5	0	0	5	39
PG&E	School	S	5	1	1	1	0	2	3	25
PG&E	School	V	3	1	1	1	0	0	1	13
PG&E	School	U	2	0	0	0	0	0	0	3
PG&E	Warehouse	L	2	2	1	0	0	0	0	4
PG&E	Warehouse	M	12	5	4	1	0	0	1	15
PG&E	Warehouse	S	5	1	1	1	0	1	2	12
PG&E	Warehouse	V	3	0	0	0	0	0	0	19
PG&E	Warehouse	U	0	0	0	0	0	0	0	1
Total			359	155	87	41	0	25	66	850

E.5 HVAC – SCE

Table E-5: SCE HVAC

IOU	Business Type	kWh Size	PS CMST HVAC	Recruited CMST-Linear Sites	PS CMST-Linear On-Sites Completed	PS CMST-Linear Recruits & OS Linears Found	Non-CMST LF Recruits	Sites with New Linears (Linears not ID'd on PS)	Total Sites with New Linears	Non-CMST LF Recruits
SCE	College	L	2	0	0	0	0	0	0	0
SCE	College	M	2	0	0	0	0	0	0	1
SCE	College	S	0	0	0	0	0	0	0	0
SCE	College	V	0	0	0	0	0	0	0	0
SCE	College	U	0	0	0	0	0	0	0	0
SCE	Food/Liquor	L	2	0	0	0	0	1	1	23
SCE	Food/Liquor	M	11	6	4	1	0	1	2	51
SCE	Food/Liquor	S	8	5	2	1	0	3	4	33
SCE	Food/Liquor	V	3	3	1	1	0	0	1	9
SCE	Food/Liquor	U	0	0	0	0	0	0	0	0
SCE	Health/Medical - Clinic	L	3	2	1	1	0	0	1	4
SCE	Health/Medical - Clinic	M	24	4	2	2	0	1	3	25
SCE	Health/Medical - Clinic	S	8	3	2	1	0	3	4	16
SCE	Health/Medical - Clinic	V	7	1	1	0	0	0	0	25
SCE	Health/Medical - Clinic	U	0	0	0	0	0	0	0	0
SCE	Health/Medical - Hospital	L	2	2	1	1	0	0	1	3
SCE	Health/Medical - Hospital	M	1	0	0	0	0	0	0	0
SCE	Health/Medical - Hospital	S	0	0	0	0	0	0	0	0
SCE	Health/Medical - Hospital	V	1	0	0	0	0	0	0	0
SCE	Health/Medical - Hospital	U	0	0	0	0	0	0	0	0

Table E-5 (Cont'd): SCE HVAC

IOU	Business Type	kWh Size	PS CMST HVAC	Recruited CMST-Linear Sites	PS CMST-Linear On-Sites Completed	PS CMST-Linear Recruits & OS Linears Found	Non-CMST LF Recruits	Sites with New Linears (Linears not ID'd on PS)	Total Sites with New Linears	Non-CMST LF Recruits
SCE	Hotel	L	2	0	0	0	0	0	0	4
SCE	Hotel	M	6	3	2	2	0	0	2	2
SCE	Hotel	S	2	1	0	0	0	0	0	1
SCE	Hotel	V	2	0	0	0	0	0	0	0
SCE	Hotel	U	0	0	0	0	0	0	0	0
SCE	Industrial	L	24	6	1	0	0	0	0	5
SCE	Industrial	M	25	1	1	0	0	0	0	11
SCE	Industrial	S	15	0	0	0	0	1	1	7
SCE	Industrial	V	4	1	0	0	0	0	0	5
SCE	Industrial	U	0	0	0	0	0	0	0	0
SCE	Misc	L	9	2	1	0	0	0	0	8
SCE	Misc	M	34	16	8	4	0	1	5	29
SCE	Misc	S	34	15	6	3	0	3	6	58
SCE	Misc	V	29	9	2	0	0	1	1	100
SCE	Misc	U	0	0	0	0	0	0	0	3
SCE	Office	L	13	5	1	1	0	1	2	10
SCE	Office	M	38	15	13	5	0	1	6	29
SCE	Office	S	38	15	12	6	0	2	8	29
SCE	Office	V	18	5	3	1	0	0	1	62
SCE	Office	U	1	0	0	0	0	0	0	2
SCE	Restaurant	L	0	0	0	0	0	0	0	0
SCE	Restaurant	M	4	2	1	1	0	1	2	23

Table E-5 (Cont'd): SCE HVAC

IOU	Business Type	kWh Size	PS CMST HVAC	Recruited CMST-Linear Sites	PS CMST-Linear On-Sites Completed	PS CMST-Linear Recruits & OS Linears Found	Non-CMST LF Recruits	Sites with New Linears (Linears not ID'd on PS)	Total Sites with New Linears	Non-CMST LF Recruits
SCE	Restaurant	S	10	5	2	1	0	1	2	59
SCE	Restaurant	V	5	4	3	3	0	0	3	16
SCE	Restaurant	U	0	0	0	0	0	0	0	0
SCE	Retail	L	5	3	2	2	0	0	2	26
SCE	Retail	M	19	7	5	2	0	1	3	28
SCE	Retail	S	13	2	0	0	0	2	2	35
SCE	Retail	V	12	5	4	3	0	2	5	75
SCE	Retail	U	2	1	0	0	0	0	0	0
SCE	School	L	4	3	3	2	0	0	2	12
SCE	School	M	33	23	16	8	0	2	10	41
SCE	School	S	10	4	2	2	0	2	4	15
SCE	School	V	2	1	1	1	0	0	1	1
SCE	School	U	0	0	0	0	0	0	0	0
SCE	Warehouse	L	9	4	1	0	0	1	1	10
SCE	Warehouse	M	28	10	6	4	0	1	5	34
SCE	Warehouse	S	12	3	2	1	0	4	5	36
SCE	Warehouse	V	3	0	0	0	0	1	1	16
SCE	Warehouse	U	0	0	0	0	0	0	0	1
Total			539	197	112	60	0	37	97	983

E.6 HVAC – SDG&E

Table E-6: SDG&E HVAC

IOU	Business Type	kWh Size	PS CMST HVAC	Recruited CMST-Linear Sites	PS CMST-Linear On-Sites Completed	PS CMST-Linear Recruits & OS Linears Found	Non-CMST LF Recruits	Sites with New Linears (Linears not ID'd on PS)	Total Sites with New Linears	Non-CMST LF Recruits
SDG&E	College	L	3	1	0	0	0	0	0	0
SDG&E	College	M	0	0	0	0	0	1	1	1
SDG&E	College	S	0	0	0	0	0	0	0	0
SDG&E	College	V	0	0	0	0	0	0	0	0
SDG&E	College	U	0	0	0	0	0	0	0	0
SDG&E	Food/Liquor	L	0	0	0	0	0	0	0	0
SDG&E	Food/Liquor	M	0	0	0	0	0	1	1	15
SDG&E	Food/Liquor	S	5	2	2	0	0	0	0	15
SDG&E	Food/Liquor	V	0	0	0	0	0	0	0	6
SDG&E	Food/Liquor	U	0	0	0	0	0	0	0	1
SDG&E	Health/Medical - Clinic	L	0	0	0	0	0	0	0	2
SDG&E	Health/Medical - Clinic	M	4	3	2	0	0	1	1	8
SDG&E	Health/Medical - Clinic	S	3	2	1	0	0	0	0	9
SDG&E	Health/Medical - Clinic	V	6	3	2	1	0	0	1	14
SDG&E	Health/Medical - Clinic	U	1	1	0	0	0	0	0	1
SDG&E	Health/Medical - Hospital	L	0	0	0	0	0	0	0	1
SDG&E	Health/Medical - Hospital	M	0	0	0	0	0	0	0	0
SDG&E	Health/Medical - Hospital	S	0	0	0	0	0	0	0	0
SDG&E	Health/Medical - Hospital	V	0	0	0	0	0	0	0	0
SDG&E	Health/Medical - Hospital	U	0	0	0	0	0	0	0	0
SDG&E	Hotel	L	1	0	0	0	0	0	0	0

Table E-6 (Cont'd): SDG&E HVAC

IOU	Business Type	kWh Size	PS CMST HVAC	Recruited CMST-Linear Sites	PS CMST-Linear On-Sites Completed	PS CMST-Linear Recruits & OS Linears Found	Non-CMST LF Recruits	Sites with New Linears (Linears not ID'd on PS)	Total Sites with New Linears	Non-CMST LF Recruits
SDG&E	Hotel	M	6	3	3	1	0	0	1	1
SDG&E	Hotel	S	0	0	0	0	0	0	0	0
SDG&E	Hotel	V	0	0	0	0	0	0	0	0
SDG&E	Hotel	U	0	0	0	0	0	0	0	1
SDG&E	Industrial	L	2	0	0	0	0	0	0	3
SDG&E	Industrial	M	0	0	0	0	0	0	0	4
SDG&E	Industrial	S	6	1	0	0	0	0	0	0
SDG&E	Industrial	V	3	1	1	1	0	0	1	2
SDG&E	Industrial	U	1	0	0	0	0	0	0	0
SDG&E	Misc	L	2	1	1	1	0	0	1	6
SDG&E	Misc	M	16	10	6	3	0	0	3	25
SDG&E	Misc	S	9	2	1	1	0	1	2	26
SDG&E	Misc	V	9	3	2	0	0	0	0	44
SDG&E	Misc	U	1	0	0	0	0	0	0	4
SDG&E	Office	L	1	1	1	0	0	0	0	4
SDG&E	Office	M	10	2	2	0	0	3	3	15
SDG&E	Office	S	3	2	1	1	0	1	2	13
SDG&E	Office	V	13	5	4	2	0	0	2	26
SDG&E	Office	U	4	2	0	0	0	0	0	3
SDG&E	Restaurant	L	0	0	0	0	0	0	0	0
SDG&E	Restaurant	M	8	3	2	2	0	0	2	9
SDG&E	Restaurant	S	6	3	2	0	0	0	0	31

Table E-6 (Cont'd): SDG&E HVAC

IOU	Business Type	kWh Size	PS CMST HVAC	Recruited CMST-Linear Sites	PS CMST-Linear On-Sites Completed	PS CMST-Linear Recruits & OS Linears Found	Non-CMST LF Recruits	Sites with New Linears (Linears not ID'd on PS)	Total Sites with New Linears	Non-CMST LF Recruits
SDG&E	Restaurant	V	1	0	0	0	0	2	2	13
SDG&E	Restaurant	U	0	0	0	0	0	0	0	1
SDG&E	Retail	L	1	0	0	0	0	0	0	3
SDG&E	Retail	M	3	2	2	1	0	1	2	6
SDG&E	Retail	S	8	3	2	0	0	0	0	13
SDG&E	Retail	V	4	1	1	1	0	1	2	25
SDG&E	Retail	U	0	0	0	0	0	0	0	2
SDG&E	School	L	0	0	0	0	0	0	0	0
SDG&E	School	M	11	5	1	1	0	1	2	11
SDG&E	School	S	5	3	1	0	0	1	1	6
SDG&E	School	V	2	0	0	0	0	0	0	4
SDG&E	School	U	1	0	0	0	0	0	0	0
SDG&E	Warehouse	L	2	2	1	0	0	0	0	1
SDG&E	Warehouse	M	1	0	0	0	0	1	1	3
SDG&E	Warehouse	S	3	2	2	1	0	0	1	5
SDG&E	Warehouse	V	2	1	1	1	0	1	2	8
SDG&E	Warehouse	U	0	0	0	0	0	0	0	2
Total			167	70	44	18	0	16	34	393

E.7 TVs – PG&E

Table E-7: PG&E TVs

IOU	Business Type	kWh Size	PS CMST TV	Recruited CMST-Linear Sites	PS CMST-Linear On-Sites Completed	PS CMST-Linear Recruits & OS Linears Found	Non-CMST LF Recruits	Sites with New Linears (Linears not ID'd on PS)	Total Sites with New Linears
PG&E	College	L	1	1	0	0	0	0	0
PG&E	College	M	1	0	0	0	0	0	0
PG&E	College	S	0	0	0	0	0	0	0
PG&E	College	V	0	0	0	0	0	0	0
PG&E	College	U	1	0	0	0	0	0	0
PG&E	Food/Liquor	L	2	1	1	1	6	0	1
PG&E	Food/Liquor	M	15	7	5	4	25	2	6
PG&E	Food/Liquor	S	7	3	3	3	22	0	3
PG&E	Food/Liquor	V	2	0	0	0	9	0	0
PG&E	Food/Liquor	U	1	1	1	1	1	0	1
PG&E	Health/Medical - Clinic	L	5	0	0	0	1	0	0
PG&E	Health/Medical - Clinic	M	42	16	12	9	13	1	10
PG&E	Health/Medical - Clinic	S	12	6	4	4	7	2	6
PG&E	Health/Medical - Clinic	V	16	7	5	4	21	2	6
PG&E	Health/Medical - Clinic	U	2	0	0	0	0	0	0
PG&E	Health/Medical - Hospital	L	4	2	0	0	0	0	0
PG&E	Health/Medical - Hospital	M	5	2	0	0	0	0	0
PG&E	Health/Medical - Hospital	S	2	0	0	0	0	0	0

Table E-7 (Cont'd): PG&E TVs

IOU	Business Type	kWh Size	PS CMST TV	Recruited CMST-Linear Sites	PS CMST-Linear On-Sites Completed	PS CMST-Linear Recruits & OS Linears Found	Non-CMST LF Recruits	Sites with New Linears (Linears not ID'd on PS)	Total Sites with New Linears
PG&E	Health/Medical - Hospital	V	0	0	0	0	0	0	0
PG&E	Health/Medical - Hospital	U	1	0	0	0	0	0	0
PG&E	Hotel	L	12	3	1	1	1	0	1
PG&E	Hotel	M	19	3	3	3	0	0	3
PG&E	Hotel	S	13	4	2	2	0	0	2
PG&E	Hotel	V	6	1	0	0	1	0	0
PG&E	Hotel	U	2	0	0	0	0	0	0
PG&E	Industrial	L	17	4	3	3	2	0	3
PG&E	Industrial	M	9	1	1	1	2	0	1
PG&E	Industrial	S	7	1	0	0	3	0	0
PG&E	Industrial	V	2	0	0	0	5	0	0
PG&E	Industrial	U	0	0	0	0	0	0	0
PG&E	Misc	L	21	6	2	2	8	0	2
PG&E	Misc	M	68	30	21	18	44	6	24
PG&E	Misc	S	30	14	5	5	43	3	8
PG&E	Misc	V	31	14	4	3	60	3	6
PG&E	Misc	U	2	1	0	0	3	0	0
PG&E	Office	L	28	11	5	4	17	4	8
PG&E	Office	M	45	22	14	12	45	4	16
PG&E	Office	S	20	6	5	5	21	0	5
PG&E	Office	V	15	8	5	4	42	2	6
PG&E	Office	U	5	3	0	0	3	0	0

Table E-7 (Cont'd): PG&E TVs

IOU	Business Type	kWh Size	PS CMST TV	Recruited CMST-Linear Sites	PS CMST-Linear On-Sites Completed	PS CMST-Linear Recruits & OS Linears Found	Non-CMST LF Recruits	Sites with New Linears (Linears not ID'd on PS)	Total Sites with New Linears
PG&E	Restaurant	L	2	1	0	0	0	0	0
PG&E	Restaurant	M	14	8	5	3	8	3	6
PG&E	Restaurant	S	27	14	13	11	45	1	12
PG&E	Restaurant	V	16	6	2	2	16	2	4
PG&E	Restaurant	U	0	0	0	0	1	0	0
PG&E	Retail	L	7	3	2	2	18	0	2
PG&E	Retail	M	17	5	3	3	55	2	5
PG&E	Retail	S	21	5	4	3	25	2	5
PG&E	Retail	V	13	5	4	4	38	1	5
PG&E	Retail	U	0	0	0	0	3	0	0
PG&E	School	L	3	2	2	1	4	1	2
PG&E	School	M	23	12	6	4	46	3	7
PG&E	School	S	12	7	7	2	19	1	3
PG&E	School	V	2	1	0	0	13	0	0
PG&E	School	U	1	1	0	0	2	0	0
PG&E	Warehouse	L	4	4	2	2	2	0	2
PG&E	Warehouse	M	19	6	4	2	14	2	4
PG&E	Warehouse	S	8	0	0	0	13	0	0
PG&E	Warehouse	V	8	1	1	1	18	1	2
PG&E	Warehouse	U	0	0	0	0	1	0	0
Total			668	259	157	129	746	48	177

E.8 TVs – SCE

Table E-8: SCE TVs

IOU	Business Type	kWh Size	PS CMST TV	Recruited CMST-Linear Sites	PS CMST-Linear On-Sites Completed	PS CMST-Linear Recruits & OS Linears Found	Non-CMST LF Recruits	Sites with New Linears (Linears not ID'd on PS)	Total Sites with New Linears
SCE	College	L	1	0	0	0	0	0	0
SCE	College	M	2	0	0	0	1	0	0
SCE	College	S	0	0	0	0	0	0	0
SCE	College	V	0	0	0	0	0	0	0
SCE	College	U	0	0	0	0	0	0	0
SCE	Food/Liquor	L	6	2	0	0	21	2	2
SCE	Food/Liquor	M	18	7	4	4	50	6	10
SCE	Food/Liquor	S	18	12	8	7	26	0	7
SCE	Food/Liquor	V	3	0	0	0	12	3	3
SCE	Food/Liquor	U	0	0	0	0	0	0	0
SCE	Health/Medical - Clinic	L	8	6	3	2	0	0	2
SCE	Health/Medical - Clinic	M	37	12	10	10	17	6	16
SCE	Health/Medical - Clinic	S	22	10	8	8	9	2	10
SCE	Health/Medical - Clinic	V	18	6	4	4	20	2	6
SCE	Health/Medical - Clinic	U	0	0	0	0	0	0	0
SCE	Health/Medical - Hospital	L	11	4	3	3	1	0	3
SCE	Health/Medical - Hospital	M	6	0	0	0	0	0	0
SCE	Health/Medical - Hospital	S	1	0	0	0	0	0	0
SCE	Health/Medical - Hospital	V	1	0	0	0	0	0	0
SCE	Health/Medical - Hospital	U	0	0	0	0	0	0	0
SCE	Hotel	L	17	4	3	3	0	0	3
SCE	Hotel	M	23	4	2	2	1	0	2

Table E-8 (Cont'd): SCE TVs

IOU	Business Type	kWh Size	PS CMST TV	Recruited CMST-Linear Sites	PS CMST-Linear On-Sites Completed	PS CMST-Linear Recruits & OS Linears Found	Non-CMST LF Recruits	Sites with New Linears (Linears not ID'd on PS)	Total Sites with New Linears
SCE	Hotel	S	8	2	0	0	0	0	0
SCE	Hotel	V	3	0	0	0	0	0	0
SCE	Hotel	U	0	0	0	0	0	0	0
SCE	Industrial	L	24	3	1	1	8	1	2
SCE	Industrial	M	27	1	1	1	11	0	1
SCE	Industrial	S	19	2	2	2	5	0	2
SCE	Industrial	V	3	2	1	1	4	0	1
SCE	Industrial	U	1	0	0	0	0	0	0
SCE	Misc	L	21	8	3	3	2	0	3
SCE	Misc	M	48	24	13	11	21	5	16
SCE	Misc	S	47	22	15	13	51	2	15
SCE	Misc	V	32	8	4	3	101	3	6
SCE	Misc	U	1	0	0	0	3	0	0
SCE	Office	L	13	9	3	3	6	1	4
SCE	Office	M	37	13	6	5	31	4	9
SCE	Office	S	31	13	9	9	31	2	11
SCE	Office	V	23	8	5	1	59	3	4
SCE	Office	U	1	0	0	0	2	0	0
SCE	Restaurant	L	0	0	0	0	0	0	0
SCE	Restaurant	M	20	9	6	6	16	3	9
SCE	Restaurant	S	46	20	11	6	44	4	10
SCE	Restaurant	V	13	8	4	4	12	1	5
SCE	Restaurant	U	1	0	0	0	0	0	0
SCE	Retail	L	10	4	3	3	25	5	8

Table E-8 (Cont'd): SCE TVs

IOU	Business Type	kWh Size	PS CMST TV	Recruited CMST-Linear Sites	PS CMST-Linear On-Sites Completed	PS CMST-Linear Recruits & OS Linears Found	Non-CMST LF Recruits	Sites with New Linears (Linears not ID'd on PS)	Total Sites with New Linears
SCE	Retail	M	45	15	11	10	20	1	11
SCE	Retail	S	21	7	7	5	30	3	8
SCE	Retail	V	25	7	6	5	73	2	7
SCE	Retail	U	2	1	0	0	0	0	0
SCE	School	L	6	3	2	0	12	0	0
SCE	School	M	29	16	10	2	48	3	5
SCE	School	S	14	6	4	2	13	3	5
SCE	School	V	1	1	1	1	1	0	1
SCE	School	U	0	0	0	0	0	0	0
SCE	Warehouse	L	13	6	1	1	8	1	2
SCE	Warehouse	M	42	16	6	4	28	5	9
SCE	Warehouse	S	30	11	7	7	28	2	9
SCE	Warehouse	V	10	2	2	2	14	2	4
SCE	Warehouse	U	0	0	0	0	1	0	0
Total			859	314	189	154	866	77	231

E.9 TVs – SDG&E

Table E-9: SDG&E TVs

IOU	Business Type	kWh Size	PS CMST TV	Recruited CMST-Linear Sites	PS CMST-Linear On-Sites Completed	PS CMST-Linear Recruits & OS Linears Found	Non-CMST LF Recruits	Sites with New Linears (Linears not ID'd on PS)	Total Sites with New Linears
SDG&E	College	L	1	1	0	0	0	0	0
SDG&E	College	M	1	1	1	1	0	0	1
SDG&E	College	S	1	0	0	0	0	0	0
SDG&E	College	V	0	0	0	0	0	0	0
SDG&E	College	U	0	0	0	0	0	0	0
SDG&E	Food/Liquor	L	1	0	0	0	0	0	0
SDG&E	Food/Liquor	M	0	0	0	0	15	1	1
SDG&E	Food/Liquor	S	7	3	1	1	14	2	3
SDG&E	Food/Liquor	V	2	1	0	0	5	0	0
SDG&E	Food/Liquor	U	0	0	0	0	1	0	0
SDG&E	Health/Medical - Clinic	L	2	1	0	0	1	0	0
SDG&E	Health/Medical - Clinic	M	12	7	3	3	4	0	3
SDG&E	Health/Medical - Clinic	S	12	3	2	1	8	1	2
SDG&E	Health/Medical - Clinic	V	6	2	0	0	15	1	1
SDG&E	Health/Medical - Clinic	U	1	1	0	0	1	0	0
SDG&E	Health/Medical - Hospital	L	2	1	0	0	0	0	0
SDG&E	Health/Medical - Hospital	M	0	0	0	0	0	0	0
SDG&E	Health/Medical - Hospital	S	0	0	0	0	0	0	0
SDG&E	Health/Medical - Hospital	V	1	0	0	0	0	0	0
SDG&E	Health/Medical - Hospital	U	0	0	0	0	0	0	0
SDG&E	Hotel	L	6	0	0	0	0	0	0

Table E-9 (Cont'd): SDG&E TVs

IOU	Business Type	kWh Size	PS CMST TV	Recruited CMST-Linear Sites	PS CMST-Linear On-Sites Completed	PS CMST-Linear Recruits & OS Linear Found	Non-CMST LF Recruits	Sites with New Linear (Linear not ID'd on PS)	Total Sites with New Linear
SDG&E	Hotel	M	16	4	3	3	0	0	3
SDG&E	Hotel	S	5	0	0	0	0	0	0
SDG&E	Hotel	V	0	0	0	0	0	0	0
SDG&E	Hotel	U	1	1	1	1	0	0	1
SDG&E	Industrial	L	5	1	1	0	2	0	0
SDG&E	Industrial	M	7	3	2	2	1	0	2
SDG&E	Industrial	S	4	0	0	0	1	0	0
SDG&E	Industrial	V	1	1	0	0	2	0	0
SDG&E	Industrial	U	0	0	0	0	0	0	0
SDG&E	Misc	L	9	3	2	1	4	1	2
SDG&E	Misc	M	28	16	7	6	19	2	8
SDG&E	Misc	S	20	10	4	3	18	0	3
SDG&E	Misc	V	21	10	4	4	37	0	4
SDG&E	Misc	U	8	3	0	0	1	0	0
SDG&E	Office	L	4	1	0	0	4	0	0
SDG&E	Office	M	20	7	6	5	10	1	6
SDG&E	Office	S	11	5	3	3	10	1	4
SDG&E	Office	V	7	1	1	0	30	0	0
SDG&E	Office	U	2	0	0	0	5	0	0
SDG&E	Restaurant	L	0	0	0	0	0	0	0
SDG&E	Restaurant	M	14	6	3	3	6	1	4
SDG&E	Restaurant	S	20	10	6	6	24	1	7
SDG&E	Restaurant	V	7	5	4	4	8	0	4
SDG&E	Restaurant	U	1	0	0	0	1	0	0

Table E-9 (Cont'd): SDG&E TVs

IOU	Business Type	kWh Size	PS CMST TV	Recruited CMST-Linear Sites	PS CMST-Linear On-Sites Completed	PS CMST-Linear Recruits & OS Linear Found	Non-CMST LF Recruits	Sites with New Linear (Linear not ID'd on PS)	Total Sites with New Linear
SDG&E	Retail	L	4	2	2	2	1	0	2
SDG&E	Retail	M	10	4	4	3	4	0	3
SDG&E	Retail	S	13	3	2	1	13	1	2
SDG&E	Retail	V	9	4	3	3	22	1	4
SDG&E	Retail	U	3	2	1	0	0	0	0
SDG&E	School	L	0	0	0	0	0	0	0
SDG&E	School	M	11	4	0	0	12	0	0
SDG&E	School	S	6	4	3	2	5	0	2
SDG&E	School	V	3	1	1	1	3	0	1
SDG&E	School	U	1	0	0	0	0	0	0
SDG&E	Warehouse	L	2	2	1	1	1	0	1
SDG&E	Warehouse	M	2	0	0	0	3	0	0
SDG&E	Warehouse	S	4	2	1	1	5	1	2
SDG&E	Warehouse	V	5	1	1	0	8	1	1
SDG&E	Warehouse	U	0	0	0	0	2	0	0
Total			339	137	73	61	326	16	77