

State of California
Department of Community Services and Development

Weatherization Assistance Program
for Low-Income Persons



2012 State Plan and Application
to the
U.S. Department of Energy
May 1, 2012

Edmund G. Brown, Jr.
Governor
State of California

Diana S. Dooley
Secretary
California Health and
Human Services Agency

John A. Wagner
Interim Director
Department of Community
Services and Development

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II.2 Budget Explanation

Personnel

Positions to be supported under the proposed award and brief descriptions of the duties of professionals:

Position	Description of Duties
Staff Services Manager III / Energy & Environmental Services Division	Manager provides staff supervision and administers departmental policies and programs. Participates in Policy Advisory Council and other stakeholder meetings.
Staff Services Manager II / Energy & Environmental Services Division	Manager provides staff supervision and administers departmental policies and programs. Participates in Policy Advisory Council meetings.
Research Analyst II / Energy & Environmental Services Division	Analyst provides technical and analytical support and training to Subgrantees and departmental staff.
Staff Services Manager I / Technical Support Unit	Manager provides staff supervision and administers departmental policies and programs. Participates in Policy Advisory Council meetings. Oversees development of policies, standards, contracts and trainings. Primary liaison to DOE.
Assoc. Govt. Program Analyst (4) / Technical Support Unit	Analysts provide technical and analytical support and training to Subgrantees and departmental staff. Help in the development of policies, standards, contracts, program guidance and energy audit reviews.
Staff Services Analyst / Technical Support Unit	Analyst provides technical and analytical support and training to Subgrantees and departmental staff. Help in the development of policies, standards, contracts and program guidance.
Staff Services Manager I (2) / Field Operations Unit	Managers provide staff supervision and oversight of the monitoring of Subgrantees.
Assoc. Govt. Program Analysts (8) / Field Operations Unit	Analysts perform day-to-day program administration, review of fiscal and programmatic data reports, annual monitoring activities and program analysis for monitoring purposes.
Staff Services Manager I / Quality Assurance Unit	Manager provides staff supervision and administration of the QA unit.
Staff Services Manager I (Retired)	Manager performs oversight of the QA

Annuitant) / Quality Assurance Unit	monitoring provided by third-party inspection contractor and oversees separate QA inspections of Grantee staff.
Assoc. Govt. Program Analyst (2 Retired Annuitants) / Quality Assurance Unit	Analysts perform field monitoring of the third-party inspection contractor and separate QA inspections of the Subgrantees.

Direct Personnel Compensation:

Position	Salary/Range	Time	Direct Pay
Staff Services Manager III / EES	\$88,848	15% FT	\$13,327
Staff Services Manager II / EES	\$80,724	15% FT	12,109
Staff Services Manager I / TS	\$73,524	30% FT	22,057
Research Analyst II / EES	\$67,392	20% FT	13,478
Assoc. Govt. Program Analyst (4) / TS	\$64,176	20% FT	51,341
Staff Services Analyst / TS	\$53,352	20% FT	10,670
Staff Services Manager I (2) / FO	\$73,524	20% FT	29,410
Assoc. Govt. Program Analysts (8) / FO	\$64,176	20% FT	102,682
Staff Services Manager I / QA	\$73,524	20% FT	14,705
Staff Services Manager I / QA (RA)	\$34,641	20% PT	6,928
Assoc. Govt. Program Analyst (2) / QA (RA)	\$30,237	20% PT	12,095
Total Direct Personnel Compensation			\$288,801

Fringe Benefits

The fringe benefit rate is based upon actual percentages used to pay for benefits of all State employees. The total amount of fringe benefits is calculated based upon a prorated amount of the annual salary of each classification that is attributable to DOE activities.

Benefit	Rate
Retirement (permanent employees only)	18.18%
Payroll Taxes – OASDI (permanent employees only)	6.20%
Payroll Taxes - Medicare	1.45%
Medical Insurances (permanent employees only)	14.17%
Total Fringe Benefit Rate	40.00%

Position	Direct Pay	Rate	Benefit
Staff Services Manager III / EES	\$13,327	40%	\$5,331
Staff Services Manager II / EES	12,109	40%	4,843
Staff Services Manager I / TS	22,057	40%	8,823
Research Analyst II / EES	13,478	40%	5,391

Assoc. Govt. Program Analyst (4) / TS	51,341	40%	20,536
Staff Services Analyst / TS	10,670	40%	4,268
Staff Services Manager I (2) / FO	29,410	40%	11,764
Assoc. Govt. Program Analysts (8) / FO	102,682	40%	41,073
Staff Services Manager I / QA	14,705	40%	5,882
Staff Services Manager I / QA (RA)	6,928	1.45%	100
Assoc. Govt. Program Analyst (2) / QA (RA)	12,095	1.45%	175
Total Fringe Benefits			\$108,187

Travel

Proposed travel:

Purpose of Trip	Number of Trips	Average Cost per Trip	Total
Energy OutWest Regional Meeting (Out-of-State)	2	\$1,270	\$2,540
NASCSP Meetings (Out-of-State)	4	\$2,270	9,080
PG&E Energy Training Center – Basic Wx	2	\$160	320
PG&E Energy Training Center - Diagnostics	4	\$128	512
Comprehensive Monitoring	42	\$227	9,534
Total Travel			\$21,986

- 1) All budget estimations are based upon historical data and actual costs incurred under previous grants. Costs for training center and monitoring are leveraged with the LIHEAP weatherization program.
- 2) Budgets for meetings and conferences include any related training fees.

Contracts and Subgrants

Name of Proposed Sub	Basis of Cost	Total Cost
Wx Service Providers	Net allocation after Grantee admin and T&TA; Allocated by 3-factor formula; see Subgrantees for allocation breakdown (pages 13–32); Cost basis – Allocated by 3-factor formula	\$8,159,275
Training Center Upgrades	Upgrades to props and equipment at the Grantee's four centers; Cost basis – actual contracted amounts	410,500
Third Party Inspections – ConSol	Conduct weatherized unit inspections; Cost basis – competitive bid contract	87,120
Training Conference –	Sponsorship and registration conference	49,600

Washington State University	fees for up to two Subgrantee staff members to attend the 2012 Energy OutWest Training Conference; Cost basis – actual cost of registration fees and sponsorship	
IT Development – CCES	Final development and support of localized Subgrantee reporting system; Cost basis – actual contracted amount	44,763
Total Contracts and Subgrants		\$8,751,258

Indirect Costs

Category	Account	2008 – 2011 Grant Years Actual Expenditures To Date ¹		2012 Budget Estimate	
Total DOE Expenditures		\$1,021,691		\$1,449,225	
Direct Costs					
Admin	Salaries & Benefits	\$185,957	18.20%	\$154,094	10.63%
Admin	Travel	7,700	0.75%	11,620	0.80%
Admin	Equipment				
Admin	Supplies				
Admin	Other Direct Costs	215,156	21.06%		
T&TA	Salaries & Benefits	319,179	31.24%	242,894	16.76%
T&TA	Travel	22,050	2.16%	10,366	0.72%
T&TA	Equipment				
T&TA	Supplies				
T&TA	Contracts	156,958	15.36%	547,220	37.76%
Total Direct Costs		\$907,000	88.77%	\$966,195	66.67%
Indirect Costs					
Total Indirect Costs		\$114,692	11.23%	\$483,030	33.33%
Total Costs		\$1,021,691		\$1,449,225	

Indirect Cost	Total Direct Costs	Indirect Rate	Total Indirect Costs
Total	\$1,449,225	33.3302%	\$483,030

¹ Because the 2011 program year has not been closed out, the expenditures were based upon actual expenditures as of 3/31/12.

Carryover

Traditionally, CSD has carried over a nominal amount of funding from year-to-year. However, since the start of DOE ARRA, resources and precedence have been given to the ARRA program for the last three years. There is approximately \$8,004,172 in funds carried over from PY 2009 through 2011.

Remaining administrative and training funds were carried over intact for each agency. Given the low allocation for 2012 and our training requirements, there is a substantial need to maintain all available training funds from subsequent years. Budget line items for the carryover funds were allocated the following amounts:

Line Item	Allocation
Grantee Admin	\$164,618
Grantee T & TA	1,086,716
Subgrantee Admin	374,820
Subgrantee T & TA	1,237,986
Program Operations (including insurance and H&S)	5,140,032
Total	\$8,004,172

The new 2012 funding was allocated to the following budget line items:

Line Item	Allocation
Grantee Admin	\$82,455
Grantee T & TA	115,436
Subgrantee Admin	82,455
Subgrantee T & TA	49,473
Program Operations (including insurance and H&S)	1,319,273
Total	\$1,649,091

II.1 Budget Information

OMB Approval No. 0348-0044

Section A - Budget Summary						
Grant Program Function or Activity (a)	Catalog of Federal Domestic Assistance Number (b)	Estimated Unobligated Funds		New or Revised Budget		
		Federal (c)	Non-Federal (d)	Federal (e)	Non-Federal (f)	Total (g)
1. DOE WAP	81.042			\$1,649,091		\$1,649,091
2. DOE WAP	81.042			\$4,389,214		\$4,389,214
3. DOE WAP	81.042			\$1,944,544		\$1,944,544
4. DOE WAP	82.042			\$1,670,414		\$1,670,414
5. Totals		\$0	\$0	\$9,653,263	\$0	\$9,653,263
Section B - Budget Categories						
6. Object Class Categories	Grant Program, Function or Activity				Total (5)	
	(1) Grantee Administration	(2) Subgrantee Admin	(3) Grantee T&TA	(4) Subgrantee T&TA		
a. Personnel	\$111,115		\$177,686		\$288,801	
b. Fringe Benefits	\$42,979		\$65,208		\$108,187	
c. Travel	\$11,620		\$10,366		\$21,986	
d. Equipment					\$0	
e. Supplies					\$0	
f. Contractual		\$457,275	\$547,220	\$1,332,221	\$2,336,716	
g. Construction					\$0	
h. Other					\$0	
i. Total Direct Charges (sum of 6a-6h)	\$165,714	\$457,275	\$800,480	\$1,332,221	\$2,755,690	
j. Indirect Charges	\$81,358		\$401,672		\$483,030	
k. Totals (sum of 6i-6j)	\$247,072	\$457,275	\$1,202,152	\$1,332,221	\$3,238,720	
7. Program Income					\$0	

II.1 Budget Information

OMB Approval No. 0348-0044

Section A - Budget Summary						
Grant Program Function or Activity (a)	Catalog of Federal Domestic Assistance Number (b)	Estimated Unobligated Funds		New or Revised Budget		
		Federal (c)	Non-Federal (d)	Federal (e)	Non-Federal (f)	Total (g)
1.						\$0
2.						\$0
3.						\$0
4.						\$0
5. Totals		\$0	\$0	\$0	\$0	\$0
Section B - Budget Categories						
6. Object Class Categories	Grant Program, Function or Activity				Total (5)	
	(1) Program Operations	(2) Health & Safety	(3) Vehicles & Equipment	(4) Liability Insurance		
a. Personnel					\$0	
b. Fringe Benefits					\$0	
c. Travel					\$0	
d. Equipment					\$0	
e. Supplies					\$0	
f. Contractual	\$5,055,279	\$1,263,820		\$95,444	\$6,414,543	
g. Construction					\$0	
h. Other					\$0	
i. Total Direct Charges (sum of 6a-6h)	\$5,055,279	\$1,263,820	\$0	\$95,444	\$6,414,543	
j. Indirect Charges					\$0	
k. Totals (sum of 6i-6j)	\$5,055,279	\$1,263,820	\$0	\$95,444	\$6,414,543	
7. Program Income					\$0	

SF-424A (Rev. 4-92)

Prescribed by OMB Circular A-102

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II.1 Budget Information

OMB Approval No. 0348-0044

Section A - Budget Summary						
Grant Program Function or Activity (a)	Catalog of Federal Domestic Assistance Number (b)	Estimated Unobligated Funds		New or Revised Budget		
		Federal (c)	Non-Federal (d)	Federal (e)	Non-Federal (f)	Total (g)
1.						\$0
2.						\$0
3.						\$0
4.						\$0
5. Totals		\$0	\$0	\$0	\$0	\$0
Section B - Budget Categories						
6. Object Class Categories	Grant Program, Function or Activity				Total (5)	
	(1) Leveraging	(2) Financial Audits	(3)	(4)		
a. Personnel					\$0	
b. Fringe Benefits					\$0	
c. Travel					\$0	
d. Equipment					\$0	
e. Supplies					\$0	
f. Contractual	\$0	\$0			\$0	
g. Construction					\$0	
h. Other					\$0	
i. Total Direct Charges (sum of 6a-6h)	\$0	\$0	\$0	\$0	\$0	
j. Indirect Charges					\$0	
k. Totals (sum of 6i-6j)	\$0	\$0	\$0	\$0	\$0	
7. Program Income						
						\$0

Previous Edition Usable

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SF-424A (Rev. 4-92)
Prescribed by OMB Circular A-102

Application for Federal Assistance SF-424

* 1. Type of Submission: <input type="checkbox"/> Preapplication <input checked="" type="checkbox"/> Application <input type="checkbox"/> Changed/Corrected Application	* 2. Type of Application: <input type="checkbox"/> New <input checked="" type="checkbox"/> Continuation <input type="checkbox"/> Revision	* If Revision, select appropriate letter(s): _____ * Other (Specify) _____
---	---	---

* 3. Date Received: 05/01/2012	4. Applicant Identifier: _____
--	--

5a. Federal Entity Identifier: _____	* 5b. Federal Award Identifier: DE-R021678
--	--

State Use Only:

6. Date Received by State: _____	7. State Application Identifier: _____
--	--

8. APPLICANT INFORMATION:

*** a. Legal Name:** State of California

* b. Employer/Taxpayer Identification Number (EIN/TIN): 680283471	* c. Organizational DUNS: 929578268
---	---

d. Address:

*** Street1:** 2389 Gateway Oaks Dr., Suite 100
Street2: _____
*** City:** Sacramento
County: Sacramento
*** State:** CA
Province: _____
*** Country:** USA
*** Zip / Postal Code:** 95833

e. Organizational Unit:

Department Name: Community Services and Development	Division Name: Energy and Environmental Services
---	--

f. Name and contact information of person to be contacted on matters involving this application:

Prefix: Mr. *** First Name:** Jason
Middle Name: _____
*** Last Name:** Wimbley
Suffix: _____

Title: Division Chief

Organizational Affiliation:

*** Telephone Number:** (916) 576-7109 **Fax Number:** _____

*** Email:** JWimbley@cspd.ca.gov

Application for Federal Assistance SF-424

9. Type of Applicant 1: Select Applicant Type:

A. State

Type of Applicant 2: Select Applicant Type:

Type of Applicant 3: Select Applicant Type:

* Other (specify):

*** 10. Name of Federal Agency:**

U.S. Department of Energy

11. Catalog of Federal Domestic Assistance Number:

8 1 0 4 2

CFDA Title:

Weatherization Assistance for Low Income Persons

*** 12. Funding Opportunity Number:**

DE-FOA-0000641

* Title:

Program Year 2012 Weatherization Formula Grants

13. Competition Identification Number:

Title:

14. Areas Affected by Project (Cities, Counties, States, etc.):

Statewide - California

*** 15. Descriptive Title of Applicant's Project:**

The Weatherization Assistance for Low Income Persons enables low-income families to permanently reduce their energy bills by making their homes more energy efficient. During the last 32 years, the U.S. Department of Energy's (DOE) Weatherization Assistance Program has provided weatherization services to

Attach supporting documents as specified in agency instructions.

Application for Federal Assistance SF-424

16. Congressional Districts Of:

* a. Applicant

* b. Program/Project

Attach an additional list of Program/Project Congressional Districts if needed.

17. Proposed Project:

* a. Start Date:

* b. End Date:

18. Estimated Funding (\$):

* a. Federal	<input type="text" value="1,649,091.00"/>
* b. Applicant	<input type="text"/>
* c. State	<input type="text"/>
* d. Local	<input type="text"/>
* e. Other	<input type="text"/>
* f. Program Income	<input type="text"/>
* g. TOTAL	<input type="text" value="1,649,091.00"/>

*** 19. Is Application Subject to Review By State Under Executive Order 12372 Process?**

- a. This application was made available to the State under the Executive Order 12372 Process for review on
- b. Program is subject to E.O. 12372 but has not been selected by the State for review.
- c. Program is not covered by E.O. 12372.

*** 20. Is the Applicant Delinquent On Any Federal Debt? (If "Yes", provide explanation in attachment.)**

Yes No If "Yes", provide explanation and attach.

21. *By signing this application, I certify (1) to the statements contained in the list of certifications and (2) that the statements herein are true, complete and accurate to the best of my knowledge. I also provide the required assurances** and agree to comply with any resulting terms if I accept an award. I am aware that any false, fictitious, or fraudulent statements or claims may subject me to criminal, civil, or administrative penalties. (U.S. Code, Title 218, Section 1001)**

** I AGREE

** The list of certifications and assurances, or an internet site where you may obtain this list, is contained in the announcement or agency specific instructions.

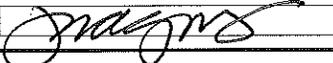
Authorized Representative:

Prefix: * First Name:
Middle Name:
* Last Name:
Suffix:

* Title:

* Telephone Number: Fax Number:

* Email:

* Signature of Authorized Representative:  * Date Signed:

II.3 Subgrantees

Subgrantee	Amador-Tuolumne Community Action Agency (ATCAA)		
Address	935 South State Highway 49		
City	Jackson CA 95642		
Executive Director	Shelly Hance		
Phone	(209) 223-1485	Ext.	Fax (209) 223-4178
Email	shance@atcaa.org		
Program Manager	Craig Case		
Phone	(209) 984-1034	Ext.	Fax (209) 533-1034
Email	ccase@atcaa.org		
Funds (tentative)	\$43,014	Units (tentative)	11
Service Area	Amador, Calaveras, and Tuolumne Counties		
Organization Type	Local action agency	Sources of Labor	Direct hire and subcontractors
Congressional Districts	03 19		
Comments			
Subgrantee	Campesinos Unidos, Inc.		
Address	P.O. Box 39		
City	Brawley CA 92227		
Executive Director	Jose Lopez		
Phone	(760) 344-4500	Ext.	Fax (760) 344-0322
Email	cuimlopez@yahoo.com.com		
Energy Program Director	Toni Carrillo		
Phone	(760) 344-4500	Ext.	Fax (760) 344-0322
Email	cuitonicarriool@sbcglobal.net		
Funds (tentative)	\$427,078	Units (tentative)	107
Service Area	Imperial and San Diego Counties, Energy Area A		
Organization Type	Local action agency	Sources of Labor	Direct hire and subcontractors
Congressional Districts	49 50 51 52 53		
Comments			

II.3 Subgrantees

Subgrantee	Central Coast Energy Services, Inc.		
Address	PO Box 2707		
City	Watsonville CA 95077-2707		
Executive Director	Dennis Osmer		
Phone	(831) 761-7080	Ext. 125	Fax (831) 761-1747
Email	dennis@energyservices.org		
Environmental Services	Jake Lewandowski		
Phone	(831) 761-7080	Ext. 130	Fax (831) 761-1747
Email	jake@energyservices.org		
Funds (tentative)	\$177,140	Units (tentative)	45
Service Area	Monterey, San Benito and Santa Cruz Counties, Santa Clara Southern Area		
Organization Type	Local action agency	Sources of Labor	Direct hire and subcontractors
Congressional Districts	14 17		
Comments			
Subgrantee	Central Valley Opportunity Center, Inc. (CVOC)		
Address	P.O. Box 1389		
City	Winton CA 95388		
Executive Director	Ernie Flores		
Phone	(209) 357-0062	Ext.	Fax (209) 357-0071
Email	eflores@cvoc.org		
Program Manager	Jean Warren		
Phone	(209) 357-0062	Ext. 133	Fax (209) 357-0071
Email	jwarren@cvoc.org		
Funds (tentative)	\$220,098	Units (tentative)	55
Service Area	Stanislaus County		
Organization Type	Local action agency	Sources of Labor	Direct hire and subcontractors
Congressional Districts	18 19		
Comments			

II.3 Subgrantees

Subgrantee	Colusa-Glenn-Trinity Community Action Partnership		
Address	420 East Laurel Street		
City	Willows CA 95988		
Executive Director	Scott Gurendi		
Phone	(530) 934-6510	Ext.	Fax (530) 934-6521
Email	sgruendi@hra.co.glenn.ca.us		
Energy Programs Mgr.	Bill Wathen		
Phone	(530) 934-1468	Ext.	Fax (530) 934-6650
Email	bwathen@hra.co.glenn.ca.us		
Funds (tentative)	\$81,110	Units (tentative)	20
Service Area	Colusa, Glenn and Trinity Counties		
Organization Type	County government	Sources of Labor	Direct hire and subcontractors
Congressional Districts	02		
Comments			
Subgrantee	Community Action Agency of Butte Co., Inc.		
Address	2255 Del Oro Avenue		
City	Oroville CA 95965		
Executive Director	Thomas Tenorio		
Phone	(530) 538-7559	Ext.	Fax (530) 533-7470
Email	ttenorio@buttecaa.com		
Program Manager	Rae Rush		
Phone	(530) 538-7534	Ext. 203	Fax (530) 538-7214
Email	rrush@buttecaa.com		
Funds (tentative)	\$79,864	Units (tentative)	20
Service Area	Butte County		
Organization Type	Local action agency	Sources of Labor	Direct hire and subcontractors
Congressional Districts	02 04		
Comments			

II.3 Subgrantees

Subgrantee	Community Action Commission of Santa Barbara County		
Address	5638 Hollister Avenue, Suite 230		
City	Goleta CA 93117		
Executive Director	Fran Forman		
Phone	(805) 964-8857	Ext.	Fax (805) 683-5872
Email	fforman@cacsb.com		
Director of Env. Serv.	Mike Culbertson		
Phone	(805) 964-8857	Ext. 145	Fax (805) 964-6798
Email	mculbertson@cacsb.com		
Funds (tentative)	\$101,098	Units (tentative)	25
Service Area	Santa Barbara County		
Organization Type	Local action agency	Sources of Labor	Direct hire and subcontractors
Congressional Districts	23 24		
Comments			
Subgrantee	Community Action of Ventura County Inc		
Address	621 Richmond Avenue		
City	Oxnard CA 93030		
Interim Executive Dir.	Socorro Lopez-Hanson		
Phone	(805) 436-4028	Ext.	Fax (805) 487-2512
Email	socorrolh@ca-vc.org		
Housing Serv. Mgr.	Dave Olsen		
Phone	(805) 436-2512	Ext.	Fax (805) 487-2512
Email	dolsen@ca-vc.org		
Funds (tentative)	\$92,111	Units (tentative)	23
Service Area	Ventura County		
Organization Type	Local action agency	Sources of Labor	Direct hire and subcontractors
Congressional Districts	23 24		
Comments			

II.3 Subgrantees

Subgrantee	Community Action Partnership of Kern Co.		
Address	300 19th Street		
City	Bakersfield CA 93301-4502		
Executive Director	Jeremy Tobias		
Phone	(661) 336-5236	Ext.	Fax (661) 326-5236
Email	jtobias@capk.org		
Wx Manager	Loretta Andrews		
Phone	(661) 336-5283	Ext.	Fax (661) 336-5263
Email	landrew@capk.org		
Funds (tentative)	\$256,340	Units (tentative)	64
Service Area	Kern County		
Organization Type	Local action agency	Sources of Labor	Direct hire and subcontractors
Congressional Districts	20 22		
Comments			
Subgrantee	Community Action Partnership of Orange County		
Address	7180 Lampson Avenue		
City	Garden Grove CA 92841		
Executive Director	Buddy Ray		
Phone	(714) 897-6670	Ext.	Fax (714) 894-5404
Email	bray@capoc.org		
Wx Director	Kathy Kifaya		
Phone	(714) 839-1595	Ext. 5302	Fax (714) 839-2817
Email	kkifaya@capoc.org		
Funds (tentative)	\$261,090	Units (tentative)	66
Service Area	Orange County		
Organization Type	Local Action Agency	Sources of Labor	Direct hire and subcontractors
Congressional Districts	40 42 44 46 47 48		
Comments			

II.3 Subgrantees

Subgrantee	Community Action Partnership of Riverside County		
Address	2038 Iowa Avenue, Suite B-102		
City	Riverside CA 92507		
Executive Director	Maria Juarez		
Phone	(951) 955-3563	Ext.	Fax (951) 955-6494
Email	mjuarez@capriverside.org		
Sr Community Programs	Godwin Aimua		
Phone	(951) 955-6404	Ext.	Fax (951) 955-6506
Email	gaimua@capriversided.org		
Funds (tentative)	\$306,700	Units (tentative)	77
Service Area	Riverside County		
Organization Type	County government	Sources of Labor	Subcontractors
Congressional Districts	41 44 45 49		
Comments			
Subgrantee	Community Action Partnership of San Bernardino County		
Address	696 S Tippecanoe Ave		
City	San Bernardino CA 92415		
Chief Executive Officer	Patricia Nickols		
Phone	(909) 723-1516	Ext.	Fax (909) 723-1509
Email	pnickols@capsbc.sbcounty.gov		
EEES Program Manager	John Newcomb		
Phone	(909) 723-1621	Ext.	Fax (909) 723-1629
Email	jnewc@capsbc.sbcounty.gov		
Funds (tentative)	\$865,468	Units (tentative)	218
Service Area	San Bernardino County		
Organization Type	Local action agency	Sources of Labor	Direct hire
Congressional Districts	25 26 41 42 43		
Comments			

II.3 Subgrantees

Subgrantee	Community Action Partnership of San Luis Obispo County Inc		
Address	3970 Short Street, Suite 110		
City	San Luis Obispo CA 93401		
Director	Elizabeth Steinberg		
Phone	(805) 544-4355	Ext.	Fax (805) 541-4188
Email	esteinberg@eocslo.org		
Energy Programs Dir.	Jim McNamara		
Phone	(805) 541-4122	Ext. 11	Fax (805) 541-4188
Email	jmcnamara@eocslo.org		
Funds (tentative)	\$40,172	Units (tentative)	10
Service Area	San Luis Obispo County		
Organization Type	Local action agency	Sources of Labor	Direct hire and subcontractors
Congressional Districts	22 23		
Comments			
Subgrantee	Community Enhancement Services (CES)		
Address	16743 Schoenborn Street		
City	North Hills CA 91343		
President/CEO	Zigmund Vays		
Phone	(818) 894-8121	Ext.	Fax (818) 894-1329
Email	cesmnca@aol.com		
Wx CFO	Lucy Kuyumiyman		
Phone	(818) 894-8121	Ext.	Fax
Email	cesmnca2@aol.com		
Funds (tentative)	\$323,807	Units (tentative)	81
Service Area	Los Angeles County, Energy Area A		
Organization Type	Nonprofit	Sources of Labor	Direct hire and subcontractors
Congressional Districts	25 26 27 28 29 30 31 33 34 35 36		
Comments			

II.3 Subgrantees

Subgrantee	Community Resource Project, Inc. (CRP)		
Address	250 Harris Avenue, Suite 6		
City	Sacramento CA 95838		
Executive Director	Louise Perez		
Phone	(916) 567-5220	Ext.	Fax (916) 567-5208
Email	louisep@cresource.org		
Deputy Director	Joan Graham		
Phone	(916) 567-5225	Ext.	Fax (916) 567-5208
Email	joang@cresource.org		
Funds (tentative)	\$492,038	Units (tentative)	124
Service Area	Sacramento, Sutter, and Yuba Counties		
Organization Type	Nonprofit	Sources of Labor	Direct hire
Congressional Districts	02 03 04 05 10		
Comments			
Subgrantee	Community Services & Employment Training, Inc. (CSET)		
Address	PO Box 1350		
City	Visalia CA 93279-1350		
Executive Director	Carolyn Rose		
Phone	(559) 732-4191	Ext. 630	Fax (559) 733-3971
Email	crose@cset.org		
Housing Director	Lily Rivera-Graves		
Phone	(559) 732-4194	Ext. 615	Fax (559) 627-1674
Email	lrivera@cset.org		
Funds (tentative)	\$143,097	Units (tentative)	36
Service Area	Tulare County		
Organization Type	Local action agency	Sources of Labor	Direct hire and subcontractors
Congressional Districts	21		
Comments			

II.3 Subgrantees

Subgrantee	Contra Costa Emp. & Human Serv. Dept.		
Address	651 Pine Street, 4th Floor		
City	Concord CA 94553		
Executive Director	Joe Valentine		
Phone	(925) 313-1579	Ext.	Fax (925) 313-1575
Email	jvalentine@ehsd.cccounty.us		
Program Director	Ed Lerman		
Phone	(925) 313-1675	Ext.	Fax (925) 313-1576
Email	elerman@ehsd.cccounty.us		
Funds (tentative)	\$118,780	Units (tentative)	30
Service Area	Contra Costa County		
Organization Type	Public agency	Sources of Labor	Direct hire and subcontractors
Congressional Districts	07 10 11		
Comments			
Subgrantee	County of Nevada Community Development Agency		
Address	950 Maidu Avenue		
City	Nevada City CA 95959		
Executive Director	Steven De Camp		
Phone	(530) 265-1576	Ext.	Fax (530) 265-9854
Email	steven.decamp@co.nevada.ca.us		
Program Manager for Ho	Kyle Thompson		
Phone	(530) 265-7256	Ext.	Fax (530) 265-9854
Email	kyle.thompson@co.nevada.ca.us		
Funds (tentative)	\$21,127	Units (tentative)	5
Service Area	Nevada County		
Organization Type	County government	Sources of Labor	Direct hire and subcontractors
Congressional Districts	04		
Comments			

II.3 Subgrantees

Subgrantee	Economic Opportunity Council of San Francisco		
Address	1426 Fillmore Street, Suite 301		
City	San Francisco CA 94115		
Executive Director	Dennis Yee		
Phone	(415) 749-5600	Ext.	Fax
Email	dky@pacbell.net		
Interim CFO	Tuan Trinh		
Phone	(415) 749-3798	Ext.	Fax
Email	gotoma2@pacbell.net		
Funds (tentative)	\$381,490	Units (tentative)	96
Service Area	San Francisco County		
Organization Type	Local action agency	Sources of Labor	Direct hire and subcontractors
Congressional Districts	08 12		
Comments			
Subgrantee	El Dorado County Department of Human Services		
Address	937 Spring Street		
City	Placerville CA 95667		
Executive Director	Daniel Neilson		
Phone	(530) 642-7275	Ext.	Fax
Email	daniel.nielson@co.el-dorado.ca.us		
Energy Coordinator	Star Walker		
Phone	(530) 621-6255	Ext.	Fax (530) 295-2581
Email	star.walker@co.el-dorado.ca.us		
Funds (tentative)	\$54,223	Units (tentative)	14
Service Area	Alpine and El Dorado Counties		
Organization Type	County government	Sources of Labor	Direct hire and subcontractors
Congressional Districts	03 04		
Comments			

II.3 Subgrantees

Subgrantee	Fresno County Economic Opportunities Commission		
Address	1920 Mariposa Mall, Suite 300		
City	Fresno CA 93721		
Executive Director	Brian Angus		
Phone	(559) 263-1010	Ext.	Fax
Email			
Energy Program Director	Eddie Jimenez		
Phone	(559) 263-1587	Ext.	Fax
Email	eddie.jimenez@fresnoeoc.org		
Funds (tentative)	\$277,225	Units (tentative)	70
Service Area	Fresno County		
Organization Type	Local action agency	Sources of Labor	Subcontractors
Congressional Districts	18 19 20 21		
Comments			
Subgrantee	Great Northern Corporation		
Address	P.O. Box 20		
City	Weed CA 96094		
Executive Director	Bonnie Kubowitz		
Phone	(530) 938-4115	Ext. 23	Fax (530) 938-4117
Email	bkubowitz@greatnortherncorp.org		
Program Manager	Renee Casterline		
Phone	(530) 938-4115	Ext. 15	Fax (530) 938-4117
Email	energy@greatnortherncorp.org		
Funds (tentative)	\$38,741	Units (tentative)	10
Service Area	Siskiyou County		
Organization Type	Nonprofit	Sources of Labor	Direct hire and subcontractors
Congressional Districts	02		
Comments			

II.3 Subgrantees

Subgrantee	Inyo Mono Advocates of Community Action, Inc. (IMACA)		
Address	P.O. Box 845		
City	Bishop CA 93515		
Executive Director	Daniel Steinhagen		
Phone	(760) 873-8557	Ext. 23	Fax (760) 873-8182
Email	danielsteinhagen@imaca.net		
Program Access Manage	Darren Malloy		
Phone	(760) 873-8557	Ext. 22	Fax (760) 873-8182
Email	darrenmalloy@imaca.net		
Funds (tentative)	\$21,415	Units (tentative)	5
Service Area	Inyo and Mono Counties		
Organization Type	Local action agency	Sources of Labor	Direct hire and subcontractors
Congressional Districts	25		
Comments			
Subgrantee	Kings Community Action Organization, Inc.		
Address	1130 N. 11th Ave		
City	Hanford CA 93230		
Acting Executive Directo	John Stankovich		
Phone	(559) 415-7202	Ext.	Fax (559) 582-2146
Email	jstankovich@kcao.org		
Operations Director	Saul Leal		
Phone	(559) 583-8071	Ext. 103	Fax (559) 415-7488
Email	sleal@kcao.org		
Funds (tentative)	\$35,406	Units (tentative)	9
Service Area	Kings County		
Organization Type	Local action agency	Sources of Labor	Direct hire and subcontractors
Congressional Districts	20		
Comments			

II.3 Subgrantees

Subgrantee	Lassen County Economic Development Corp.		
Address	P.O. Box 850		
City	Westwood CA 96137		
Executive Director	Debbie Jennings		
Phone	(530) 256-3261	Ext.	Fax (530) 256-3531
Email	ledc@citilink.net		
Energy Programs Mgr.	Debbie Jennings		
Phone	(530) 256-3261	Ext.	Fax (530) 256-3531
Email	ledc.citilink.net		
Funds (tentative)	\$17,172	Units (tentative)	4
Service Area	Lassen		
Organization Type	County	Sources of Labor	Direct hire and subcontractors
Congressional Districts	04		
Comments			
Subgrantee	Long Beach Community Action Partnership - Area D		
Address	3012 Long Beach Blvd		
City	Long Beach CA 90807		
Executive Director	Darick Simpson		
Phone	(562) 216-4606	Ext.	Fax
Email	dsimpson@lbcap.org		
Program Manager	Megan Nunley		
Phone	(562) 264-3900	Ext. 117	Fax
Email	mnunley@lbcap.org		
Funds (tentative)	\$1,056,993	Units (tentative)	268
Service Area	Los Angeles County - Area D		
Organization Type	Local Action Agency	Sources of Labor	Subcontractors
Congressional Districts	26 29 32 34 36 37 38 39 42 46		
Comments			

II.3 Subgrantees

Subgrantee	Maravilla Foundation		
Address	5729 East Union Pacific		
City	City of Commerce CA 90022		
Executive Director	Alex Sotomayor		
Phone	(323) 869-4501	Ext.	Fax (323) 278-7788
Email	alexst@aol.com		
Program Manager	Bill Warren		
Phone	(213) 804-4062	Ext.	Fax (323) 278-7788
Email	bwarren@maravilla.org		
Funds (tentative)	\$119,076	Units (tentative)	30
Service Area	Los Angeles County, Energy Area B		
Organization Type	Nonprofit	Sources of Labor	Direct hire
Congressional Districts	22 25 26 27 28 29 31 32 33 34 36 38		
Comments			
Subgrantee	Mariposa County Department of Human Services		
Address	P.O. Box 39		
City	Mariposa CA 95338		
Director	Mary Sawicki		
Phone	(209) 754-6445	Ext.	Fax (209) 966-8251
Email	msawicki@mariposacounty.org		
Contract Advisor	Janet Gass		
Phone	(209) 966-3609	Ext.	Fax (209) 966-3519
Email	jgass@mariposacounty.org		
Funds (tentative)	\$8,106	Units (tentative)	2
Service Area	Mariposa County		
Organization Type	County government	Sources of Labor	Direct hire and subcontractors
Congressional Districts	19		
Comments			

II.3 Subgrantees

Subgrantee	Merced County Community Action Agency		
Address	P.O. Box 2085		
City	Merced CA 95344-0085		
Executive Director	Brenda Callahan-Johnson		
Phone	(209) 723-4565	Ext.	Fax (209) 723-4411
Email	brenda@mercedcaa.org		
Program Director	Mike Polinko		
Phone	(209) 723-1225	Ext.	Fax (209) 384-7150
Email	mpolinko@mercedcaa.org		
Funds (tentative)	\$107,902	Units (tentative)	27
Service Area	Madera and Merced Counties		
Organization Type	Local action agency	Sources of Labor	Direct hire and subcontractors
Congressional Districts	18 19		
Comments			
Subgrantee	Metropolitan Area Advisory Committee (MAAC)		
Address	1335 Third Ave		
City	Chula Vista CA 91911		
President / CEO	Antonio Pizano		
Phone	(619) 247-6768	Ext.	Fax (619) 426-2173
Email	apizano@maacproject.org		
Phone		Ext.	Fax
Email			
Funds (tentative)	\$157,937	Units (tentative)	40
Service Area	San Diego County, Energy Area B		
Organization Type	Nonprofit	Sources of Labor	Direct hire and subcontractors
Congressional Districts	49 50 51 52 53		
Comments			

II.3 Subgrantees

Subgrantee	North Coast Energy Services		
Address	P.O. Box 413		
City	Ukiah CA 95482-0413		
Executive Director	Linda McQueen		
Phone	(707) 463-0303	Ext.	Fax (707) 463-0637
Email	linda@pacific.net		
Director	Linda Linda		
Phone	(707) 463-0303	Ext.	Fax (707) 463-0637
Email	linda@pacific.net		
Funds (tentative)	\$167,190	Units (tentative)	42
Service Area	Lake, Marin, Mendocino, Napa, Solano, Sonoma and Yolo Counties		
Organization Type	Nonprofit	Sources of Labor	Direct hire and subcontractors
Congressional Districts	01 02 03 07 10		
Comments			
Subgrantee	Pacific Asian Consortium in Employment (PACE)		
Address	1055 Wilshire Boulevard, Suite 1475		
City	Los Angeles CA 90017		
Executive Director	Kerry Doi		
Phone	(213) 989-3213	Ext.	Fax (213) 353-1227
Email	kerrydoi@pacela.org		
Program Manager	Cynthia Llana		
Phone	(213) 989-3254	Ext.	Fax (213) 353-1227
Email	cllana@pacela.org		
Funds (tentative)	\$316,195	Units (tentative)	79
Service Area	Los Angeles County, Energy Area C		
Organization Type	Nonprofit	Sources of Labor	Direct hire and subcontractors
Congressional Districts	31 33 34 35 36 37 39 46		
Comments			

II.3 Subgrantees

Subgrantee	Plumas County Community Development Commission		
Address	P.O. Box 319		
City	Quincy CA 95971		
Executive Director	David Keller		
Phone	(530) 283-2466	Ext. 115	Fax (530) 283-2478
Email	dwk@plumascdc.org		
Wx Program Manager	David Mitchell		
Phone	(530) 283-2466	Ext. 117	Fax (530) 283-2478
Email	dmitchell@plumascdc.org		
Funds (tentative)	\$5,846	Units (tentative)	1
Service Area	Plumas and Sierra Counties		
Organization Type	County government	Sources of Labor	Direct hire and subcontractors
Congressional Districts	04		
Comments			
Subgrantee	Project Go, Inc.		
Address	801 Vernon Street		
City	Roseville CA 95678-3149		
Executive Director	Lynda Timbers		
Phone	(916) 782-3443	Ext.	Fax (916) 782-1517
Email	lynda@projectgoinc.org		
Program Director	Jennifer Durbin		
Phone	(916) 782-3443	Ext. 14	Fax (916) 782-1517
Email	jennifer@projectgoinc.org		
Funds (tentative)	\$36,618	Units (tentative)	9
Service Area	Placer County		
Organization Type	Nonprofit	Sources of Labor	Direct hire and subcontractors
Congressional Districts	04		
Comments			

II.3 Subgrantees

Subgrantee	Redwood Community Action Agency		
Address	904 G Street		
City	Eureka CA 95501		
Executive Director	Val Martinez		
Phone	(707) 269-2009	Ext.	Fax (707) 445-0884
Email	valmartinez@rcaa.org		
Energy & Env Svcs Coor	Verlenea Freson		
Phone	(707) 444-3831	Ext.	Fax (707) 444-3662
Email	rcaa-lead@pacbell.net		
Funds (tentative)	\$175,576	Units (tentative)	44
Service Area	Humboldt and Modoc County		
Organization Type	Local action agency	Sources of Labor	Direct hire and subcontractors
Congressional Districts	01		
Comments			
Subgrantee	Sacred Heart Community Services		
Address	1381 South First Street		
City	San Jose CA 95110		
Executive Director	Poncho Guevara		
Phone	(408) 476-2653	Ext.	Fax (408) 885-9071
Email	poncho@sacredheartcommunityservice.org		
Director of Public Affairs	Darren Seaton		
Phone	(408) 278-2177	Ext.	Fax (408) 715-0247
Email	darrens@sacredheartcs.org		
Funds (tentative)	\$583,881	Units (tentative)	147
Service Area	Santa Clara County		
Organization Type	Nonprofit	Sources of Labor	Direct hire and subcontractors
Congressional Districts	11 14 15 16		
Comments			

II.3 Subgrantees

Subgrantee	San Joaquin Co. Dept. of Aging, Children's & Comm. Serv.		
Address	P.O. Box 201056		
City	Stockton CA 95201		
Acting Director	Dean Fujimoto		
Phone	(209) 468-1594	Ext.	Fax (209) 932-2659
Email	dfujimoto@sjgov.org		
Program Manager	Charisse Reed		
Phone	(209) 468-3993	Ext.	Fax (209) 932-2659
Email	creed@sjgov.org		
Funds (tentative)	\$147,338	Units (tentative)	37
Service Area	San Joaquin County		
Organization Type	County government	Sources of Labor	Direct hire and subcontractors
Congressional Districts	11 18		
Comments			
Subgrantee	Self-Help Home Improvement Project, Inc. (SHHIP)		
Address	3777 Meadow View Drive, Unit 100		
City	Redding CA 96002		
Executive Director	Keith Griffith		
Phone	(530) 378-6900	Ext.	Fax (530) 378-6910
Email	kgrif@shhip.org		
Program Manager	Scott Berg		
Phone	(530) 378-6910	Ext.	Fax (530) 378-6910
Email	sberg@shhip.org		
Funds (tentative)	\$88,747	Units (tentative)	22
Service Area	Shasta and Tehama Counties		
Organization Type	Nonprofit	Sources of Labor	Direct hire and subcontractors
Congressional Districts	02		
Comments			

II.3 Subgrantees

Subgrantee	Spectrum Community Services, Inc.		
Address	1435 Grove Way		
City	Hayward CA 94546		
Executive Director	Michael Sweeney		
Phone	(510) 881-0300	Ext.	Fax (510) 538-1395
Email	msweeney@spectrumcs.org		
Program Manager	Mark Smtih		
Phone	(510) 881-0300	Ext. 235	Fax (510) 538-1395
Email	msmith@spectrumcs.org		
Funds (tentative)	\$312,066	Units (tentative)	78
Service Area	Alameda County except Albany, Berkeley and Emeryville		
Organization Type	Nonprofit	Sources of Labor	Direct hire and subcontractors
Congressional Districts	09 10 11 13		
Comments			
Subgrantee	ZZ		
Address			
City			
Phone		Ext.	Fax
Email			
Phone		Ext.	Fax
Email			
Funds (tentative)	\$0	Units (tentative)	0
Service Area			
Organization Type		Sources of Labor	
Congressional Districts			
Comments			

II.4 Average Unit Costs

	Annual Total
Weatherized Units (Total)	2,041
Reweatherized Units	10

Vehicles and Equipment \$5,000 or more Average Cost per Dwelling Unit (DOE Rules)

A.	Total of Vehicles and Equipment Budget	\$0
B.	Total Units to be Weatherized, from Production Schedule above	2,041
C.	Units to be Reweatherized, from Production Schedule above	10
D.	Total Units to be Weatherized, plus Planned Reweatherized Units from Production Schedule above (B plus C)	2,051
E.	Average Vehicles and Equipment cost per Dwelling Unit (A divided by D)	\$0

Average Cost per Dwelling Unit (DOE Rules)

F.	Total of Funds for Program Operations	\$5,055,279
G.	Total Units to be Weatherized, plus Planned Reweatherized Units from Production Schedule above (total from D above)	2,051
H.	Average Cost per Dwelling Unit, less Vehicles and Equipment (F divided by G)	\$2,466
I.	Average Cost per Dwelling Unit for Vehicles and Equipment (total from E)	\$0
J.	Total Average Cost per Dwelling Unit (H plus I)	\$2,466

II.5 Estimated Energy Savings

DOE Program	Amount	Line
Total DOE State Weatherization Allocation	\$ 9,653,263	(a)
Total Cost associated with Administration, T&TA, Financial and Energy Audits or 15% of allocation	\$ 1,447,989	(b)
Subtract the amount entered in line (b) from line (a), for total funds available to weatherize homes	\$ 8,205,274	(c)
State Average Cost per Home or Nat'l WAP Program Year Average Cost per Home	\$ 4,001	(d)
Divide the amount entered on line (c) by the amount entered on line (d), for Total Estimated Homes to be Weatherized	2,051	(e)
Multiply (e) by 30.5 MBTU for Total Annual Estimated Energy Savings resulting from DOE funds	62,556	(f)
All Funding Sources		
Total funds used by the State to weatherize homes (DOE WAP, LIHEAP)	\$ 46,023,464	(g)
Total cost associated with the administration of Wx funds or 15% of total funds available to wx homes	\$ 6,903,520	(h)
Subtract the amount entered in line (h) from line (g), for total funds available to weatherize homes	\$ 39,119,944	(i)
State Average Cost per Home or Nat'l WAP Program Year Average Cost per Home	\$ 4,001	(j)
Divide the amount entered on line (i) by the amount entered on line (j), for Total Estimated Homes to be Weatherized	9,778	(k)
Multiply (k) by 30.5 MBTU for Total Annual Estimated Energy Savings resulting from all funding sources	298,243	(l)

II.6 Training, Technical Assistance, and Monitoring Activities

Training and Technical Assistance - Grantee

Training and Technical Assistance for Subgrantees

Field Representatives provide both training and programmatic assistance during on-site visits and through ongoing telephone contact with the Subgrantees.

Program Analysts comprising the department's Technical Support Unit provide technical assistance to staff and Subgrantees, develop training curriculum, and assess past and future training needs.

A third-party contractor provides follow-up field training and technical assistance pertaining to the installation of weatherization measures, the quality and appropriateness of installed weatherization measures, infiltration reduction, and health and safety measures and develops training curriculum. The contractor maintains a "Hotline" available to Subgrantees seeking immediate technical assistance. Mentoring for underperforming or new agencies is also provided by the consultant at CSD direction.

Training and Technical Assistance for Department Staff

CSD staff will attend the Energy OutWest Peer Exchange, DOE and NASCAP meetings and conferences as scheduled as approved by the Governor's office.

CSD staff is trained on an on-going basis to keep them abreast of contractual and policy changes. For monitoring purposes, all new CSD field and technical staff receive the standard weatherization training including combustion appliance safety, blower door and duct leakage diagnostics. All CSD field staff members are EPA Certified Renovators.

Due to the new monitoring tool and processes being developed, ongoing training will be required for CSD staff to become proficient with the updated monitoring protocols. The tool is continuing to be developed and implemented in stages.

Subgrantee Training Evaluation

Field Representatives make annual monitoring visits and conduct report evaluation on an ongoing basis. One of the goals of on-site and report evaluation is to assess the need for training. The Technical Support Unit will evaluate energy audit reports and if deficiencies are found, either provide on-site training or refer the training to the third-party technical consultant for follow-up.

The third-party technical consultant will be evaluating TREAT audit reports and provide technical assistance as needed.

As part of the field inspection process, the inspection contractor provides monthly reports summarizing the results of their inspection visits and identifying any training needs. The reporting is currently a manual process; however, the inspection contractor is developing processes to completely automate all reports in the field for electronic transfer to the Department.

A web-based training records database is in development and will maintain all records for required and supplemental training, contractor licensing and EPA certifications. Compliance reports will be a key component of the system.

Training Development

Field operations unit develops and provides quarterly webinars to key administrative and fiscal Subgrantee staff on various subject matters, including, but not limited to, contractual changes and monitoring protocol.

Technical support unit recently launched a monthly webinar series entitled “Technically Speaking...” to disseminate information related to changes in field protocols and policies and any identified field or technical issues.

The department has restructured the training requirements for Subgrantee and subcontractor field staff to ensure quality workmanship. Requirements have been stepped up to produce a sustainable work force.

Training and Technical Assistance - Subgrantee

The training and technical assistance funds will be allocated to Subgrantees to provide the required training. The department allocates up to 5% of LIHEAP weatherization funds and up to 2% of ECIP funds for training purposes to supplement DOE’s contribution. The training encompasses site-built and mobile homes. The training requirements apply to field employees of Subgrantees and subcontractors who provide basic weatherization services.

Training Series

Training Coursework	Delivery
Pre-Weatherization	Online for candidate screening (optional)
Health & Safety	Online training/testing
Environmental Hazards (Lead-Safe Weatherization, Mold & Moisture, Asbestos modules)	Online training/testing; video
Introduction to Weatherization	Online training/testing
Basic Weatherization	CSD-Approved Training Centers

Training Coursework	Delivery
Pre-Duct Blaster/Blower Door Diagnostics	Online training/testing
Duct Blaster/Blower Door Diagnostics	CSD-approved training centers; followed by field training through the mobile training unit when deemed necessary by CSD and/or Subgrantee
Pre-Combustion Appliance Safety	Online training/testing
Combustion Appliance Safety	CSD-approved training centers; followed by field training through the mobile training unit when deemed necessary by CSD and/or Subgrantee
Weatherization Energy Audit	Regional training; webinars; field training provided by training contractor upon request
Field Assessment	CSD-Approved Training Centers (in future);-on-site by training contractor (current delivery)
Quality Assurance/Inspection	CSD-Approved Training Centers (in future); on-site by training contractor (current delivery)
EPA Renovator	EPA Certified Trainer
HUD LSW	HUD downloadable training course

Note: With the exception of HUD LSW training, in-house training is not an acceptable form of training in meeting the department's training requirements. It will only be viewed as supplemental on-the-job training.

Training Requirements for New Hires of Subgrantees and Subcontractors Who Provide Basic Weatherization Services

Training Series	Crew	Assessor	Inspector	Field Supervisor
Health & Safety	X	X	X	X
Environmental Hazards (Lead-Safe Weatherization, Mold, Asbestos, Regulatory Requirements modules)	X	X	X	X
Introduction to Weatherization	X	X	X	X
Basic Weatherization	X	X	X	X
Pre-Duct Blaster/Blower Door Diagnostics	X ⁽¹⁾	X	X	X
Duct Blaster/Blower Door Diagnostics	X ⁽¹⁾	X	X	X
Pre-Combustion Appliance Safety	X ⁽¹⁾	X	X	X
Combustion Appliance Safety	X ⁽¹⁾	X	X	X

Field Assessment		X		X
Quality Assurance/Inspection			X	X
Weatherization Energy Audit	X ⁽²⁾	X ⁽²⁾	X ⁽²⁾	X ⁽²⁾
EPA Certified Renovator	X ⁽³⁾	X ⁽³⁾	X ⁽³⁾	X ⁽³⁾
HUD Lead-Safe Weatherization Practices	X ⁽⁴⁾	X ⁽⁴⁾	X ⁽⁴⁾	X ⁽⁴⁾

- 1) Required if performing the diagnostic tests.
- 2) Determined by the Subgrantee who shall be conducting audits and could also include clerical staff for data entry purposes.
- 3) Required if performing Renovator tasks.
- 4) Training is provided in-house using HUD-approved training materials.

Training Requirements for Specialty Subcontractors

All Subcontractors who perform specialty work for Subgrantees and whose work involves combustion appliances shall be required to take the full course series for Combustion Appliance Safety if the Subgrantee will not be performing the combustion appliance safety testing.

Additional Requirements

- New employees are required to be trained in health and safety and environmental hazards practices within 30 days of employment and will not be allowed to enter a pre-1978 dwelling in any capacity until such training has been completed.
- No weatherization employee or subcontractor is allowed to conduct combustion appliance, blower door and duct leakage diagnostics without proper training.
- Training logs are required to be maintained.
- Personnel providing services to clients residing in pre-1978 HUD units must be trained in HUD-approved lead-safe weatherization practices before work can commence.
- Subgrantees and subcontractors who perform basic weatherization services are encouraged to schedule additional refresher trainings as needed with the department's training contractor.
- The department does not currently offer a certification program although specific coursework is required to be completed. The only formal certification required is that which is associated with EPA renovator rules.

Monitoring

Monitoring Program

CSD will conduct on-site and in-house monitoring of Subgrantees to ensure that Subgrantee meet the performance goals, administrative standards, financial management requirement, and other requirements of the DOE WAP program. CSD's monitoring program consists of the following monitoring strategies:

- Third-party inspectors will conduct inspections of at least 5% of the completed dwelling units to monitor prioritization and feasibility of weatherization measures; job costs; quality of workmanship; material standards; and review of client files. If the inspection reveals quality control or other problems, the percentage of units to inspect and frequency of inspections will increase until all issues are resolved.
- Field representatives conduct annual on-site monitoring of financial records, contractual compliance and client files including, but not limited to, verifying client and dwelling eligibility; diagnostic testing requirements, and adherence to State Historic Preservation requirements. Field Representatives also identify methods, deficiencies, and successes in program operations and assess technical assistance needs to recommend appropriate training.
- Field representatives conduct in-house quarterly assessments which include but are not limited to, an evaluation of the Subgrantee's expenditure performance; adherence to budget restrictions; timeliness of reports; and operational deficiencies. Noted concerns will be brought to the attention of the Executive Director and/or Board Chair for resolution that may result in an on-site visit or increased reporting, such as comprehensive monthly evaluations.
- Field Representatives will conduct on-site visits as needed to follow-up on monitoring findings, investigate client/employee complaints, Whistleblower complaints or as deemed necessary.
- Technical Support Unit and the third-party technical consultant will be responsible for evaluating the integrity of the energy audits for all dwelling types. The unit performs other analysis as deemed necessary for monitoring purposes.
- Auditors perform annual reviews of Subgrantees latest single-wide audits for compliance with A-133 OMB, follow up on findings identified in the Single Audit, and issue transmittal letters to Subgrantees that include findings.

- Investigative audits will be conducted, as needed, to evaluate Subgrantees' accounting systems and fiscal integrity.
- Program and fiscal monitoring will be used to determine the program and operational effectiveness of Subgrantees. Findings based on unauthorized measure installation, billing discrepancies, client and dwelling ineligibility may result in disallowed costs.
- Training records for the required online, classroom and field training are maintained at the department. Field representatives and analysts from the Technical Support Unit follow up with Subgrantees when the required training was not taken or other training discrepancies are found.

Expanded Monitoring Scope

- Field monitoring guidelines will be expanded to include the verification of the Injury and Illness Prevention Plans (IIPP), Respirator Programs and Material Safety Data Sheets (MSDS) binders. Service providers will also be required to maintain logs for their Respirator Program and safety and MSDS training.
- CSD will expand program monitoring to include questioning of weatherization crews to evaluate their knowledge of lead-safe practices and the applied use of LSW in the course of delivering weatherization services and renovator records.
- CSD's Technical Support Unit will be utilized to review energy audit results for all dwelling types to help ensure compliance.

Monitoring Reports

On-site monitoring reports are provided to the Subgrantee in the following manner:

- Dwelling inspection reports are provided during exit conferences. If it is determined that training and technical assistance is necessary to resolve any workmanship and/or paper work issues, the Subgrantee shall be referred to the third-party Technical Consultant or CSD staff.
- Subgrantees are briefed on observations and potential findings generated by the monitoring visit, usually through an exit conference. Within 30 days after each visit, the State will prepare a written report on its findings and/or recommendations, and send it to the Subgrantee for corrective action, if applicable.

Reporting

Reporting software was developed by one of the Subgrantees and distributed to the network in the first quarter of 2009. This software has allowed the Subgrantees to collect and report data to the department on a summary level basis more accurately. The department continues to work towards electronically transferring individual dwelling data from each Subgrantee to a centralized database system and performing comprehensive analysis to further enhance monitoring efforts.

Monitoring Schedule

Annual monitoring activities by Field Representatives are scheduled to begin in July 2012 for all DOE Subgrantees. As part of the monitoring process, CSD conducts a quarterly desk review and addresses any identified issues.

The following is the schedule for on-site monitoring visits.

Month	# of Monitoring Visits
July 2012	4
August	6
September	2
October	5
February 2013	3
March	3
April	4
May	7
June	8
Total	42

Record-Keeping

All records maintained by Subgrantees must meet the OMB requirements contained in 45 CFR Part 92 and 45 CFR Part 74 (OMB Circulars A-102, Subpart C, {"Uniform Administrative Requirements for Grants and Cooperative Agreements to State and Local Governments"} or A-110, Subpart C, Nonprofit Organizations), whichever is applicable.

Subgrantees are required to maintain all records pertaining to this program for a minimum period of three years after submission of the close-out report. Subgrantees must maintain all applicable records until resolution of all related audit and monitoring findings are completed.

Employee and applicant records are required to be maintained in a confidential manner to assure compliance with the Information Practices Act of 1977, as amended, and the Federal Privacy Act of 1974, as amended.

Client Education

Subgrantees are required to provide client education and budget counseling that encourage households to reduce their home energy needs and the need for energy assistance. Each Subgrantee has the latitude to develop their own client education program but they must provide at least the following.

- Written information that describes energy saving behavioral adjustments that will decrease the energy consumption of the household;
- Resource information, referral, family, and budget counseling in order to assist clients in achieving self-sufficiency;
- The pamphlet entitled “Renovate Right: Important Lead Hazard Information for Families, Child Care Providers and School”;
- The pamphlet entitled “A Brief Guide to Mold, Moisture, and your Home”; and
- Description of benefits that can be expected of the weatherization measures to be installed and how to maximize the effect of each measure.

II.7 DOE-Funded Leveraging Activities

CSD has no planned DOE-funded leveraging activities this year.

II.8 Policy Advisory Council Members

<i>Service Provider Name</i>	<i>Name</i>	<i>Title</i>
Amador-Tuolumne Community Action Agency (ATCAA)	Shelly Hance	Executive Director
Campesinos Unidos, Inc.	Jose Lopez	Executive Director
Central Coast Energy Services, Inc.	Dennis Osmer	Executive Director
Central Valley Opportunity Center, Inc. (CVOC)	Ernie Flores	Executive Director
City of Berkeley	Jane Micallef	Executive Director
Community Action Agency of Butte Co., Inc.	Thomas Tenorio	Executive Director
Community Action Agency of San Mateo County, Inc.	William Parker	Executive Director
Community Action Commission of Santa Barbara County	Fran Forman	Executive Director
Community Action of Ventura County	Socorro Lopez-Hanson	Interim Executive Dir.
Community Action Partnership of Kern Co.	Jeremy Tobias	Executive Director
Community Action Partnership of Orange County	Buddy Ray	Executive Director
Community Action Partnership of Riverside County	Maria Juarez	Executive Director
Community Action Partnership of San Bernardino County	Patricia Nickols	Chief Executive Officer
Community Enhancement Services (CES)	Zigmund Vays	President
Community Resource Project, Inc. (CRP)	Louise Perez	Executive Director
Community Services & Employment Training, Inc. (CSET)	Carolyn Rose	Executive Director
Contra Costa Emp. & Human Serv. Dept.	Joe Valentine	Executive Director
County of Nevada Community Development Agency	Steven De Camp	Executive Director
Del Norte Senior Center	Cynthia Brande	Executive Director
Economic Opportunity Commi, of San Luis Obispo Co.	Elizabeth Steinberg	Chief Executive Officer
Economic Opportunity Council of San Francisco	Nathaniel Mason	Executive Director
El Dorado County Department of Human Services	Daniel Nielson	Executive Director
Fresno County Economic Opportunities Commission	Brian Angus	Executive Director
Glenn County Human Resource Agency	Scott Gruendl	Executive Director
Great Northern Corporation	Bonnie Kubowitz	Executive Director
Inyo Mono Advocates of Community Action, Inc. (IMACA)	Daniel Steinhagen	Executive Director
Kings Community Action Organization, Inc.	John Stankovich	Interim Executive Direct

II.8 Policy Advisory Council Members

<i>Service Provider Name</i>	<i>Name</i>	<i>Title</i>
Lassen County Economic Development Corp.	Debbie Jennings	Executive Director
Maravilla Foundation	Alex Sotomayor	Director
Mariposa County Department of Human Services	Mary Sawicki	Director
Merced County Community Action Agency	Brenda Callahan-Johnson	Executive Director
Metropolitan Area Advisory Committee (MAAC)	Antonio Pizano	President / CEO
North Coast Energy Services	Linda McQueen	Executive Director
Pacific Asian Consortium in Employment (PACE)	Kerry Doi	President / CEO
Plumas County Community Development Commission	David Keller	Executive Director
Project Go, Inc.	Lynda Timbers	Executive Director
Redwood Community Action Agency	Val Martinez	Executive Director
San Joaquin Co. Dept. of Aging, Children's & Comm. Serv.	Joseph Chelli	Executive Director
Self-Help Home Improvement Project, Inc. (SHHIP)	Keith Griffith	Executive Director
Spectrum Community Services, Inc.	Michael Sweeney	Executive Director

II.8 Policy Advisory Council Members

Organization Name	Name
California Public Utilities Commission	Ivy Walker
Pacific Gas & Electric	Jeff Berisini
San Diego Gas & Electric / So Cal Gas	Greg Lawless
So Cal Edison	Jack Parkhill

II.9 State Plan Hearings

The State Plan hearing is scheduled for Friday, April 27, 2012, at 10:00 a.m., at:

Department of Community Services and Development (CSD)
Bado Conference Room 2nd Floor
2389 Gateway Oaks Drive
Sacramento, CA 95833

Public notices were published in the following newspapers:

La Opinion
Los Angeles CA
Published on April 18, 2012

Record Searchlight
Redding CA
Published on April 18, 2012

Sacramento Bee
Sacramento CA
Published on April 18, 2012

STATE OF CALIFORNIA
DEPARTMENT OF COMMUNITY SERVICES AND DEVELOPMENT
NOTICE OF PUBLIC HEARING
DRAFT 2011 DEPARTMENT OF ENERGY STANDARD STATE PLAN

The State of California's Department of Community Services and Development (CSD) will conduct a public hearing to receive comments on the draft 2011 Standard State Plan for the U.S. Department of Energy Weatherization Assistance Program for Low-Income Persons. The hearing is scheduled for Wednesday, April 27, 2011, at 10:00 a.m., at:

Department of Community Services and Development (CSD)
Sinex Conference Room 2nd Floor
2389 Gateway Oaks Drive
Sacramento, CA 95833

Persons presenting oral testimony are requested to provide a written copy of their presentation at the conclusion of their testimony. If unable to attend, send written comments to the Department of Community Services and Development, PO Box 1947, Sacramento, CA 95812-1947, Attention: Jeff Eastburn, Program Analyst. You may also submit comments via fax at (916) 327-3153. Written or faxed comments will be accepted until 5:00 p.m., Wednesday April 27, 2011. A copy of the draft 2011 Department of Energy Standard State Plan may be obtained on CSD's website after April 18, 2011, at www.csd.ca.gov.

Notice

American with Disabilities Act

Individuals who, because of a disability, need special assistance to attend or participate in this hearing, may request assistance by contacting Rebecca Smith at (916) 576-7109. Requests should be made five working days in advance whenever possible.

II.10 Adjustments to On-File Information

The master file has been replaced in its entirety.

II.11 Miscellaneous

Multi-Family

- CSD has established a program to increase weatherization in qualifying multi-family units. The program, based on DOE Program Notice 10-15, streamlines the qualification of certain HUD and USDA multi-family properties for weatherization work, including streamlining income eligibility determination and ensuring that benefits accrue primarily to the low-income residents.
- CSD has trained its providers in applying this streamlined process and continues to work with individual providers to encourage weatherization in multi-family units.

Del Norte and San Mateo Counties

- Services for Del Norte and San Mateo counties are currently being provided by interim Subgrantees, Redwood CAA and CRP, respectively.
- CSD will issue an RFP to identify and select an appropriate permanent Subgrantee to service San Mateo County for Program Year 2013.
- Redwood CAA will continue to act as the interim subgrantee for Del Norte County until further notice.

State Historic Preservation

CSD entered into a programmatic agreement with the California Energy Commission, Department of Energy, California State Historic Preservation Office regarding Section 106 compliance (see Appendix D). By agreement, categories of individual measures were established that are exempt from SHPO review. These measures were determined not to have the potential to adversely affect any historic properties of the dwelling. For those measures that are non-exempt, a review is conducted on the dwelling to determine if the dwelling is of historical significance. A web-based approval system was developed by CSD to expedite the process.

Redistribution of Funds

If it is determined in the future that a Subgrantee cannot meet their production goals, funding may be redistributed to another Subgrantee who has the capacity to spend out. If a redistribution of funds occurs, production numbers will be adjusted accordingly.

III.1 Eligible Population

III.1.1 General Description

To define low-income, CSD has elected to adopt the most current Low-Income Home Energy Assistance Program (LIHEAP) income eligibility guidelines. In addition to qualifying based on income, a household may qualify for services if a household member is a recipient of certain categorical assistance programs.

Household income eligibility is established and documented prior to weatherization of the dwelling. Subgrantees are required by contract to maintain individual applicant files which contain at a minimum the Energy Intake Form, copies of source documents supporting eligibility, the CSD Weatherization Dwelling Assessment, job costs documentation, and for pre-1978 units, lead-safe education confirmation and clearance inspections, if applicable. On a random basis, CSD's Field Representatives review these files during monitoring visits.

The State ensures that low-income members of the American Indian population receive services equivalent to the assistance provided other low-income persons within the State. CSD recommends that a tribal organization not be treated as a local applicant.

III.1.2 Selection of Areas to Be Served

CSD's goal is to serve low-income residents in all 58 California counties. A service area may be a portion of a county, an individual county, or a group of counties. The projected funding, goals, and other information for each service area are set forth in Subgrantee Information in the Annual File.

III.1.3 Priorities

The CSD contract with Subgrantees requires that service priority shall be given to elderly persons, persons with disabilities, families with children, high residential energy users and households with a high energy burden. Subgrantees may give first priority for services to those households whose members have life-threatening emergencies. "Children" are defined as members of a household who have not attained their nineteenth (19th) birthday.

Weatherization services for a dwelling unit previously weatherized using DOE Funds are not allowable except if (1) a dwelling unit has been damaged by fire, flood, or act of nature and repair of the damage to weatherization materials is not paid for by insurance or (2) a dwelling unit weatherized using DOE WAP or other Federal program funds prior to September 30, 1994, needs further weatherization assistance.

III.2 Climatic Conditions

CSD currently uses the U.S. Climate Zone Map provided by the California Energy Commission (CEC) which consists of sixteen climate zones. To be more consistent with the applicability of California Title 24 requirements and to remove the subjectivity related to using weather stations, the CEC climate zones replaced the DOE climate zone map. New priority lists were developed for those site-built, mobile home and multi-family dwellings existing in all climate zones. The Subgrantees use the data included in Attachment A, Climatic Data to customize the energy audit for dwellings to be weatherized.

III.3 Weatherization Work

III.3.1 Types of Weatherization Work to Be Done

Weatherization activities to eligible low-income dwellings will focus on providing the most cost-effective measures, checking for health and safety hazards, and providing blower door-driven infiltration reduction. Subgrantees shall follow the priority list of cost-effective energy conservation measures. A list of general heat waste measures shall be allowable for all dwelling types as feasible. These lists are detailed in Attachment B, Energy Conservation Priority List and General Heat Waste Measures.

Energy conservation and electric base-load measures beyond the applicable climate zone priority list shall be allowable only when their cost effectiveness has been determined to have a savings-to-investment ratio (SIR) of one or greater by the approved waiver advanced energy audit.

Commonly installed measures and diagnostic testing include combustion appliance safety test, carbon monoxide alarms, infiltration reduction, and ceiling insulation. The replacement of refrigerators does not include stand-alone freezers or through-the-door ice or water units.

Per WPN 11-3, CSD is currently working to implement the call-back/add-on work for units previously reported as completed through an IT solution. As with units weatherized after September 30, 1994, Subgrantees are strongly encouraged to use other non-DOE funds to do additional weatherization work.

III.3.2 Energy Audit Procedures

DOE approved CSD's Energy Audit Tool and Priority List on September 9, 2010. This approval covers: (1) the use of REM/Design for single-family dwellings, mobile homes and multifamily buildings with 25 or fewer dwelling units, where each unit is independently heated and cooled, and has its own domestic hot water heater; (2) the use of TREAT for all multifamily buildings, except REM/Design may be used for those multifamily buildings of 25 or fewer units, as specified above; and (3) the use of the CSD DOE ARRA Priority List as designated for single-family dwellings, mobile homes and multi-family buildings 25 or fewer units as specified above. CSD's approved Priority List is detailed in Appendix B. Large multifamily buildings where the TREAT energy audit is applicable will be 100% energy audit-driven.

III.3.3 Final Inspections

The CSD contract with Subgrantees requires a review and inspection of all dwellings weatherized. A statement certifying that all required measures were installed in

accordance with contract requirements and the CSD Weatherization Installation Standards shall be noted on CSD Weatherization Dwelling Assessment and shall be signed and dated by the reviewer.

Subgrantees will be required to have 100% of their completed units inspected by a qualified staff inspector who has not performed any of the weatherization work on the inspected unit and has met CSD training requirements.

CSD will also have inspections of the installed weatherization measures performed by a third party. These inspections will be comprised of a statewide random sampling of the homes weatherized. Diagnostic tests will be re-performed on a sampling of dwellings to ensure that the tests are being properly applied. Statewide standards for the installation of weatherization measures and inspections of homes weatherized by energy providers will help assure that weatherization measures are being installed properly.

III.3.4 Assessment of Effectiveness

In evaluating the effectiveness of Subgrantees and determining their need for training and/or technical assistance, criteria such as the lack of units completed, the number and complexity of the measures applied to completed units, the number and types of inspection findings, the percentage of contracted funds expended, and a high level of Subgrantee staff turnover will be assessed. CSD's Field Representatives, who also review the percentage of funds expended and percentage of goals attained, will base the evaluation of each Subgrantee's effectiveness on the findings during desk and on-site programmatic evaluations.

III.4 Health and Safety

Subgrantees will be authorized to mitigate health and safety hazards within the scope of the weatherization program pursuant to the CSD Health & Safety Plan, CSD LI-WAP Policies and Procedures, and CSD Weatherization Standards. Subgrantees shall correct all safety hazards resulting from weatherization measure installation and relating to heating/cooling sources such as combustion appliances (carbon monoxide, back-drafting, etc) and indoor air quality (adding mechanical ventilation, addressing excessive moisture, and installing carbon monoxide alarms). A combustion appliance safety check shall be performed on all dwelling units that contain gas appliances. Clients are informed in writing of any health and safety issues that are found in the dwelling that cannot be remediated within the parameters of the weatherization program.

Subgrantees will work in a lead-safe manner and will comply with the Environmental Protection Agency rules in 40 CFR Part 745, Lead; Requirements for Hazard Education Before Renovation of Target Housing; Final Rule, on applicable dwellings and the CSD Lead-Safe Weatherization Policy. The CSD Weatherization Installation Standards (WIS), LSW Policies and LSW training have been updated to meet the latest DOE and EPA LSW requirements.

Subgrantees' average expenditure for health and safety hazard mitigation will be limited to a maximum of twenty-five percent (25%) of total program expenditures (less administrative, training and technical assistance, liability insurance and purchases of vehicles and equipment over \$5,000). Historically, California has experienced an abundance of appliances with carbon monoxide deficiencies. Although several Subgrantees leverage their DOE WAP program with utility weatherization programs, the narrowly defined standards of these programs limit the replacement of combustion appliances to owner-occupied units only. Another contributing factor is the temperate climate zones in some parts of the state where the investment in standard weatherization measures is proportionately lower.

Health and safety costs will be tracked on a separate line item in the budget and the expenditure reports and will not be included in the average cost per dwelling.

A new Health and Safety Plan was submitted and approved by DOE and is currently being implemented.

III.5 Rental Procedures

To ensure that the benefits of weatherization to occupants of rental units are protected, CSD's contracts with Subgrantees include this language: "Contractor shall assure that owners and renters receive equitable treatment under this program."

The following language is included on all energy service for rental units agreement forms and is signed by the landlord, or his agent, prior to the dwelling receiving weatherization services:

By signing this form, the owner or owner's agent and the tenant grant the contractor permission to enter the dwelling unit and to perform or install rehabilitation, minor home repair, and/or weatherization measures, depending on the program(s) to the above-described unit and agree to the following:

1. The owner or owner's agent shall not raise the rent of the unit for a period of two years or evict the unit's resident because of the increased value of the unit due solely to rehabilitation, minor home repair, and/or weatherization measures provided by the contractor.
2. The owner or owner's agent and the tenant shall retain all applied measures in the residence where installed.
3. The tenant authorizes the contractor access to utility company record to obtain only energy usage data for a period of one year before and one year after rehabilitation, minor home repair, and/or weatherization measures are installed.

No particular type of dwelling was identified as being more prone to higher energy consumption, and single-family, multi-family, owner-occupied, and rental units are accorded equal consideration for service provision.

DOE funds may be used to weatherize the entire building containing multiple dwelling units, only if, the dwelling units occupied by eligible applicants represent at least sixty-six percent (66%) of the total units within the building.

Subgrantees shall be encouraged to weatherize group homes, rooming houses, and shelters, particularly those for the homeless, battered, or troubled. Specific criteria must be met to ensure eligibility of the group home, rooming house, or shelter. The eligibility of facilities occupied by transient persons may be certified by the owner/manager based on the facility policy of limiting occupancy to those meeting contract eligibility requirements. If a group home or rooming house does not qualify as a multi-family structure, income eligibility is based on all occupants as a group, and the building must be weatherized as a single dwelling unit.

Where occupancy by otherwise eligible occupants is not maintained as a permanent residence, occupancy must be limited to no more than ninety (90) days, and whether or not rent is paid has no effect on eligibility. Payment will be based on the unit's qualifying as a multi-family structure or a group home.

When complaints are received at the State directly from clients, clients are generally referred back to the Subgrantee for resolution with instructions to submit appeals in writing to the Subgrantee. The Subgrantee has 15 days to respond to an appeal and, if denied, the client is given instructions on how to appeal the decision to the State where a fair hearing may take place. Complaints specifically regarding increases in rents as a result of weatherization services provided would follow the same general guideline except that the Subgrantee would work directly with the property owner to resolve the issue.

III.6 Program Management

This section represents the basic framework for how the DOE WAP program is administered.

III.6.1 Overview

Organization

CSD is one of several departments under the auspices of the California Health and Human Services Agency (CHHSA). The weatherization program within CSD consists of a team approach using Program Analysts, Field Representatives, internal QA staff, the Fiscal and Contracts Units, and the services of third-party consultants for dwelling inspections and training and technical assistance.

CSD has over 40 weatherization Subgrantees statewide. These Subgrantees also provide LIHEAP-funded services. Because of the coordination of services between these weatherization programs, a number of dwelling units will have measures installed using funds from DOE WAP and Department of Health and Human Services (DHHS) LIHEAP funds. The Subgrantee Information section of the Annual File lists CSD's Subgrantees, addresses, service areas, types of organizations, tentative allocations, congressional districts, and dwelling unit goals.

Allocation Formula

CSD, working in conjunction with a representative group of service providers, updated and developed a new allocation formula effective Program Year 2004. The formula consists of three factors: 2000 census and heating and cooling degree day data and updated utility cost information. When applying the new three-factor formula, several of the Subgrantees experienced large disparities from their previous funding. In order to ease the burden on those Subgrantees who experience more than a 10% shift in funding, any carryover determined during the program year will be included in the following program year to help offset the differences over the next five years. The carryover will not be incorporated and allocated during the year it is determined to exist since it is uneconomical and burdensome to allocate the historically small amount of funds through the Department's contract process. This method, which is consistent with the Department's LIHEAP weatherization program, will be applicable through Program Year 2012 at which time the procedure will be re-evaluated.

Subgrantee Selection

To promote leveraging and increase effectiveness of the DOE WAP program, CSD elects to administer the DOE WAP program through its existing LIHEAP Subgrantees who currently perform the full compliment of LIHEAP services including weatherization, emergency heating and cooling, and utility assistance services. LIHEAP Subgrantees along with their designated service territory were grandfathered in accordance with California Government Code section 16367.5. This Subgrantee network is comprised of Community Action Agencies or public or nonprofit entities that have over 40 years of experience in providing public assistance programs to the low-income clientele in their respective communities.

Performance Analysis

Subgrantees are evaluated through on-site monitoring and reporting to ensure satisfactory performance by a consideration of factors, including but not limited to, the following:

- The quality of work, as demonstrated by the agency's experience in administering and conducting weatherization activities;
- The ability to use diagnostic equipment (i.e. blower door and indoor air quality testing equipment) and any DOE-approved automated residential energy audit used to identify measures to be installed;
- The extent to which an agency has achieved, or is achieving, weatherization expenditure and unit production goals (in past or current programs) in a timely fashion;
- The ability to coordinate and leverage funds with other low-income energy conservation programs and/or social service programs;
- The ability to secure volunteers, train participants and public service employment workers, and establish partnerships with the local business community to expand the existing workforce; and
- The ability to meet contractual obligations, adhere to applicable federal and state laws, and maintain adequate internal accounting and fiscal controls.

Termination Procedures

CSD may commence suspension or terminations proceedings based on non-performance or material breach of Subgrantee contract. Should it become necessary to terminate any Subgrantee, or select new ones, the regulations governing such actions, i.e. sections Code of Federal Regulations sections 440.15 (c) and (d), will be followed. Should termination of a Subgrantee during the current grant cycle become necessary, CSD will redistribute the allocations and/or unexpended balances to

Subgrantees operating efficient programs in order to ensure that the services continue in the areas served by the Subgrantee being terminated.

III.6.2 Administrative Expenditure Limits

CSD will retain five percent (5%) of the allowable ten percent (10%) administrative funds; Subgrantees will also receive five percent (5%) for administration. Subgrantees allocated \$350,000 or less will be provided the opportunity to apply to CSD for approval to use up to an additional five percent (5%) of their funding for administration. Each written request will be decided on a case-by-case basis. See Attachment C, Application for Additional Administrative Funds, for CSD forms and criteria used.

III.6.3 Monitoring Approach

Training and technical assistance funds will be used to perform assessments of each Subgrantee, consisting of both quarterly desk reviews and an annual on-site monitoring visit. Field Representatives are required to perform a desk review for each of their assigned Subgrantees in order to develop a systematic approach to reviewing fiscal, programmatic and reporting compliance. Areas to be focused on through on-site monitoring visits include: review of client file folders for supporting documentation of program eligibility and job costs; appropriate signatures and dates on all required forms to certify that all measures were installed per contract requirements and CSD Installation Standards; weatherization material inventory systems and controls; internal controls to discourage waste, fraud, and abuse of agency assets; procurement policies; cost-effective weatherization measures; weatherization crew safety procedures; and providing client education and materials relating to the care and cost-effectiveness of the measures installed.

The Technical Support Unit provides more comprehensive analysis, works in the development of automated processes in support of monitoring efforts, accompanies the Field Representatives on more complex monitoring visits and reviews energy audit results for all dwelling types include large multi-family projects.

If it has been determined that a Subgrantee cannot fulfill their contractual obligations, steps may be implemented to redistribute any remaining allocated funds to other Subgrantees. These funds will be redistributed to the nearest Subgrantee, if feasible, to provide services in the same general geographical area. For designated high-risk Subgrantees, an independent financial audit may be performed.

III.6.4 Training and Technical Assistance Approach

Field Representatives make annual monitoring visits and conduct report evaluation on an ongoing basis. One of the goals of on-site and report evaluation is to assess the

need for training. Problems identified through desk reviews and field visits that can be resolved through training and technical assistance will be handled by the Field Representatives and/or other CSD staff, outside consultants, and occasionally by staff brought in from other agencies.

When Subgrantee staff turnover is identified, CSD Field Representatives will ensure that new employees receive the required training through online and CSD-approved training center courses. CSD requires such training as a means of increasing the quality of weatherization services provided to low-income clients. Subgrantees are required to maintain for review a log of weatherization employees and the dates and locations for all required training. CSD maintains manual training records gathered from online, classroom and field training records.

As part of the field inspection process, the inspection contractor provides monthly reports summarizing the results of their inspection visits and identifying any training needs. The reporting is currently a manual process; however, the inspection contractor is developing processes to completely automate all reports in the field for electronic transfer to the Department.

The Technical Support Unit will also evaluate energy audit reports and if deficiencies are found, either provide on-site training or refer the training to the third-party technical consultant for follow-up.

All new CSD weatherization field staff shall attend basic weatherization, combustion appliance, blower door/duct leakage training courses including both theory and hands-on curricula, at CSD-approved weatherization training facilities. Appropriate CSD staff will receive updated training as needed (i.e., lead-safe practices). All CSD field representatives are to take the appropriate training to become EPA Certified Renovators.

III.6.5 Weatherization Disaster Planning and Relief

The purpose of California's Department of Energy (DOE) disaster planning and relief is to provide emergency services to low-income individuals and families affected by a disaster as determined by a Presidential or Gubernatorial order declaring either a Federal or State Emergency. DOE WAP has a very limited role in any disaster response. Funds are limited to eligible weatherization activities and the purchase and delivery of weatherization materials.

To the extent that services are in support of eligible weatherization (or permissible re-weatherization) work for eligible households, such expenditure is allowable. Allowable expenditures include:

- The cost of incidental repairs to an eligible dwelling unit if such repairs are necessary to make the installation of weatherization materials effective.

- The cost of eliminating health and safety hazards, elimination of which is necessary before the installation of weatherization materials.
- The cost to perform functions related to protecting the DOE investment such as: weatherization materials, tools, equipment, weatherization vehicles, or protection of local agency weatherization files, records and the like during the initial phase of the disaster response.
- The cost to use weatherization vehicles and/or equipment to help assist in the disaster relief provided DOE is reimbursed according to the DOE Financial Assistance Regulations 10 CFR Part 600.

The use of DOE funds for relief efforts is limited by the following:

- The total allowance for relief efforts is limited to a maximum allowance of \$6,500 per dwelling unit.
- The total allowance for incidental repairs in support of the installation of weatherization materials is limited to the current maximum reimbursement for minor envelope repairs per Subgrantee contract.
- The total allowance for the installation of each weatherization measure is limited to the current maximum reimbursement per Subgrantee contract.
- The cost to pay for weatherization personnel to perform relief work in the community as a result of a disaster is not allowable.

Prioritization of weatherization requests within disaster

- Disaster relief services are only available to qualified low-income households directly affected by the declared disaster. DOE requires that priority be given to identifying and providing weatherization services to the elderly, disabled, families with children, high residential energy users and households with high energy burdens.
- It is permissible, however, to consider households located in the disaster area as a priority as long as the households are eligible and meet one of the priorities above and are free and clear of any insurance claim or other form of compensation resulting from damage incurred from the disaster.
- In the event of a declared Federal or State disaster, weatherization crews may return to a unit reported as a completion to CSD that has been “damaged by fire, flood or act of God to be re-weatherized, without regard to date of weatherization”. Local authorities must deem the dwelling unit(s) salvageable as well as habitable and if the damage to materials is not covered by insurance or other form of compensation.

Prior to initiating disaster relief services, Subgrantees are required to submit a written plan to the CSD for approval outlining the specific services to be provided and the

estimated costs necessary to support each type of activity. Activities are required to be reported on a monthly basis describing all relief efforts, expenditures and demographics. Approved plans will be in effect for a maximum of six months but could be extended dependent upon the anticipated recovery period and the type of disaster involved.

DOE F 1600.5
(06-94)
All Other Editions Are Obsolete

**U.S. Department of Energy
Assurance of Compliance
Nondiscrimination in Federally Assisted Programs**

OMB Control No.
1910-0400

OMB Burden Disclosure Statement

Public reporting burden for this collection of information is estimated to average 15 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Office of Information Resources Management Policy, Plans, and Oversight, Records Management Division, HR-422 - GTN, Paperwork Reduction Project (1910-0400), U.S. Department of Energy, 1000 Independence Avenue, S.W., Washington, DC 20585; and to the Office of Management and Budget (OMB), Paperwork Reduction Project (1910-0400), Washington, DC 20503.

State of California, Department of Community Services and Development (Hereinafter called the "Applicant")
HEREBY AGREES to comply with Title VI of the Civil Rights Act of 1964 (Pub. L. 88-352), Section 16 of the Federal Energy Administration Act of 1974 (Pub. L. 93-275), Section 401 of the Energy Reorganization Act of 1974 (Pub. L. 93-438), Title IX of the Education Amendments of 1972, as amended, (Pub. L. 92-318, Pub. L. 93-568, and Pub. L. 94-482), Section 504 of the Rehabilitation Act of 1973 (Pub. L. 93-112), the Age Discrimination Act of 1977 (Pub. L. 94-135), Title VIII of the Civil Rights Act of 1968 (Pub. L. 90-284), the Department of Energy Organization Act of 1977 (Pub. L. 95-91), the Energy Conservation and Production Act of 1976, as amended, (Pub. L. 94-385) and Title 10, Code of Federal Regulations, Part 1040. In accordance with the above laws and regulations issued pursuant thereto, the Applicant agrees to assure that no person in the United States shall, on the ground of race, color, national origin, sex, age, or disability, be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity in which the Applicant receives Federal assistance from the Department of Energy.

Applicability and Period of Obligation

In the case of any service, financial aid, covered employment, equipment, property, or structure provided, leased, or improved with Federal assistance extended to the Applicant by the Department of Energy, this assurance obligates the Applicant for the period during which Federal assistance is extended. In the case of any transfer of such service, financial aid, equipment, property, or structure, this assurance obligates the transferee for the period during which Federal assistance is extended. If any personal property is so provided, this assurance obligates the Applicant for the period during which it retains ownership or possession of the property. In all other cases, this assurance obligates the Applicant for the period during which the Federal assistance is extended to the Applicant by the Department of Energy.

Employment Practices

Where a primary objective of the Federal assistance is to provide employment or where the Applicant's employment practices affect the delivery of services in programs or activities resulting from Federal assistance extended by the Department, the Applicant agrees not to discriminate on the ground of race, color, national origin, sex, age, or disability, in its employment practices. Such employment practices may include, but are not limited to, recruitment, advertising, hiring, layoff or termination, promotion, demotion, transfer, rates of pay, training and participation in upward mobility programs; or other forms of compensation and use of facilities.

Subrecipient Assurance

The Applicant shall require any individual, organization, or other entity with whom it subcontracts, subgrants, or subleases for the purpose of providing any service, financial aid, equipment, property, or structure to comply with laws and regulations cited above. To this end, the subrecipient shall be required to sign a written assurance form; however, the obligation of both recipient and subrecipient to ensure compliance is not relieved by the collection or submission of written assurance forms.

Data Collection and Access to Records

The Applicant agrees to compile and maintain information pertaining to programs or activities developed as a result of the Applicant's receipt of Federal assistance from the Department of Energy. Such information shall include, but is not limited to the following: (1) the manner in which services are or will be provided and related data necessary for determining whether any persons are or will be denied such services on the basis of prohibited discrimination; (2) the population eligible to be served by race, color, national origin, sex, and disability; (3) data regarding covered employment including use or planned use of bilingual public contact employees serving beneficiaries of the program where necessary to permit effective participation by beneficiaries unable to speak or understand English; (4) the location of existing or proposed facilities connected with the program and related information adequate for determining whether the location has or will have the effect of unnecessarily denying access to any person on the basis of prohibited discrimination; (5) the present or proposed membership by race, color, national origin, sex, age and disability in any planning or advisory body which is an integral part of the program; and (6) any additional written data determined by the Department of Energy to be relevant to the obligation to assure compliance by recipients with laws cited in the first paragraph of this assurance.

**CERTIFICATIONS REGARDING LOBBYING; DEBARMENT, SUSPENSION AND OTHER
RESPONSIBILITY MATTERS; AND DRUG-FREE WORKPLACE REQUIREMENTS**

Applicants should refer to the regulations cited below to determine the certification to which they are required to attest. Applicants should also review the instructions for certification included in the regulations before completing this form. Signature of this form provides for compliance with certification requirements under 34 CFR Part 82, "New Restrictions on Lobbying," and 34 CFR Part 85, "Government-wide Debarment and Suspension (Nonprocurement) and Government-wide Requirements for Drug-Free Workplace (Grants)." The certifications shall be treated as a material representation of fact upon which reliance will be placed when the Department of Energy determines to award the covered transaction, grant, or cooperative agreement.

1. LOBBYING

The undersigned certifies, to the best of his or her knowledge and belief, that:

No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement. Standard Form-LLL not required

Funds than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement. If checked, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1352, title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

2. DEBARMENT, SUSPENSION, AND OTHER RESPONSIBILITY MATTERS

(1) The prospective primary participant certifies to the best of its knowledge and belief, that it and its principals:

(a) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency;

(b) Have not within a three-year period receding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal,

falsification or destruction of records, making false statements, or receiving stolen property;

(c) Are not presently indicted for or otherwise criminally or civilly charged by a government entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (1)(b) of this certification; and

(d) Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default.

(2) Where the prospective primary participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

3. DRUG-FREE WORKPLACE

This certification is required by the Drug-Free Workplace Act of 1988 (Pub. L. 100-690, Title V, Subtitle D) and is implemented through additions to the Debarment and Suspension regulations, published in the Federal Register on January 31, 1989, and May 25, 1990.

**ALTERNATE I
(GRANTEES OTHER THAN INDIVIDUALS)**

(1) The grantee certifies that it will or will continue to provide a drug-free workplace by:

(a) Publishing a statement notifying employees that the unlawful manufacture, distribution, dispensing, possession, or use of a controlled substance is prohibited in the grantee's workplace and specifying the actions that will be taken against employees for violation of such prohibition;

(b) Establishing an ongoing drug-free awareness program to inform employees about:

(1) The dangers of drug abuse in the workplace;

(2) The grantee's policy of maintaining a drug-free workplace;

(3) Any available drug counseling, rehabilitation, and employee assistance programs; and

(4) The penalties that may be imposed upon employees for drug abuse violations occurring in the workplace;

(c) Making it a requirement that each employee to be engaged in the performance of the grant be given a copy of the statement required by paragraph (a);

(d) Notifying the employee in the statement required by paragraph (a) that, as a condition of employment under the grant, the employee will:

- (1) Abide by the terms of the statement; and
- (2) Notify the employer in writing of his or her conviction for a violation of a criminal drug statute occurring in the work-place not later than five calendar days after such conviction.

(e) Notifying the agency, in writing, within ten calendar days after receiving notice under subparagraph (d)(2) from an employee or otherwise receiving actual notice of such conviction. Employers of convicted employees must provide notice, including position title, to energy grant officer or other designee on whose grant activity the convicted employee was working, unless the Federal agency has designated a central point for the receipt of such notices. Notice shall include the identification number(s) of each affected grant;

(f) Taking one of the following actions, within 30 calendar days of receiving notice under subparagraph (d)(2), with respect to any employee who is so convicted:

- (1) Taking appropriate personnel action against such an employee, up to and including termination, consistent with the requirements of the Rehabilitation Act of 1973, as amended; or
- (2) Requiring such employee to participate satisfactorily in a drug abuse assistance or rehabilitation program approved for such purposes by a Federal, State, or local health, law enforcement, or other appropriate agency;

(g) Making a good faith effort to continue to maintain a drug-free workplace through implementation of paragraphs (a), (b), (c), (d), (e), and (f).

(2) The grantee may insert in the space provided below the site(s) for the performance of work done in connection with the specific grant:

Place of Performance:
(Street address, city, county, state, zip code)

Check if there are workplaces on file that are not identified here.

State, or local) transaction under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery,

4. LOBBYING DISCLOSURE ACT OF 1995, SIMPSON-CRAIG AMENDMENT

Applicant organizations which are described in section 501(c)(4) of the Internal Revenue Code of 1986 and engage in lobbying activities after December 31, 1995, shall not be eligible for the receipt of Federal funds constituting an award, grant, or loan. Section 501(c)(4) of the Internal Revenue Code of 1986 covers:

Civic leagues or organizations not organized for profit but operated exclusively for the promotion of social welfare, or local associations of employees, the membership of which is limited to the employees of a designated person or persons in a particular municipality, and the net earnings of which are devoted exclusively to charitable, educational, or recreational purposes.

As set forth in the Lobbying Disclosure Act of 1995 (Public Law 104-65, December 19, 1995), as amended ["Simpson-Craig Amendment," see Section 129 of The Balanced Budget Downpayment Act, I (Public Law 104-99, January 26, 1996)], lobbying activities is defined broadly. (See section 3 of the Act.)

The undersigned certifies, to the best of his or her knowledge and belief, that: it IS NOT an organization described in section 501(c)(4) of the Internal Revenue Code of 1986; OR that it IS an organization described in section 501(c)(4) of the Internal Revenue Code of 1986, which, after December 31, 1995, HAS NOT engaged in any lobbying activities as defined in the Lobbying Disclosure Act of 1995, as amended.

ALTERNATE II (GRANTEES WHO ARE INDIVIDUALS)

(1) The grantee certifies that, as a condition of the grant, he or she will not engage in the unlawful manufacture, distribution, dispensing, possession, or use of a controlled substances in conducting any activity with the grant.

(2) If convicted of a criminal drug offense resulting from a violation occurring during the conduct of any grant activity, he or she will report the conviction, in writing, within 10 calendar days of the conviction, to every grant officer or other designee, unless the Federal agency designates a central point for the receipt of such notices. When notice is made to such a central point, it shall include the identification number(s) of each affected grant.

As the duly authorized representative of the applicant, I hereby certify that the applicant will comply with the above certifications.

NAME OF APPLICANT State of California Department of Community Services and Development	PR/AWARD NUMBER AND/OR PROJECT NAME Weatherization Assistance Program for Low-Income Persons
PRINTED NAME AND TITLE OF AUTHORIZED REPRESENTATIVE John A. Wagner, Interim Director	
SIGNATURE 	DATE 5/1/12

The Applicant agrees to submit requested data to the Department of Energy regarding programs and activities developed by the Applicant from the use of Federal assistance funds extended by the Department of Energy. Facilities of the Applicant (including the physical plants, buildings, or other structures) and all records, books, accounts, and other sources of information pertinent to the Applicant's compliance with the civil rights laws shall be made available for inspection during normal business hours of request of an officer or employee of the Department of Energy specifically authorized to make such inspections. Instructions in this regard will be provided by the Director, Office of Civil Rights, U.S. Department of Energy.

This assurance is given in consideration of and for the purpose of obtaining any and all Federal grants, loans, contracts (excluding procurement contracts), property, discounts or other Federal assistance extended after the date hereof, to the Applicants by the Department of Energy, including installment payments on account after such data of application for Federal assistance which are approved before such date. The Applicant recognizes and agrees that such Federal assistance will be extended in reliance upon the representations and agreements made in this assurance, and that the United States shall have the right to seek judicial enforcement of this assurance. This assurance is binding on the Applicant, the successors, transferees, and assignees, as well as the person(s) whose signatures appear below and who are authorized to sign this assurance on behalf of the Applicant.

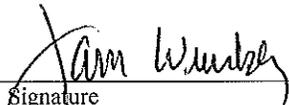
Applicant Certification

The Applicant certifies that it has complied, or that, within 90 days of the date of the grant, it will comply with all applicable requirements of 10 C.F.R. § 1040.5 (a copy will be furnished to the Applicant upon written request to DOE).

Designated Responsible Employee

Jason Wimbley, Division Chief
Name and title (Printed or Typed)

916-576-7109
Telephone Number


Signature

5/1/12
Date

State of California
Department of Community Services and Development
Applicant's Name

Telephone Number

700 North 10th Street, Room 215A
Sacramento CA 95814
Address

Date

Authorized Official:
President, Chief Executive Officer
or Authorized Designee

John A. Wagner, Interim Director
Name and title (Printed or Typed)

916-576-7109
Telephone Number


Signature

5/1/12
Date

DOE APPLICATION FOR ADDITIONAL ADMINISTRATIVE FUNDS

Agency	DOE Contract Number
--------	---------------------

SECTION A - ADDITIONAL ADMINISTRATION FUND CALCULATION

Funding Source	Total Funding	Prorated Administrative Costs	Maximum Allowable Administration	Overage (Shortage)	Additional DOE Admin. Requested	Percent Increase (Max. 5%)
DOE						
LIHEAP						
CSBG						
HCD						
Utility Program:						
Other:						
Other:						
Other:						
TOTAL						

SECTION B - JUSTIFICATION FOR REQUEST

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SECTION C - ADMINISTRATIVE FUND ALLOCATION METHODOLOGY

--

SECTION D - AUTHORIZATION

Authorized Name/Title (Please Print)	Authorized Signature
Email Address	Telephone Number
	Date

CSD USE ONLY

Approved <input type="checkbox"/>	Denied <input type="checkbox"/>	Date
Increase Approved: %	Reason for Denial:	

CSD Name/Title (Please Print)	CSD Authorized Signature
-------------------------------	--------------------------

DOE APPLICATION FOR ADDITIONAL ADMINISTRATIVE FUNDS
CSD 574 (Rev. 04/04/08)
Instructions

General Instructions

- Use the form to request up to an additional 5% of administration funds for the DOE Weatherization Assistance Program.
- Additional administrative funds are not available to those agencies whose total DOE allocation exceeds \$350,000 in a program year.
- *There is no contractor's equivalent allowed for this form.*

Section A
Additional Administrative Fund Calculation

- Enter all of the Agency's Funding Sources (Column A).
- Enter all of the Agency's total funding for each source under Total Funding (Column B).
- Enter the Prorated Allowable Administrative Costs for all of the agency's funding sources.
- Enter the maximum allowable administrative costs for each of the agency's programs under Maximum Allowable Administration.
- If the prorated administrative cost is larger than administrative cost, subtract Column D from Column C. If the total administrative cost is larger than the prorated administrative cost, then subtract Column C from Column D, the result is your (OVERAGE) or (SHORTAGE).
- Enter the total amount of the additional administrative costs required. The amount of Additional Administrative Requested cannot exceed 10% of the net of the total contract allocation less any
- Enter the amount of the percent increase.
- **EXAMPLE:**

A.	B.	C.	D.	E.	F.	G.
Funding Source	Total Funding	Prorated Admin. Costs	Max. Allowable Admin.	Overage (Shortage)	Add. Admin. Requested	% Increase (Max. 5%)
DOE	\$50,000	\$7,000	\$2,500	{ \$4,500 }	\$2,500	5%
OTHER	\$450,000	\$63,000				
TOTAL	\$500,000	\$70,000	\$2,500	(\$4,500)	\$2,500	

Column

- B. Agency's total funding of \$500,000 ÷ by DOE funding of \$50,000 DOE funding comprises 10% of the agency's total funding.
- C. To find prorated administration costs, multiply the percentage of DOE funds by agency's total Prorated Administrative Costs.
 $\$70,000 \times 10\% = \$7,000$.
- D. To find maximum allowed administration cost, multiply agency's DOE funding by 5%.
 $\$50,000 \times 5\% = \$2,500$.
- E. Shortage \$4,500. (Column C – Column D.)
- F. Allowed additional administration costs. $\$50,000 \times 10\% = \$5,000$.
Note: The percent increase cannot exceed a total of 10%.
 $(5\% + 5\% = 10\%)$
- G. 5% increase. (Column F / Column B)

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Section B
Justification for Request

- Describe the justification for the request.

Section C
Administrative Fund Allocation Methodology

- Describe the methodology used for allocating administrative expenditures between the listed funding sources.

DOE APPLICATION FOR ADDITIONAL ADMINISTRATIVE FUNDS WORKSHEET

Requesting Agency	DOE Allocation	Submittal Date
1. Does the total DOE allocation of the agency exceed \$350,000?	<input type="checkbox"/> YES <input type="checkbox"/> NO	
2. Has the contractor completed all sections of the application?	<input type="checkbox"/> YES <input type="checkbox"/> NO	
3. Has the DOE data shown on the request form been verified, i.e., calculations, funding sources, etc.? Comments:	<input type="checkbox"/> YES <input type="checkbox"/> NO	
4. Has the agency shown a need for additional DOE administrative funding? Explain:	<input type="checkbox"/> YES <input type="checkbox"/> NO	
5. Is the methodology used for allocating administrative funds pass audit's review? Enter audit staff member you consulted with. Explain:	<input type="checkbox"/> YES <input type="checkbox"/> NO	
6. Are CSBG funds being used for DOE administration and other programs? If yes, explaining how are they being used:	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> N/A	
APPROVAL		
What is the recommendation of the Field Representative? Explain:	<input type="checkbox"/> APPROVE <input type="checkbox"/> DISAPPROVE	
Field Representative Signature	Date	Area Supervisor's Signature
Date		Date
Program Manager's Signature	Date	Deputy Director's Approval
		Date

DOE APPLICATION FOR ADDITIONAL ADMINISTRATIVE FUNDS WORKSHEET
CSD 575 (Rev. 4/14/08)
Instructions

General Instructions

- This form is to be used by CSD Field Representatives to evaluate a DOE Application for Additional Administrative Funds CSD 575.
 - Agencies with DOE allocations that exceed \$350,000 do not qualify for additional administrative funds.
-

Review Criteria

- Review the form for:
 - Clear explanations and justifications
 - Completeness
 - Correct calculations
 - Inclusion of all applicable funding sources
 - Determine if the agency shows an adequate need for additional DOE administrative funding. This may be indicated by evidence of insufficient funds to provide for an adequate staff of accountants or other personnel.
 - Consult with CSD audit staff regarding the methodology for allocation administrative funds between programs to determine if the methodology is acceptable.
 - Large agencies with multiple funding sources and large budgets should be scrutinized to determine how their prorated administrative costs are computed and toward what funding sources.
 - Review all CSD programs and determine how CSBG funds are being used for DOE administration and other programs.
-

California Energy Commission Climate Zones

by County and City

City	Zone	City	Zone	City	Zone
Alameda County		Contra Costa County		Fresno County	
Altamont	12	Hercules	3	Big Creek	16
Calaveras Reservoir	12/4	Pinole	3	Cedar Grove	16
Dublin	12	Richmond	3	Courtright Reservoir	16
Lake Del Valley	12	Rodeo	3	Dinkey Creek	16
Livermore	12	San Pablo	3	Florence Lake	16
Midway	12	Tassajara	2	Hume	16
Corral Hollow	12	Vine Hill	3	Huntington Lake	16
Pleasanton	12	All remaining locations	12	Kalser Peak	16
San Antonio Reservoir	12			Kings River (Middle Fork)	16
Sunol	12	Del Norte County		Kings River (North Fork)	16
All remaining locations	3	Crescent City	1	Kings River (South Fork)	16
		Elk Valley	16	Lakeshore	16
Alpine County		Fort Dick	1	Mammoth Pool Reservoir	16
All locations	16	Gasquet	16	Meadow Lakes	16
		Gordon Mountain	16	Mono Hot Springs	16
Amador County		Hiouchi	1	Mount Darwin	16
Bear River	16	Horse Flat	16	Mount Pinchot	16
Cooks Station	16	Idlewild	1	Pine Ridge	16
Pioneer	16	Klamath	1	Pinehurst	16
Plasse	16	Klamath Glen	1	Roaring River	16
Salt Springs Reservoir	16	Lake Earl	1	Shaver Lake	16
Silver Lake	16	Patrick Creek	16	Spanish Mountain	16
All remaining locations	12	Point Saint George	1	Thomas A. Edison Lake	16
		Red Mountain	16	Trimmer	16
Butte County		Requa	1	Vermilion Valley Dam	16
Big Bend	16	Siskiyou Mountains	16	Wishin Reservoir	16
Brush Creek	16	Smith River	1	All remaining locations	13
Butte Meadows	16	Smith River (Middle Fork)	16		
Clipper Mills	16	Smith River (North Fork)	16	Glenn County	
Feather Falls	16	Smith River (South Fork)	16	Black Butte	16
Feather River (Middle Fork)	16			All remaining locations	11
Feather River (North Fork)	16	El Dorado County			
Forbestown	16	Aukum	12	Humboldt County	
Inskip	16	Cameron Park	12	Alderpoint	2
Jonesville	16	Camino	12	Bear Buttes	2
Lomo	16	Clarksville	12	Benbow	2
Pulga	16	Coloma	12	Blocksburg	2
Stirling City	16	Cool	12	Briceland	2
All remaining locations	11	Diamond Springs	12	Bridgeville	2
		El Dorado	12	Dinsmores	2
Calaveras County		El Dorado Hills	12	Eel Rock	2
Arnold	16	Garden Valley	12	Fort Seward	2
Dorrington	16	Georgetown	12	Garberville	2
Ganns	16	Greenwood	12	Harris	2
Hathaway Pines	16	Kelsey	12	Hoopa	2
Salt Springs Reservoir	16	Latrobe	12	Mail Ridge	2
Stanislaus	16	Lotus	12	McCann	2
All remaining locations	12	Outingdale	12	Miranda	2
		Pilot Hill	12	Mount Lassic	2
Colusa County		Placerville	12	Myers Flat	2
All locations	11	Rescue	12	Orleans	2
		Shingle Springs	12	Phillipsville	2
Contra Costa County		Smithflat	12	Redway	2
El Cerrito	3	Somerset	12	Richardson Grove	2
El Sobrante	3	All remaining 23 locations	16	Salmon Mountain	16

California Energy Commission Climate Zones

by County and City

Humboldt County		Kern County		Lassen County	
Sequoia	2	Cuddy Canyon	16	All locations	16
Weitchpec	2	Edwards Air Force Base	14		
All remaining locations	1	El Paso Mountains	14	Los Angeles County	
		Frazier Park	16	Acton	14
Imperial County		Freeman Junction	14	Aliso Canyon	16
Midwell Well	14	Fremont Valley	14	Alondra Park	6
All remaining locations	15	Garlock	14	Antelope Center	14
		Glennville	16	Antelope Valley	14
Inyo County		Gold Canyon	16	Artesia	8
Airport Lake	14	Golden Hills	16	Avalon	6
Amargosa Range	14	Greenhorn Mountains	16	Avocado Heights	16
Amargosa River	14	Havilah	16	Bell	8
Ballarat	14	Hillcrest Center	16	Bell Gardens	8
Bennetts Well	14	Indian Wells Valley	14	Bellflower	8
Death Valley	14	Inyokern	14	Big Pines	16
Death Valley Junction	14	Isabella Reservoir	16	Big Rock Wash	14
Death Valley Wash	14	Johannesburg	14	Big Tujungs Canyon	16
Echo Canyon	14	Keene	16	Carson	6
Franklin Well	14	Kern River (South Fork)	16	Caswell	16
Funeral Park	14	Kernville	16	Cerritos	8
Furnace Creek Wash	14	Koehn Lake	14	Commerce	8
Greenwater Range	14	Lake Isabella	16	Compton	8
Midway Well	14	Last Chance Canyon	14	Cornell	6
Miller Spring	14	Lebec	16	Cudahy	8
Nopah Range	14	Little Dixie Wash	14	Culver City	8
Owlshead Mountains	14	Lone Tree Canyon	16	Del Aire	6
Pahrump Valley	14	Loraine	16	Desert View Highland	14
Panamint Springs	14	Miracle Hot Springs	16	Devils Canyon	16
Panamint Valley	14	Mojave	14	Dominguez	8
Rhodes Wash	14	Monolith	16	Downey	8
Ryan	14	Neuralia	14	East Compton	8
Sheep Canyon	14	North Edwards	14	East Pasadena	16
Shoshone	14	Onyx	16	El Segundo	6
Slate Range	14	Randsburg	14	Elizabeth Lake Canyon	16
Stovepipe Wells	14	Ridgecrest	14	Fairmont	14
Tecopa	14	Rogers Lake	14	Florence	8
Valley Wells	14	Rosamond	14	Gardena	8
Wingate Wash	14	Rosamond Lake	14	Gorman	16
Cottonwood Canyon	14/16	Saltdale	14	Green Valley	16
All remaining locations	16	Searles	14	Harbor City	8
		Tehachapi	16	Hawaiian Gardens	8
Kern County		Tehachapi Mountains	16	Hawthorne	8
Actis	14	Tehachapi Pass	16	Hermosa Beach	6
Alta Sierra	16	Walker Pass	16	Hi Vista	14
Bissell	14	Weldon	16	Hidden Springs	16
Bodfish	16	Willow Springs	14	Huntington Park	8
Boron	14	Wofford Heights	16	Inglewood	8
Breckenridge Mountain	16	All remaining locations	13	Juniper Hills	14
Brown	14			Lake Los Angeles	14
Buckhorn Lake	14	Kings County		Lakewood	8
Caliente	16	All locations	13	Lancaster	14
California City	14			Lawndale	8
Cantil	14	Lake County		Lennox	8
China Lake	14	All locations	2	Leona Valley	14
Claraville	16			Little Rock Wash 4	14

California Energy Commission Climate Zones

by County and City

Los Angeles County		Los Angeles County		Mariposa County	
Littlerock	14	Valyermo	14	Midpines	16
Llano	14	Venice	6	Pilot Peak	16
Lomita	6	Vernon	8	Usona	13
Long Beach	6/8	Vincent	14	Wawona	16
Los Angeles	8/9	Walnut Park	8	Yosemite Valley	16
Lynwood	8	West Athens	8	Yosemite Village	16
Malibu	6	West Carson	6	All remaining 15 locations	12
Manhattan Beach	6	West Compton	8		
Maywood	8	Westmont	8	Mendocino County	
Monte Nido	6	Willow Brook	8	Albion	1
Mount San Antonio	16	Willowbrook	8	Anchor Bay	1
Mount Wilson	16	Wilsona Gardens	14	Black Butte River	16
Norwalk	8	Zuma Canyon	6	Branscomb	1
Pacific Palisades	6	All remaining 99 locations	9	Bruhel Point	1
Pacoima	16			Caspar	1
Pacoima Canyon	16	Madera County		Cleone	1
Palmdale AP	14	Bass Lake	16	Comptche	1
Palos Verdes Estates	6	Mammoth Pool Reservoir	16	Elk	1
Paramount	8	Mount Lyell	16	Etsel Ridge	16
Pearblossom	14	North Fork	16	Fort Bragg	1
Pearland	14	San Joaquin River (E Fork)	16	Gualala	1
Point Dume	6	San Joaquin River (M Fork)	16	Gualala River (South Fork)	1
Point Fermin	6	San Joaquin River (N Fork)	16	Hales Grove	1
Pyramid Lake	16	San Joaquin River (S Fork)	16	Inglenook	1
Quartz Hill	14	San Joaquin River (W Fork)	16	Leech Lake Mountain	16
Rancho Palos Verdes	6	Sierra Nevada	16	Leggett	1
Redman	14	Wishin	16	Little River	1
Redondo Beach	6	All remaining locations	13	Manchester	1
Rolling Hills	6			Mendocino	1
Rolling Hills Estates	6	Marin County		Point Arena	1
Rosamond Lake	14	Black Point	2	Ranch	1
San Antonio Canyon	16	Burdell	2	Rockport	1
San Clemente Island	6	Corte Madera	2	Westport	1
San Gabriel Mountains	16	Fairfax	2	All remaining 34 locations	2
San Gabriel River (West For	16	Forest Knolls	2		
San Pedro	6	Hamilton A.F.B.	2	Merced County	
San Pedro Bay	6	Kentfield	2	All locations	12
Sandberg	16	Larkspur	2		
Santa Catalina Island	6	Nicasio	2	Modoc County	
Santa Monica	6	Novato	2	All locations	16
Santa Monica Bay	6	Petaluma River	2		
Santa Monica Mountains	6	Ross	2	Mono County	
Saugus	6	San Anselmo	2	All locations	16
Signal Hill	6	San Quentin	2		
South Gate	8	San Rafael	2	Monterey County	
Tarzana	6	Santa Venetia	2	Alisal	3
Tejon Pass	16	Woodacre	2	Alisal Slough	3
Tejon Rancho	16	All remaining 26 locations	3	Aromas	3
Three Points	14			Bolsa Knolls	3
Topanga	6	Mariposa County		Carmel Highlands	3
Topanga Beach	6	Buck Meadows	16	Carmel Valley	3
Topanga Canyon	6	El Portal	16	Carmel-by-the-Sea	3
Torrance	6	Fish Camp	16	Castroville	3
U.S.N. Facility, San Clement	6	Half Dome	16	Chualar	3
U.S.N. Shipyard, Long Beac	6	Merced River (South Fork)	16	Del Rey Oaks	3

California Energy Commission Climate Zones

by County and City

Monterey County		Orange County		Riverside County	
Elkhorn Slough	3	Laguna Niguel	6	Desert Hot Springs	15
Fort Ord	3	Newport Bay	6	Durmid	15
Gonzales	3	Newport Beach	6	Eagle Mountain	14
Gorda	3	San Clemente	6	Eagle Mountains	14
Lucia	3	San Juan Capistrano	6	Ford Dry Lake	15
Marina	3	Seal Beach	6	Fried Liver Wash	14
Monterey	3	South Laguna	6	Hayfield	14
Monterey Bay	3	Sunset Beach	6	Hayfield Lake	14
Moss Landing	3	Surfside	6	Idyllwild	16
Notleys Landing	3	U.S.N. Weapons Station, Se	6	Inca	15
Pacific Grove	3	Westminster	6	Indian Wells	15
Pebble Beach	3	All remaining 32 locations	8	Indio	15
Point Lobos	3			La Quinta	15
Point Sur	3	Placer County		Martinez Canyon	15
Posts	3	Applegate	11	McCoy Wash	15
Prunedale	3	Auburn	11	Mecca	15
Salinas	3	Bowman	11	Mesaville	15
Sand City	3	Clipper Gap	11	Midland	15
Seaside	3	Colfax	11	Mount Center	16
Soledad	3	Elders Corner	11	Mount San Jacinto	16
Spence	3	Granite Bay	11	Nicholls Warm Springs	15
Spreckels	3	Hidden Valley	11	Nightingale	16
U.S.N. Facility, Point Sur	3	Lincoln	11	North Palm Springs	15
All remaining 35 locations	4	Loomis	11	Oasis	15
		Meadow Vista	11	Palen Lake	15
Napa County		Newcastle	11	Palen Mountains	15
Berryessa Peak	2/12	North Auburn	11	Palm Canyon	15
All remaining locations	2	Penryn	11	Palm Desert	15
		Rocklin	11	Palm Desert Country	15
Nevada County		Roseville	11	Palm Springs	15
Cedar Ridge remaining	11	Sheridan	11	Palo Verde Valley	15
Chicago Park remaining	11	Weimar	11	Pinkham Wash	15
French Corral remaining	11	Whitney	11	Pinto Mountains	14
Grass Valley remaining	11	All remaining 27 locations	16	Pinto Wash	14
Higgins Corner remaining	11			Porcupine Wash	14
La Barr remaining	11	Plumas County		Rancho Mirage	15
Nevada City remaining	11	All locations	16	Rice Valley	15
North Columbia remaining	11			Ripley	15
North San Juan remaining	11	Riverside County		Salton Sea	15
Penn Valley remaining	11	Anza	16	San Gorgonio Pass	15
Pilot Peak remaining	11	Banning	15	San Gorgonio River	15
Rough and Ready remaining	11	Big Maria Mountains	15	San Jacinto Mountains	15
All remaining 16 locations	16	Blythe	15	Santa Rosa Mountains	15
		Box Canyon	15	Smoke Tree Wash	14
Orange County		Cabazon	15	Thermal	15
Capistrano Beach	6	Cahuilla	16	Thomas Mountain	16
Corona Del Mar	6	Cathedral City	15	Thousand Palms	15
Costa Mesa	6	Chiriaco Summit	14	White Water	15
Dana Point	6	Chuckwalla Mountains	14	All remaining 48 locations	10
Emerald Bay	6	Chuckwalla Valley	15		
Fountain Valley	6	Coachella	15	Sacramento County	
Huntington Beach	6	Coachella Valley	15	All locations	12
John Wayne AP	6	Deep Canyon	15		
La Habra	9	Desert Beach	15	San Benito County	
Laguna Hills	6/8	Desert Center	15	All locations	4

California Energy Commission Climate Zones

by County and City

San Bernardino County		San Bernardino County		San Diego County	
Alta Loma	10	Rialto	10	Julian	14
Amboy	15	Rice	15	Lake Henshaw	14
Bagdad	15	Running Springs	16	Lakeside	10
Big Bear City	16	Saltmarsh	15	Live Oak Springs	14
Big Bear Lake	16	Saltus	15	Loert Otay Reservoir	10
Black Meadow Landing	15	San Bernardino	10	Lower Bear River Reservoir	16
Bloomington	10	San Bernardino Mountains	16	Margarita Peak	10
Bristol Lake	15	San Gorgonio Mountain	16	Mesa Grande	14
Cadiz	15	Seven Oaks	16	Monument Peak	14
Cadiz Lake	15	Silverwood Lake	16	Morena Village	14
Cadiz Valley	15	Upland	10	Mount Laguna	14
Cajon Junction	16	Vidal	15	Oak Grove	14
Cajon Summit	16	Vidal Junction	15	Ocotillo Wells	15
Camp Angelus	16	Vidal Valley	15	Pala	10
Chambless	15	Vidal Wash	15	Palomar Mountain	14
Chino	10	Whipple Mountains	15	Pauma Valley	10
Chino Hills	10	Whitewater River (North For	16	Pine Valley	14
Chubbuck	15	Whitewater River (South For	16	Potrero	14
Colorado River	15	Wrightwood	16	Poway Valley	10
Colton	10	Yucaipa	10	Rainbow	10
Crestline	16	All remaining 138 locations	14	Ramona	10
Cross Roads	15			Ranchita	14
Cucamonga	10	San Diego County		Rancho Bernardo	10
Danby Lake	15	Agua Caliente Springs	15	Rancho San Diego	10
Del Rosa	16	Alpine	10	San Diego	7/10
Devore	10	Barona	10	San Felipe	14
Earp	15	Barrett Dam	10	San Luis Rey River (West Fr	14
East Highlands	10	Barrett Junction	10	San Marcos	10
Fawnskin	16	Bonsall	10	San Mateo Canyon	10
Fontana	10	Borrego	15	San Onofre Canyon	10
Forest Falls	16	Borrego Springs	15	San Pasqual	10
Grand Terrace	10	Bostonia	10	San Vicente Reservoir	10
Green Valley Lake	16	Boulevard	14	San Ysidro Mountains	10
Grommet	15	Camp Pendleton	10	Santa Ysabel	14
Havasu Lake	15	Campo	14	Santee	10
Highland	10	Casa de Oro, Mount Helix	10	Spring Valley	10
Java	15	Cuyamaca Peak	14	Suncrest	10
Lake Arrowhead	16	De Luz	10	Sweetwater Reservoir	10
Lake Havasu	15	Del Dios	10	Tecate	14
Loma Linda	10	Descanso	14	Tierra del Sol	14
Los Serranos	10	Dos Cabezas	15	Valley Center	10
Lytle Creek	16	Duguyños Canyon	15	Warner Springs	14
Mentone	10	Dulzura	10	Wynola	14
Milligan	15	El Cajon	10	All remaining 43 locations	7
Montclair	10	El Capitan Reservoir	14		
Mount Baldy	16	Encanto	10	San Francisco County	
Mount San Antonio	16	Escondido	10	Farallon Island	1
Muscoy	10	Fallbrook	10	All remaining locations	3
Needles	15	Fernbrook	10		
Norton AFB	10	Guatay	14	San Joaquin County	
Ontario	10	Harbinson Canyon	10	All locations	12
Parker Dam	15	Henshaw Dam	10		
Prado Flood Control Basin	10	Jacumba	14		
Rancho Cucamonga	10	Jacumba Mountains	15		
Redlands	10	Jamul	10		

California Energy Commission Climate Zones

by County and City

San Luis Obispo County		Santa Barbara County		Solano County	
Arroyo Grande	5	All remaining locations	5	All remaining locations	12
Avila Beach	5				
Baywood Park	5				
Cambria	5	Santa Clara County			
Cayucos	5	Calaveras Reservoir 12/4	12/4	Sonoma County	
Edna	5	All remaining locations	4	Annapolis	1
Estero Bay	5				
Grover Beach	5	Santa Cruz County			
Grover City	5	All locations	3	Bodega	1
Harmony	5				
Huasna	5	Shasta County			
Huasna River	5	Big Bend	16	Bodega Bay	1
Irish Hills	5	Big Lake	16	Bodega Head	1
Lopez Lake	5	Bollibokka Mountain	16	Cazadero	1
Los Berros Canyon	5	Burney	16	Duncans Mills	1
Los Osos	5	Burney Mountain	16	Fort Ross	1
Morro Bay	5	Cassel	16	Jenner	1
Nipomo	5	Castella	16	Ocean View	1
Oceano	5	Cayton	16	Plantation	1
Pismo Beach	5	Dana	16	Soda Springs	1
Point Buchon	5	Delta	16	Stewarts Point	1
Point Piedras Blancas	5	Fall River	16	All remaining locations	2
San Luis Obispo	5	Fall River Mills	16	Stanislaus County	
San Luis Obispo Bay	5	Glenburg	16	All locations	12
San Simeon	5	Hat Creek	16	Sutter County	
Santa Maria River	5	Knob	16	All locations	11
Whale Rock Reservoir	5	Lake Britton	16	Tehama County	
All remaining 34 locations	4	Lakehead	16	Barkley Mountain	16
San Mateo County		Lamoine	16	Lyonsville	16
All locations	3	Lassen Peak	16	Manton	16
Santa Barbara County		Manzanita Lake	16	Mill Creek	16
Cuyama	4	McArthur	16	Mineral	16
Cuyama Valley	4	McCloud River	16	North Yolla Bolly Mountains	16
New Cuyama	4	Montgomery Creek	16	Saint Bernard	16
Ventupopa	4	Obie	16	South Yolla Bolly Mountains	16
Capitan	6	O'Brien	16	All remaining locations	11
Carpinteria	6	Old Station	16	Trinity County	
Concepcion	6	Pittville	16	Island Mountain	2
Drake	6	Round Mountain	16	Kekawaka	2
Gaviota	6	Shasta Lake	16	Kettenpom	2
Gaviota Pass	6	Shingletown	16	Zenia	2
Goleta	6	Trinity Mountains	16	All remaining locations	16
Isla Vista	6	Viola	16	Tulare County	
Montecito	6	All remaining 34 locations	11	California Hot Springs	16
Naples	6	Sierra County			
Point Conception	6	All locations	16	Camp Nelson	16
San Miguel Island	6	Siskiyou County			
Santa Barbara	6	All locations	16	Fairview	16
Santa Barbara Island	6	Solano County			
Santa Cruz Island	6	Mare Island Naval Facility	3	Florence Peak	16
Santa Rosa Islands	6	Monticello Dam 2		Giant Forest	16
Summerland	6	U.S.N. Facility, Vallejo	3	Grant Grove	16
Tajiguas	6	Vallejo	3	Greenhorn Mountains	16
				Johnsondale	16
				Kaweah River (Middle fork)	16
				Little Kern River	16
				Mineral King	16
				Mount Whitney	16
				Olancha Peak	16

California Energy Commission Climate Zones

by County and City

Tulare County		Ventura County		Yolo County	
Pine Flat	16	Apache Canyon	16	Berryessa Peak	2/12
Sherman Peak	16	Bardsdale	9	All remaining locations	12
Silver City	16	Casitas Springs	9		
Tobias Peak	16	Cuddy Canyon	16	Yuba County	
Wilsonia	16	Dry Canyon	16	Camptonville	16
Yucca Mountain	16	Fillmore	9	Challenge	16
All remaining locations	13	Frazier Mountain	16	Middle Yuba River	16
		Lake Casitas	9	New Bullards Bar Reservoir	16
Tuolumne County		Meiners Oaks	9	North Yuba River	16
Big Oak Flat	12	Moorpark	9	Oregon Peak	16
Chinese Camp	12	Mount Pinos	16	Strawberry Valley	16
Columbia	12	Newbury Park	9	Woodleaf	16
Groveland	12	Oak Ridge	9	All remaining locations	11
Hetch Hetchy Junction	12	Oak View	9		
Jacksonville	12	Ojai	9		
Jamestown	12	Pine Mountain	16		
Melones Reservoir	12	Piru	9		
Mi-Wuk Village	12	Quatal Canyon	16		
Moccasin	12	Santa Clara River	6/9		
New Don Pedro Reservoir	12	Santa Paula	9		
Sonora	12	Santa Susana	9		
Soulsbyville	12	Sespe	9		
Standard	12	Simi Valley	9		
Stent	12	Sulphur Springs	9		
Tuolumne	12	Thousand Oaks	9		
Tuttletown	12	Wheeler Springs	16		
Twain Harte	12	All remaining locations	6		
All remaining locations	16				

CEC Climate Zones will be used with the new energy audit tool.

CALIFORNIA DEPARTMENT OF COMMUNITY SERVICES AND DEVELOPMENT

Priority List Policy



**CALIFORNIA DEPARTMENT OF
COMMUNITY SERVICES AND DEVELOPMENT**

PO Box 1947

Sacramento, CA 95812-1947

916-576-7109

CSD PRIORITY LIST POLICY

I. OVERVIEW

The California Department of Community Services and Development (CSD) adopts the following “**CSD Priority List Policy**” for inclusion in the Federal Department of Energy (DOE) Weatherization Assistance Program (WAP). Priority List Policy (List) measures historically have been a small subset of the entire weatherization measure matrix, and these measures were analyzed and proven through the energy audit process to have a Savings-to-Investment Ratio (SIR) of 1.0 or greater. During review of audit data provided by network agencies for 60 sample units, the following measure list was developed based on results of the REM/Design energy audits. Tables are provided for each climate zone, and show those measures that have a proven SIR of 1.0 or greater. List measures that indicate a SIR of 1.0 or greater do not require an energy audit to be conducted before installation per DOE policy.

Priority List measures include:

- Insulation
 - Ceiling (R-30/38)
 - Wall (R-11)
 - Floor (R-19)
- Programmable Thermostats

The List is split into four component lists to address measures with different housing types:

- Pre-1950 Single-family (up to four units)
- Post-1950 Single-family (up to four units)
- Multi-family Dwellings
- Mobile Homes

Further, because of the variability in results for residences with air conditioning present and those without, the majority of analyses were run with air conditioning (w/ AC) and without (w/o AC). This variability made it necessary to create an additional sub-category for the classification in housing type in order to determine the SIR in each of the California Energy Commission-defined climate zones in California.

II. PRIORITY LIST ANALYSIS

In order to develop this List, it was necessary to evaluate previous List (1998-2010) measures with the REM/Design energy audit tool. The length of this revised List appears to be significantly shorter than its predecessor due to three key factors:

- (1) Important reclassification of Cooling Repair and Replacement and Duct Insulation for California’s weatherization program;
- (2) Grouping of certain measures that were previously separate items (described below);
and
- (3) Reclassification of window replacement for energy efficiency as based solely on a building specific energy audit.

ATTIC VENTILATION/CEILING INSULATION

For the purposes of the current Priority List, attic ventilation is combined with ceiling insulation as one measure. While attic ventilation has little or no demonstrable energy benefit, due to code and installation standards attic venting is required when insulation is added. The full cost of venting is included in the analysis of ceiling insulation. Attics are assumed to need venting if there was no existing insulation. Supplemental venting may be needed when some insulation is present.

FLOOR FOUNDATION VENTING/FLOOR INSULATION

For this Priority List, floor foundation ventilation is combined with the floor insulation as one measure. Venting a raised floor foundation is required by building code, but has little or no energy benefit. Due to code and installation standards, floor venting is required when insulation is added.

KNEEWALL INSULATION:

Kneewall insulation was factored at the same R-value as wall insulation. Although CSD's measure matrix identifies kneewall insulation as a separate measure, for the purposes of this analysis, it is treated as wall insulation. Where wall insulation is feasible due to SIR value, kneewall shall be considered also.

WALL INSULATION

Wall insulation was factored by taking into consideration two types of wall insulation: fiberglass and cellulose. Given the basic installation differences in the REM/Design energy audit modeled homes used to create this List, the maximum R-value for fiberglass was set at R-11 while cellulose is set at R-13.

WINDOW REPLACEMENTS FOR ENERGY EFFICIENCY

Pursuant to CSD Broadcast Bulletin B 11-01, window replacement for energy efficiency has been removed from this List, and instead is reclassified as an Audit-Driven Measure.

EVAPORATIVE COOLER REPAIR AND/OR REPLACEMENT OR INSTALLATION

Evaporative cooler repair or replacement is eliminated as a Priority List measure because evaporative cooler installation in a home with no cooling cannot be demonstrated to "save energy," and in most cases, will result in the consumption of additional energy. Cooling repair and replacements (including evaporative coolers) have been reclassified as health and safety measures.

DUCT INSULATION

Duct insulation previously was included as a priority measure; however, because the amount and type of duct insulation needed is highly variable, it is impossible to calculate a reasonable energy savings estimate. In addition, duct insulation shall be considered an integral part of the entire duct system measure that includes pressure diagnostics, repair, and duct sealing. Under health and safety rules, state energy codes require specific levels of duct insulation and duct repair when replacing any component of a forced air system. For this reason, duct insulation has been reclassified as a mandatory measure for rigid ducts where no existing insulation is present, and requires addition of R-8 insulation.

STORM WINDOWS/STORM DOORS/THERMAL SHUTTERS/WINDOW FILM

Cost and life span information vary widely for these products and it was found that the variance made calculation of the SIR values difficult for inclusion in the List. Thus, these measures have been removed from this List, and instead they are reclassified as Audit-Driven Measures.

MOBILE HOME MEASURES

Measures are slightly different for mobile homes than conventional framed (stick-built) homes. It is assumed that most mobile homes have minimum amounts of insulation in the walls and ceiling, and are manufactured with belly/floor insulation.

Ceiling insulation calculations were based on having an existing insulation level of R-11 and adding R-19 blown insulation into space between the ceiling and roof. The costs were estimated to be much higher than standard ceiling insulation due to the amount of labor involved, special installation techniques, repairing the roof by adding a waterproof membrane, or sealing and patching the roof. This measure did not meet the SIR needed to become a Priority List measure. This measure will require that an energy audit be conducted, using accurate cost estimates for the job to determine the SIR value.

In many cases the belly insulation may be missing or badly damaged and needs to be replaced. This will require an energy audit with actual costs to determine the SIR value.

MULTI-FAMILY MEASURES

CSD's Energy Policy & Procedures EP 11-07A Weatherizing Multi-family Buildings – Whole-Building and Individual-Unit Approaches defines the criteria for multi-family weatherization approaches and clearly defines CSD's position with regard to DOE WAP weatherization of multi-family buildings. The document may be found on CSD's website at www.csd.ca.gov.

Due to the difficulty and cost associated with accurately assessing energy savings opportunities in multi-family buildings using a computer-generated energy audit approach, individual units are to be treated under the Priority List / prescriptive approach only. This prescriptive list of measures includes all feasible diagnostics, health and safety measures, feasible mandatory energy measures and any additional measures that may be approved under the Priority List. Note: These limitations are summarized below in Table 1.

With this approach, priority measures designed to be installed in the entire building are not eligible for individual units. These include ceiling and wall insulation, windows and any other "building envelope" measures. Individual unit air sealing measures are allowed, in accordance with existing protocols and standards. For additional information on this policy, please refer to the Energy Policy & Procedures 11-07A described above.

Table 1: Measures to be installed in Whole Buildings and Single Units

APPROVED MULTI-FAMILY DWELLING MEASURES	
Whole Building Weatherization	Single Unit Weatherization
<ul style="list-style-type: none">• Ceiling Insulation• Wall Insulation• Floor Insulation• Programmable Thermostat• Mandatory Weatherization Measures	<ul style="list-style-type: none">• Programmable Thermostat• Mandatory Weatherization Measures

III. AUDIT-DRIVEN MEASURES

In addition to the List measures described above, California has identified measures that require SIR calculation before installation may be performed. These measures are classified as Audit-Driven Measures, are for *energy efficient purposes*, and include:

- HVAC Change-out (Heating or Cooling)
- Low-E Windows
- Storm Windows
- Storm Doors
- Thermal Shutters
- Tinted Window Film
- DOE Appendix A Measures: Solar Water Heating Systems
(*Note: TREAT—Audit-Driven Measures: Heat Exchangers, Boiler/Furnace Control Systems, Boilers, Chillers, and Solar Water Heating Systems)

IV. OTHER SIR-DRIVEN MEASURES

One additional measure requires that SIR must be documented before replacement is allowed:

- Replacement Refrigerators

Per the May 1, 2011 update to the CSD Weatherization Installation Standards (WIS) manual, refrigerators shall require documentation of a SIR of 1.0 or greater in accordance with the guidelines defined in the WIS. The excerpted replacement criteria provided below is intended to be informational only; additional requirements apply as described in the WIS.

Excerpt from Refrigerator Replacement General Guidelines:

- a. For all refrigerator replacements, existing refrigerator energy consumption/cost must have a savings-to-investment ratio (SIR) of 1.0 or higher.
- b. For units manufactured in 1992 or earlier, verify deemed cost effectiveness using the online energy use database described at www.WAPTAC.org.
- c. For units manufactured in 1993 or later, verify cost effectiveness using the online assessment tool: <http://www.energytools.com/calc/RefrigEcon.xls>. Any utility rate information shall be entered at the correct utility "Blended Rate" cited in CSD's Energy Policy & Procedures (EP 11-05) document. This document is available at www.csd.ca.gov.
- d. At minimum, 10% of refrigerators considered for replacement shall be metered.
- e. Malfunctioning refrigerators shall be replaced for the following reasons:
 - The refrigerator is inoperable.
 - Defects that compromise operating efficiency—such as damaged door gaskets, minimum achievable inside temperature too warm, excessive run time, ice buildup, etc.—cannot feasibly be repaired (repair cost exceeds 50% of replacement cost, including disposal fees).
 - The appliance is unable to maintain safe food storage temperature.

V. INTERPRETING THE CLIMATE ZONE LIST TABLES

Each climate zone established by the California Energy Commission (CEC) is represented in a separate table. Each List measure is described separately, with special notations made when it pertains to only one housing type

(Example: MH = mobile home only; MFD = Multi-family dwelling only, etc.) The measures are circled in blue in the graphic below. If one of the priority measures does not pertain to a housing type, a dash (“-”) is inserted in the appropriate box as indicated by the arrow below.

When study has proven a SIR value of 1.0 or greater, the SIR value is provided in the shaded boxes below, as in the red circled value “5.8”. If a value is 1.0 or greater, agencies need only apply the List and an energy audit is not required.

If a value below is *italicized*, this indicates that the calculated SIR value is less than 1.0 for that climate zone. If the home meets the energy audit policy requirements, an audit should be performed using the current energy audit protocol to confirm appropriateness of measure installation.

Each zone’s table shows what can be installed without performing an energy audit to determine feasibility. All insulation measures in this List shall be installed pursuant to applicable WIS instructions for the respective type (ceiling, wall, or floor).

If data was not available during the compilation of the tables, the table shows a “(A)” symbol, as in the green circled value below. This symbol means that an energy audit is required to prove the SIR value of the measure prior to installation.

For ease of reference, a key for these items is provided at the foot of each climate zone table. For assistance in interpreting these List tables, please call the Technical Assistance Hotline at (877) 831-7596.

CZ-01	Pre-1950 SFU		Post-1950 SFU		Multi-Family		Mobile Home	
	SIR		SIR		SIR		SIR	
	w AC	w/o AC	w AC	w/o AC	w AC	w/o AC	w AC	w/o AC
PRIORITY LIST MEASURES								
Ceiling Insulation (When R-0, add R-38)	(A)	5.8	(A)	2.4	(A)	6.4	-	-
Ceiling Insulation (When R-1 to R-11, add R-30)	(A)	1.6	(A)	0.8	(A)	1.7	-	-
Ceiling Insulation (When R-12 to R-19; add R-19)	(A)	2.3	(A)	0.6	(A)	1.8	-	-
MH Ceiling Insulation (When up to R-11; increase to R-30)	-	-	-	-	-	-	(A)	0.4
Wall Insulation (R-11 to R-13, based on type)	(A)	6.1	(A)	3.4	(A)	(A)	(A)	(A)
MFD Wall Insulation (R-11) 2-walls exterior	-	-	-	-	(A)	7.4	-	-
MFD Wall Insulation (R-11) North-facing exterior	-	-	-	-	(A)	4.8	-	-
MFD Wall Insulation (R-11) South-facing exterior	-	-	-	-	(A)	8.1	-	-
MFD Wall Insulation (R-11) East-facing exterior	-	-	-	-	(A)	6.3	-	-
MFD Wall Insulation (R-11) West-facing exterior	-	-	-	-	(A)	7.4	-	-
Floor Insulation (R-19)	(A)	4.2	(A)	1.0	(A)	(A)	(A)	(A)
Programmable Thermostat	(A)	7.9	(A)	4.2	(A)	0.5	(A)	2.7

1. CLIMATE ZONE - 1 PRIORITY LIST

Climate Zone - 1 Priority List

The energy analysis for the List for Climate Zone - 1 did not include an analysis of measures on residences with air conditioning, as the need for it is negligible or non-existent in this coastal climate zone. When a home is found with an AC unit (window, wall, or central), an energy audit is required to determine measure feasibility. Measures in the List table with a SIR value of less than 1.0 are subject to the CSD Audit Policy.

Each zone's table shows what can be installed without performing an energy audit to determine feasibility. All insulation measures in this List shall be installed pursuant to applicable WIS instructions for the respective type (ceiling, wall, or floor).

Measures shall be ranked from highest SIR value to lowest, and installed in that order.

CZ-01	Pre-1950 SFU		Post-1950 SFU		Multi-Family		Mobile Home	
	SIR		SIR		SIR		SIR	
	w AC	w/o AC	w AC	w/o AC	w AC	w/o AC	w AC	w/o AC
PRIORITY LIST MEASURES								
Ceiling Insulation (When R-0, add R-38)	(A)	5.8	(A)	2.4	(A)	6.4	-	-
Ceiling Insulation (When R-1 to R-11, add R-30)	(A)	1.6	(A)	0.8	(A)	1.7	-	-
Ceiling Insulation (When R-12 to R-19; add R-19)	(A)	2.3	(A)	0.6	(A)	1.8	-	-
MH Ceiling Insulation (When up to R-11; increase to R-30)	-	-	-	-	-	-	(A)	<i>0.4</i>
Wall Insulation (R-11 to R-13, based on type)	(A)	6.1	(A)	3.4	(A)	(A)	(A)	(A)
MFD Wall Insulation (R-11) 2-walls exterior	-	-	-	-	(A)	7.4	-	-
MFD Wall Insulation (R-11) North-facing exterior	-	-	-	-	(A)	4.8	-	-
MFD Wall Insulation (R-11) South-facing exterior	-	-	-	-	(A)	8.1	-	-
MFD Wall Insulation (R-11) East-facing exterior	-	-	-	-	(A)	6.3	-	-
MFD Wall Insulation (R-11) West-facing exterior	-	-	-	-	(A)	7.4	-	-
Floor Insulation (R-19)	(A)	4.2	(A)	1.0	(A)	(A)	(A)	(A)
Programmable Thermostat	(A)	7.9	(A)	4.2	(A)	0.5	(A)	2.7
Key/Notes:								
<ul style="list-style-type: none"> ▶ (A) = Energy Audit required to determine feasibility for specific home. ▶ Measures with value (SIR) less than 1.0 (<i>shown in italics</i>) may be Energy Audited to determine feasibility for specific home. ▶ Wall Insulation (R-11) is specified for fiberglass insulation; Wall insulation (R-13) is specified for cellulose insulation. ▶ Empty (dashed) area indicates, in most instances, that measure is not applicable to the housing type. Energy audit may be used to determine feasibility for specific home if conditions warrant. 								

	Climate Zone 3 Humboldt, Mendocino, Lake		Climate Zone 11 Sonoma, Napa		Climate Zone 12 Marin	
Climate Zone 2 - Pre-1950 Single-Family	SIR		SIR		SIR	
PRIORITY LIST MEASURES	w AC	w/out AC	w AC	w/out AC	w AC	w/out AC
Ceiling Insulation (When R-0, increase to min. R-30; Max. R-38)	(A)	2.8	8.5	3.7	7.6	4.7
Ceiling Insulation (When R-1 to R-11, increase to min. R-30; Max. R-38)	(A)	0.7	2.0	0.9	1.6	1.0
Ceiling Insulation (When R-12 to R-19, increase to min. R-30; Max. R-38)	(A)	0.6	1.8	0.8	1.7	1.1
Wall Insulation (R-11 to R-13, based on type)	(A)	2.6	6.4	3.7	4.2	3.3
Floor Insulation (R-19)	(A)	2.9	1.3	1.1	(A)	(A)
Programmable Thermostat	(A)	0.8	3.3	3.3	10.1	3.7

Climate Zone 2 - Post-1950 Single-Family	Climate Zone 3		Climate Zone 11		Climate Zone 12	
PRIORITY LIST MEASURES	w AC	w/out AC	w AC	w/out AC	w AC	w/out AC
Ceiling Insulation (When R-0, increase to min. R-30; Max. R-38)	(A)	3.4	7.7	3.2	6.7	5.0
Ceiling Insulation (When R-1 to R-11, increase to min. R-30; Max. R-38)	(A)	1.0	1.8	0.9	1.6	1.2
Ceiling Insulation (When R-12 to R-19, increase to min. R-30; Max. R-38)	(A)	1.0	1.7	0.8	1.4	1.1
Wall Insulation (R-11 to R-13, based on type)	(A)	3.6	4.5	2.7	5.7	5.0
Floor Insulation (R-19)	(A)	4.3	0.8	0.8	(A)	(A)
Programmable Thermostat	(A)	4.7	3.3	1.3	2.5	1.6

Key:

- ▶ (A) = Energy Audit required to determine feasibility for specific home.
- ▶ Measures with value (SIR) less than 1.0 (*shown in italics*) may be Energy Audited to determine feasibility for specific home.
- ▶ Wall Insulation (R-11) is specified for fiberglass insulation; Wall insulation (R-13) is specified for cellulose insulation.
- ▶ Empty (dashed) area indicates, in most instances, that measure is not applicable to the housing type. Energy audit may be used to determine feasibility for specific home if conditions warrant.

Climate Zone 2 – Multi-Family	Climate Zone 3		Climate Zone 11		Climate Zone 12	
PRIORITY LIST MEASURES	w AC	w/out AC	w AC	w/out AC	w AC	w/out AC
Ceiling Insulation (When R-0, increase to min. R-30; Max. R-38)	(A)	2.8	6.8	2.6	5.1	3.3
Ceiling Insulation (When R-1 to R-11, increase to min. R-30; Max. R-38)	(A)	0.7	1.8	0.6	1.7	1.1
Ceiling Insulation (When R-12 to R-19, increase to min. R-30; Max. R-38)	(A)	1.0	1.5	0.5	5.7	1.3
MFD Wall Insulation (R-11) 2-walls exterior	(A)	3.2	4.8	3.0	1.4	3.8
MFD Wall Insulation (R-11) North-facing exterior	(A)	3.4	5.2	3.3	1.4	3.9
MFD Wall Insulation (R-11) South-facing exterior	(A)	2.5	4.4	2.8	1.3	3.7
MFD Wall Insulation (R-11) East-facing exterior	(A)	3.2	(A)	(A)	(A)	(A)
MFD Wall Insulation (R-11) West-facing exterior	(A)	3.8	(A)	(A)	(A)	(A)
Floor Insulation (R-19)	(A)	(A)	(A)	(A)	(A)	(A)
Programmable Thermostat	(A)	0.3	0.3	0.3	0.6	0.4

Climate Zone 2 - Mobile Home PRIORITY LIST MEASURES	Climate Zone 3		Climate Zone 11		Climate Zone 12	
	w AC	w/out AC	w AC	w/out AC	w AC	w/out AC
MH Ceiling Insulation (When up to R-11, increase to R-30)	(A)	<i>0.5</i>	<i>7.4</i>	<i>0.7</i>	<i>1.1</i>	<i>0.7</i>
Floor Insulation (R-19)	(A)	(A)	(A)	(A)	(A)	(A)
Programmable Thermostat	(A)	<i>1.2</i>	<i>3.4</i>	<i>1.9</i>	<i>1.0</i>	<i>1.1</i>

Key:

- ▶ (A) = Energy Audit required to determine feasibility for specific home.
- ▶ Measures with value (SIR) less than *1.0* (*shown in italics*) may be Energy Audited to determine feasibility for specific home.
- ▶ Wall Insulation (R-11) is specified for fiberglass insulation; Wall insulation (R-13) is specified for cellulose insulation.
- ▶ Empty (dashed) area indicates, in most instances, that measure is not applicable to the housing type. Energy audit may be used to determine feasibility for specific home if conditions warrant.

3. CLIMATE ZONE - 3 PRIORITY LIST

The energy analysis for the List for Climate Zone - 3 did not include an analysis of measures on residences with air conditioning, as the need for it is negligible or non-existent in this coastal climate zone. When a home is found with an AC unit (window, wall, or central), an energy audit is required to determine measure feasibility. Measures in the List table with a SIR value of less than 1.0 are subject to the CSD Audit Policy.

Each zone's table shows what can be installed without performing an energy audit to determine feasibility. All insulation measures in this List shall be installed pursuant to applicable WIS instructions for the respective type (ceiling, wall, or floor).

Measures shall be ranked from highest SIR value to lowest, and installed in that order.

CZ-03 PRIORITY LIST MEASURES	Pre-1950 SFU		Post-1950 SFU		Multi-Family		Mobile Home	
	SIR		SIR		SIR		SIR	
	w AC	w/o AC	w AC	w/o AC	w AC	w/o AC	w AC	w/o AC
Ceiling Insulation (When R-0, increase to min. R-30; Max. R-38)	(A)	2.8	(A)	3.4	(A)	2.8	-	-
Ceiling Insulation (When R-1 to R-11, increase to min. R-30; Max. R-38)	(A)	<i>0.7</i>	(A)	1.0	(A)	<i>0.7</i>	-	-
Ceiling Insulation (When R-12 to R-19, increase to min. R-30; Max. R-38)	(A)	<i>0.6</i>	(A)	1.0	(A)	1.0	-	-
MH Ceiling Insulation (When up to R-11, increase to R-30)	-	-	-	-	-	-	(A)	<i>0.5</i>
Wall Insulation (R-11 to R-13, based on type)	(A)	2.6	(A)	3.6	-	-	(A)	(A)
MFD Wall Insulation (R-11) 2-walls exterior	-	-	-	-	(A)	3.2	-	-
MFD Wall Insulation (R-11) North-facing exterior	-	-	-	-	(A)	3.4	-	-
MFD Wall Insulation (R-11) South-facing exterior	-	-	-	-	(A)	2.5	-	-
MFD Wall Insulation (R-11) East-facing exterior	-	-	-	-	(A)	3.2	-	-
MFD Wall Insulation (R-11) West-facing exterior	-	-	-	-	(A)	3.8	-	-
Floor Insulation (R-19)	(A)	2.9	(A)	4.3	(A)	(A)	(A)	(A)
Programmable Thermostat	(A)	<i>0.8</i>	(A)	4.7	(A)	<i>0.3</i>	(A)	1.2
Key:								
<ul style="list-style-type: none"> ▶ (A) = Energy Audit required to determine feasibility for specific home. ▶ Measures with value (SIR) less than 1.0 (<i>shown in italics</i>) may be Energy Audited to determine feasibility for specific home. ▶ Wall Insulation (R-11) is specified for fiberglass insulation; Wall insulation (R-13) is specified for cellulose insulation. ▶ Empty (dashed) area indicates, in most instances, that measure is not applicable to the housing type. Energy audit may be used to determine feasibility for specific home if conditions warrant. 								

4. CLIMATE ZONE - 4 PRIORITY LIST

The energy analysis for the List for Climate Zone 4 included analysis of measures on residences with and without air conditioning.

Measures with a SIR greater than 1.0 are on the List. Measures with a SIR less than 1.0 will require an energy audit and a SIR result greater than 1.0 to install.

Each zone's table shows what can be installed without performing an energy audit to determine feasibility. All insulation measures in this List shall be installed pursuant to applicable WIS instructions for the respective type (ceiling, wall, or floor).

Measures shall be ranked from highest SIR value to lowest, and installed in that order.

CZ-04 PRIORITY LIST MEASURES	Pre-1950 SFU		Post-1950 SFU		Multi-Family		Mobile Home	
	SIR		SIR		SIR		SIR	
	w AC	w/o AC	w AC	w/o AC	w AC	w/o AC	w AC	w/o AC
Ceiling Insulation (When R-0, increase to min. R-30; Max. R-38)	4.7	3.2	4.8	3.2	4.3	2.9	-	-
Ceiling Insulation (When R-1 to R-11, increase to min. R-30; Max. R-38)	1.2	0.8	1.2	0.8	1.1	0.8	-	-
Ceiling Insulation (When R-12 to R-19, increase to min. R-30; Max. R-38)	1.2	0.7	1.0	0.7	0.9	0.6	-	-
MH Ceiling Insulation (When up to R-11, increase to R-30)	-	-	-	-	-	-	0.7	0.5
Wall Insulation (R-11 to R-13, based on type)	4.2	3.6	4.6	3.1	-	-	(A)	(A)
MFD Wall Insulation (R-11) 2-walls exterior	-	-	-	-	4.1	3.5	-	-
MFD Wall Insulation (R-11) North-facing exterior	-	-	-	-	(A)	(A)	-	-
MFD Wall Insulation (R-11) South-facing exterior	-	-	-	-	(A)	(A)	-	-
MFD Wall Insulation (R-11) East-facing exterior	-	-	-	-	3.6	3.1	-	-
MFD Wall Insulation (R-11) West-facing exterior	-	-	-	-	4.4	3.8	-	-
Floor Insulation (R-19)	0.8	1.1	(A)	0.8	(A)	(A)	(A)	(A)
Programmable Thermostat	3.6	0.3	0.6	0.4	0.8	0.2	3.1	1.6
Key:								
<ul style="list-style-type: none"> ▶ (A) = Energy Audit required to determine feasibility for specific home. ▶ Measures with value (SIR) less than 1.0 (<i>shown in italics</i>) may be Energy Audited to determine feasibility for specific home. ▶ Wall Insulation (R-11) is specified for fiberglass insulation; Wall insulation (R-13) is specified for cellulose insulation. ▶ Empty (dashed) area indicates, in most instances, that measure is not applicable to the housing type. Energy audit may be used to determine feasibility for specific home if conditions warrant. 								

5. CLIMATE ZONE - 5 PRIORITY LIST

The energy analysis for the List for Climate Zone 5 included analysis of measures on residences with and without air conditioning.

Measures with a SIR greater than 1.0 are on the List. Measures with a SIR less than 1.0 will require an energy audit and a SIR result greater than 1.0 to install.

Each zone's table shows what can be installed without performing an energy audit to determine feasibility. All insulation measures in this List shall be installed pursuant to applicable WIS instructions for the respective type (ceiling, wall, or floor).

Measures shall be ranked from highest SIR value to lowest, and installed in that order.

CZ-05 PRIORITY LIST MEASURES	Pre-1950 SFU		Post-1950 SFU		Multi-Family		Mobile Home	
	SIR		SIR		SIR		SIR	
	w AC	w/o AC	w AC	w/o AC	w AC	w/o AC	w AC	w/o AC
Ceiling Insulation (When R-0, increase to min. R-30; Max. R-38)	3.1	2.3	3.2	2.5	3.7	2.9	-	-
Ceiling Insulation (When R-1 to R-11, increase to min. R-30; Max. R-38)	<i>0.7</i>	<i>0.6</i>	<i>0.8</i>	<i>0.6</i>	1.0	<i>0.7</i>	-	-
Ceiling Insulation (When R-12 to R-19, increase to min. R-30; Max. R-38)	<i>0.7</i>	<i>0.6</i>	<i>0.7</i>	<i>0.5</i>	<i>0.8</i>	<i>0.6</i>	-	-
MH Ceiling Insulation (When up to R-11, increase to R-30)	-	-	-	-	-	-	0.7	0.4
Wall Insulation (R-11 to R-13, based on type)	2.9	2.8	4.2	4.2	-	-	(A)	(A)
MFD Wall Insulation (R-11) 2-walls exterior	-	-	-	-	3.8	2.5	-	-
MFD Wall Insulation (R-11) North-facing exterior	-	-	-	-	3.8	3.7	-	-
MFD Wall Insulation (R-11) South-facing exterior	-	-	-	-	5.1	5.0	-	-
MFD Wall Insulation (R-11) East-facing exterior	-	-	-	-	3.5	3.4	-	-
MFD Wall Insulation (R-11) West-facing exterior	-	-	-	-	(A)	(A)	-	-
Floor Insulation (R-19)	<i>0.4</i>	<i>0.6</i>	<i>0.6</i>	<i>0.8</i>	(A)	(A)	(A)	(A)
Programmable Thermostat	1.4	1.0	0.4	0.3	0.3	0.1	1.5	1.5
Key:								
<ul style="list-style-type: none"> ▶ (A) = Energy Audit required to determine feasibility for specific home. ▶ Measures with value (SIR) less than 1.0 (<i>shown in italics</i>) may be Energy Audited to determine feasibility for specific home. ▶ Wall Insulation (R-11) is specified for fiberglass insulation; Wall insulation (R-13) is specified for cellulose insulation. ▶ Empty (dashed) area indicates, in most instances, that measure is not applicable to the housing type. Energy audit may be used to determine feasibility for specific home if conditions warrant. 								

6. CLIMATE ZONE - 6 PRIORITY LIST

The energy analysis for the List for Climate Zone 6 included analysis of measures on residences with and without air conditioning.

Measures with a SIR greater than 1.0 are on the List. Measures with a SIR less than 1.0 will require an energy audit and a SIR result greater than 1.0 to install.

Each zone's table shows what can be installed without performing an energy audit to determine feasibility. All insulation measures in this List shall be installed pursuant to applicable WIS instructions for the respective type (ceiling, wall, or floor).

Measures shall be ranked from highest SIR value to lowest, and installed in that order.

CZ-06	Pre-1950 SFU		Post-1950 SFU		Multi-Family		Mobile Home	
	SIR		SIR		SIR		SIR	
	w AC	w/o AC	w AC	w/o AC	w AC	w/o AC	w AC	w/o AC
PRIORITY LIST MEASURES								
Ceiling Insulation (When R-0, increase to min. R-30; Max. R-38)	2.0	1.2	2.4	1.5	1.8	1.1	-	-
Ceiling Insulation (When R-1 to R-11, increase to min. R-30; Max. R-38)	<i>0.4</i>	<i>0.3</i>	<i>0.5</i>	<i>0.3</i>	<i>0.6</i>	<i>0.5</i>	-	-
Ceiling Insulation (When R-12 to R-19, increase to min. R-30; Max. R-38)	<i>0.4</i>	<i>0.3</i>	<i>0.5</i>	<i>0.3</i>	<i>0.5</i>	<i>0.3</i>	-	-
MH Ceiling Insulation (When up to R-11, increase to R-30)	-	-	-	-	-	-	-	0.2
Wall Insulation (R-11 to R-13, based on type)	2.9	2.7	2.7	2.7	-	-	(A)	(A)
MFD Wall Insulation (R-11) 2-walls exterior	-	-	-	-	2.2	2.1	-	-
MFD Wall Insulation (R-11) North-facing exterior	-	-	-	-	(A)	(A)	-	-
MFD Wall Insulation (R-11) South-facing exterior	-	-	-	-	(A)	(A)	-	-
MFD Wall Insulation (R-11) East-facing exterior	-	-	-	-	2.1	2.0	-	-
MFD Wall Insulation (R-11) West-facing exterior	-	-	-	-	2.3	2.1	-	-
Floor Insulation (R-19)	0.7	0.8	(A)	(A)	(A)	(A)	(A)	(A)
Programmable Thermostat	1.4	0.9	1.5	0.4	(A)	(A)	(A)	1.4
Key:								
<ul style="list-style-type: none"> ▶ (A) = Energy Audit required to determine feasibility for specific home. ▶ Measures with value (SIR) less than 1.0 (<i>shown in italics</i>) may be Energy Audited to determine feasibility for specific home. ▶ Wall Insulation (R-11) is specified for fiberglass insulation; Wall insulation (R-13) is specified for cellulose insulation. ▶ Empty (dashed) area indicates, in most instances, that measure is not applicable to the housing type. Energy audit may be used to determine feasibility for specific home if conditions warrant. 								

7. CLIMATE ZONE - 7 PRIORITY LIST

The energy analysis for the List for Climate Zone 7 included analysis of measures on residences with and without air conditioning.

Measures with a SIR greater than 1.0 are on the List. Measures with a SIR less than 1.0 will require an energy audit and a SIR result greater than 1.0 to install.

Each zone's table shows what can be installed without performing an energy audit to determine feasibility. All insulation measures in this List shall be installed pursuant to applicable WIS instructions for the respective type (ceiling, wall, or floor).

Measures shall be ranked from highest SIR value to lowest, and installed in that order.

CZ-07 PRIORITY LIST MEASURES	Pre-1950 SFU		Post-1950 SFU		Multi-Family		Mobile Home	
	SIR		SIR		SIR		SIR	
	w AC	w/o AC	w AC	w/o AC	w AC	w/o AC	w AC	w/o AC
Ceiling Insulation (When R-0, increase to min. R-30; Max. R-38)	4.8	3.4	2.1	1.5	2.8	1.6	-	-
Ceiling Insulation (When R-1 to R-11, increase to min. R-30; Max. R-38)	1.1	<i>0.8</i>	<i>0.4</i>	<i>0.3</i>	<i>0.7</i>	<i>0.4</i>	-	-
Ceiling Insulation (When R-12 to R-19, increase to min. R-30; Max. R-38)	1.1	3.9	<i>0.4</i>	<i>0.3</i>	<i>0.6</i>	<i>0.3</i>	-	-
MH Ceiling Insulation (When up to R-11, increase to R-30)	-	-	-	-	-	-	0.3	0.2
Wall Insulation (R-11 to R-13, based on type)	3.8	3.8	2.4	2.3	-	-	(A)	(A)
MFD Wall Insulation (R-11) 2-walls exterior	-	-	-	-	2.4	2.1	-	-
MFD Wall Insulation (R-11) North-facing exterior	-	-	-	-	2.4	2.1	-	-
MFD Wall Insulation (R-11) South-facing exterior	-	-	-	-	2.2	1.9	-	-
MFD Wall Insulation (R-11) East-facing exterior	-	-	-	-	(A)	(A)	-	-
MFD Wall Insulation (R-11) West-facing exterior	-	-	-	-	2.5	2.2	-	-
Floor Insulation (R-19)	(A)	(A)	(A)	(A)	(A)	(A)	(A)	(A)
Programmable Thermostat	5.2	1.7	4.5	2.4	0.3	(A)	(A)	(A)
Key:								
<ul style="list-style-type: none"> ▶ (A) = Energy Audit required to determine feasibility for specific home. ▶ Measures with value (SIR) less than 1.0 (<i>shown in italics</i>) may be Energy Audited to determine feasibility for specific home. ▶ Wall Insulation (R-11) is specified for fiberglass insulation; Wall insulation (R-13) is specified for cellulose insulation. ▶ Empty (dashed) area indicates, in most instances, that measure is not applicable to the housing type. Energy audit may be used to determine feasibility for specific home if conditions warrant. 								

8. CLIMATE ZONE - 8 PRIORITY LIST

The energy analysis for the List for Climate Zone 8 included analysis of measures on residences with and without air conditioning.

Measures with a SIR greater than 1.0 are on the List. Measures with a SIR less than 1.0 will require an energy audit and a SIR result greater than 1.0 to install.

Each zone's table shows what can be installed without performing an energy audit to determine feasibility. All insulation measures in this List shall be installed pursuant to applicable WIS instructions for the respective type (ceiling, wall, or floor).

Measures shall be ranked from highest SIR value to lowest, and installed in that order.

CZ-08 PRIORITY LIST MEASURES	Pre-1950 SFU		Post-1950 SFU		Multi-Family		Mobile Home	
	SIR		SIR		SIR		SIR	
	w AC	w/o AC	w AC	w/o AC	w AC	w/o AC	w AC	w/o AC
Ceiling Insulation (When R-0, increase to min. R-30; Max. R-38)	2.8	1.4	2.5	2.1	2.5	1.5	-	-
Ceiling Insulation (When R-1 to R-11, increase to min. R-30; Max. R-38)	<i>0.6</i>	<i>0.3</i>	<i>0.7</i>	<i>0.5</i>	<i>0.6</i>	<i>0.4</i>	-	-
Ceiling Insulation (When R-12 to R-19, increase to min. R-30; Max. R-38)	<i>0.6</i>	<i>0.4</i>	<i>0.7</i>	<i>0.5</i>	<i>0.5</i>	<i>0.3</i>	-	-
MH Ceiling Insulation (When up to R-11, increase to R-30)	-	-	-	-	-	-	0.5	0.3
Wall Insulation (R-11 to R-13, based on type)	2.3	2.1	3.0	2.9	-	-	(A)	(A)
MFD Wall Insulation (R-11) 2-walls exterior	-	-	-	-	2.6	2.4	-	-
MFD Wall Insulation (R-11) North-facing exterior	-	-	-	-	(A)	(A)	-	-
MFD Wall Insulation (R-11) South-facing exterior	-	-	-	-	3.2	2.9	-	-
MFD Wall Insulation (R-11) East-facing exterior	-	-	-	-	2.0	1.9	-	-
MFD Wall Insulation (R-11) West-facing exterior	-	-	-	-	2.6	2.3	-	-
Floor Insulation (R-19)	<i>0.3</i>	<i>0.5</i>	(A)	(A)	(A)	(A)	(A)	(A)
Programmable Thermostat	4.5	2.2	4.9	3.1	0.2	(A)	2.2	0.3
Key:								
<ul style="list-style-type: none"> ▶ (A) = Energy Audit required to determine feasibility for specific home. ▶ Measures with value (SIR) less than 1.0 (<i>shown in italics</i>) may be Energy Audited to determine feasibility for specific home. ▶ Wall Insulation (R-11) is specified for fiberglass insulation; Wall insulation (R-13) is specified for cellulose insulation. ▶ Empty (dashed) area indicates, in most instances, that measure is not applicable to the housing type. Energy audit may be used to determine feasibility for specific home if conditions warrant. 								

9. CLIMATE ZONE - 9 PRIORITY LIST

The energy analysis for the List for Climate Zone 9 included analysis of measures on residences with and without air conditioning.

Measures with a SIR greater than 1.0 are on the List. Measures with a SIR less than 1.0 will require an energy audit and a SIR result greater than 1.0 to install.

Each zone's table shows what can be installed without performing an energy audit to determine feasibility. All insulation measures in this List shall be installed pursuant to applicable WIS instructions for the respective type (ceiling, wall, or floor).

Measures shall be ranked from highest SIR value to lowest, and installed in that order.

CZ-09 PRIORITY LIST MEASURES	Pre-1950 SFU		Post-1950 SFU		Multi-Family		Mobile Home	
	SIR		SIR		SIR		SIR	
	w AC	w/o AC	w AC	w/o AC	w AC	w/o AC	w AC	w/o AC
Ceiling Insulation (When R-0, increase to min. R-30; Max. R-38)	1.8	1.2	1.9	1.2	2.2	1.2	-	-
Ceiling Insulation (When R-1 to R-11, increase to min. R-30; Max. R-38)	<i>0.5</i>	<i>0.3</i>	<i>0.5</i>	<i>0.3</i>	<i>0.5</i>	<i>0.3</i>	-	-
Ceiling Insulation (When R-12 to R-19, increase to min. R-30; Max. R-38)	<i>0.7</i>	<i>0.4</i>	<i>0.6</i>	<i>0.4</i>	<i>0.6</i>	<i>0.4</i>	-	-
MH Ceiling Insulation (When up to R-11, increase to R-30)	-	-	-	-	-	-	0.2	0.2
Wall Insulation (R-11 to R-13, based on type)	3.1	3.0	2.8	2.6	-	-	(A)	(A)
MFD Wall Insulation (R-11) 2-walls exterior	-	-	-	-	2.7	2.2	-	-
MFD Wall Insulation (R-11) North-facing exterior	-	-	-	-	3.8	3.2	-	-
MFD Wall Insulation (R-11) South-facing exterior	-	-	-	-	3.8	3.2	-	-
MFD Wall Insulation (R-11) East-facing exterior	-	-	-	-	3.1	2.6	-	-
MFD Wall Insulation (R-11) West-facing exterior	-	-	-	-	2.4	2.0	-	-
Floor Insulation (R-19)	<i>0.7</i>	<i>0.7</i>	<i>0.6</i>	<i>0.8</i>	(A)	(A)	(A)	(A)
Programmable Thermostat	0.2	(A)	1.9	1.2	0.2	0.3	2.1	2.1
Key:								
<ul style="list-style-type: none"> ▶ (A) = Energy Audit required to determine feasibility for specific home. ▶ Measures with value (SIR) less than 1.0 (<i>shown in italics</i>) may be Energy Audited to determine feasibility for specific home. ▶ Wall Insulation (R-11) is specified for fiberglass insulation; Wall insulation (R-13) is specified for cellulose insulation. ▶ Empty (dashed) area indicates, in most instances, that measure is not applicable to the housing type. Energy audit may be used to determine feasibility for specific home if conditions warrant. 								

10. CLIMATE ZONE - 10 PRIORITY LIST

The energy analysis for the List for Climate Zone 10 included analysis of measures on residences with and without air conditioning.

Measures with a SIR greater than 1.0 are on the List. Measures with a SIR less than 1.0 will require an energy audit and a SIR result greater than 1.0 to install.

Each zone's table shows what can be installed without performing an energy audit to determine feasibility. All insulation measures in this List shall be installed pursuant to applicable WIS instructions for the respective type (ceiling, wall, or floor).

Measures shall be ranked from highest SIR value to lowest, and installed in that order.

CZ-10 PRIORITY LIST MEASURES	Pre-1950 SFU		Post-1950 SFU		Multi-Family		Mobile Home	
	SIR		SIR		SIR		SIR	
	w AC	w/o AC	w AC	w/o AC	w AC	w/o AC	w AC	w/o AC
Ceiling Insulation (When R-0, increase to min. R-30; Max. R-38)	5.5	3.0	4.9	2.5	4.2	2.1	-	-
Ceiling Insulation (When R-1 to R-11, increase to min. R-30; Max. R-38)	1.3	0.7	1.2	0.6	1.3	0.6	-	-
Ceiling Insulation (When R-12 to R-19, increase to min. R-30; Max. R-38)	1.3	0.7	1.1	0.5	1.1	0.5	-	-
MH Ceiling Insulation (When up to R-11, increase to R-30)	-	-	-	-	-	-	0.4	0.4
Wall Insulation (R-11 to R-13, based on type)	4.7	3.7	4.6	3.6	-	-	(A)	(A)
MFD Wall Insulation (R-11) 2-walls exterior	-	-	-	-	3.1	2.2	-	-
MFD Wall Insulation (R-11) North-facing exterior	-	-	-	-	1.5	1.1	-	-
MFD Wall Insulation (R-11) South-facing exterior	-	-	-	-	3.9	2.8	-	-
MFD Wall Insulation (R-11) East-facing exterior	-	-	-	-	(A)	(A)	-	-
MFD Wall Insulation (R-11) West-facing exterior	-	-	-	-	(A)	(A)	-	-
Floor Insulation (R-19)	1.6	1.8	(A)	(A)	(A)	(A)	(A)	(A)
Programmable Thermostat	6.9	4.0	0.2	0.1	(A)	(A)	1.3	1.3
Key:								
<ul style="list-style-type: none"> ▶ (A) = Energy Audit required to determine feasibility for specific home. ▶ Measures with value (SIR) less than 1.0 (<i>shown in italics</i>) may be Energy Audited to determine feasibility for specific home. ▶ Wall Insulation (R-11) is specified for fiberglass insulation; Wall insulation (R-13) is specified for cellulose insulation. ▶ Empty (dashed) area indicates, in most instances, that measure is not applicable to the housing type. Energy audit may be used to determine feasibility for specific home if conditions warrant. 								

11. CLIMATE ZONE - 11 PRIORITY LIST

The energy analysis for the List for Climate Zone 11 included analysis of measures on residences with and without air conditioning.

Measures with a SIR greater than 1.0 are on the List. Measures with a SIR less than 1.0 will require an energy audit and a SIR result greater than 1.0 to install.

Each zone's table shows what can be installed without performing an energy audit to determine feasibility. All insulation measures in this List shall be installed pursuant to applicable WIS instructions for the respective type (ceiling, wall, or floor).

Measures shall be ranked from highest SIR value to lowest, and installed in that order.

CZ-11 PRIORITY LIST MEASURES	Pre-1950 SFU		Post-1950 SFU		Multi-Family		Mobile Home	
	SIR		SIR		SIR		SIR	
	w AC	w/o AC	w AC	w/o AC	w AC	w/o AC	w AC	w/o AC
Ceiling Insulation (When R-0, increase to min. R-30; Max. R-38)	8.5	3.7	7.7	3.2	6.8	2.6	-	-
Ceiling Insulation (When R-1 to R-11, increase to min. R-30; Max. R-38)	2.0	0.9	1.8	0.9	1.8	0.6	-	-
Ceiling Insulation (When R-12 to R-19, increase to min. R-30; Max. R-38)	1.8	0.8	1.7	0.8	1.5	0.5	-	-
MH Ceiling Insulation (When up to R-11, increase to R-30)	-	-	-	-	-	-	7.4	0.7
Wall Insulation (R-11 to R-13, based on type)	6.4	3.7	4.5	2.7	-	-	(A)	(A)
MFD Wall Insulation (R-11) 2-walls exterior	-	-	-	-	4.8	3.0	-	-
MFD Wall Insulation (R-11) North-facing exterior	-	-	-	-	5.2	3.3	-	-
MFD Wall Insulation (R-11) South-facing exterior	-	-	-	-	4.4	2.8	-	-
MFD Wall Insulation (R-11) East-facing exterior	-	-	-	-	(A)	(A)	-	-
MFD Wall Insulation (R-11) West-facing exterior	-	-	-	-	(A)	(A)	-	-
Floor Insulation (R-19)	1.3	1.1	0.8	0.8	(A)	(A)	(A)	(A)
Programmable Thermostat	3.3	3.3	3.3	1.3	0.3	0.3	3.4	1.9
Key:								
<ul style="list-style-type: none"> ▶ (A) = Energy Audit required to determine feasibility for specific home. ▶ Measures with value (SIR) less than 1.0 (<i>shown in italics</i>) may be Energy Audited to determine feasibility for specific home. ▶ Wall Insulation (R-11) is specified for fiberglass insulation; Wall insulation (R-13) is specified for cellulose insulation. ▶ Empty (dashed) area indicates, in most instances, that measure is not applicable to the housing type. Energy audit may be used to determine feasibility for specific home if conditions warrant. 								

12. CLIMATE ZONE - 12 PRIORITY LIST

The energy analysis for the List for Climate Zone 12 included analysis of measures on residences with and without air conditioning.

Measures with a SIR greater than 1.0 are on the List. Measures with a SIR less than 1.0 will require an energy audit and a SIR result greater than 1.0 to install.

Each zone's table shows what can be installed without performing an energy audit to determine feasibility. All insulation measures in this List shall be installed pursuant to applicable WIS instructions for the respective type (ceiling, wall, or floor).

Measures shall be ranked from highest SIR value to lowest, and installed in that order.

CZ-12 PRIORITY LIST MEASURES	Pre-1950 SFU		Post-1950 SFU		Multi-Family		Mobile Home	
	SIR		SIR		SIR		SIR	
	w AC	w/o AC	w AC	w/o AC	w AC	w/o AC	w AC	w/o AC
Ceiling Insulation (When R-0, increase to min. R-30; Max. R-38)	7.6	4.7	6.7	5.0	5.1	3.3	-	-
Ceiling Insulation (When R-1 to R-11, increase to min. R-30; Max. R-38)	1.6	1.0	1.6	1.2	1.7	1.1	-	-
Ceiling Insulation (When R-12 to R-19, increase to min. R-30; Max. R-38)	1.7	1.1	1.4	1.1	5.7	1.3	-	-
MH Ceiling Insulation (When up to R-11, increase to R-30)	-	-	-	-	-	-	1.1	0.7
Wall Insulation (R-11 to R-13, based on type)	4.2	3.3	5.7	5.0	-	-	(A)	(A)
MFD Wall Insulation (R-11) 2-walls exterior	-	-	-	-	1.4	3.8	-	-
MFD Wall Insulation (R-11) North-facing exterior	-	-	-	-	1.4	3.9	-	-
MFD Wall Insulation (R-11) South-facing exterior	-	-	-	-	1.3	3.7	-	-
MFD Wall Insulation (R-11) East-facing exterior	-	-	-	-	(A)	(A)	-	-
MFD Wall Insulation (R-11) West-facing exterior	-	-	-	-	(A)	(A)	-	-
Floor Insulation (R-19)	(A)	(A)	(A)	(A)	(A)	(A)	(A)	(A)
Programmable Thermostat	10.1	3.7	2.5	1.6	0.6	0.4	1.0	1.1
Key:								
<ul style="list-style-type: none"> ▶ (A) = Energy Audit required to determine feasibility for specific home. ▶ Measures with value (SIR) less than 1.0 (<i>shown in italics</i>) may be Energy Audited to determine feasibility for specific home. ▶ Wall Insulation (R-11) is specified for fiberglass insulation; Wall insulation (R-13) is specified for cellulose insulation. ▶ Empty (dashed) area indicates, in most instances, that measure is not applicable to the housing type. Energy audit may be used to determine feasibility for specific home if conditions warrant. 								

13. CLIMATE ZONE - 13 PRIORITY LIST

The energy analysis for the List for Climate Zone 13 included analysis of measures on residences with and without air conditioning.

Measures with a SIR greater than 1.0 are on the List. Measures with a SIR less than 1.0 will require an energy audit and a SIR result greater than 1.0 to install.

Each zone's table shows what can be installed without performing an energy audit to determine feasibility. All insulation measures in this List shall be installed pursuant to applicable WIS instructions for the respective type (ceiling, wall, or floor).

Measures shall be ranked from highest SIR value to lowest, and installed in that order.

CZ-13 PRIORITY LIST MEASURES	Pre-1950 SFU		Post-1950 SFU		Multi-Family		Mobile Home	
	SIR		SIR		SIR		SIR	
	w AC	w/o AC	w AC	w/o AC	w AC	w/o AC	w AC	w/o AC
Ceiling Insulation (When R-0, increase to min. R-30; Max. R-38)	10.3	5.6	6.2	9.2	7.4	3.8	-	-
Ceiling Insulation (When R-1 to R-11, increase to min. R-30; Max. R-38)	2.5	1.4	1.2	2.0	1.7	1.1	-	-
Ceiling Insulation (When R-12 to R-19, increase to min. R-30; Max. R-38)	2.2	1.2	1.3	2.1	1.6	1.2	-	-
MH Ceiling Insulation (When up to R-11, increase to R-30)	-	-	-	-	-	-	<i>0.2</i>	<i>0.7</i>
Wall Insulation (R-11 to R-13, based on type)	8.7	6.2	5.3	9.3	-	-	(A)	(A)
MFD Wall Insulation (R-11) 2-walls exterior	-	-	-	-	5.4	3.6	-	-
MFD Wall Insulation (R-11) North-facing exterior	-	-	-	-	5.4	3.6	-	-
MFD Wall Insulation (R-11) South-facing exterior	-	-	-	-	7.1	4.8	-	-
MFD Wall Insulation (R-11) East-facing exterior	-	-	-	-	5.1	3.4	-	-
MFD Wall Insulation (R-11) West-facing exterior	-	-	-	-	(A)	(A)	-	-
Floor Insulation (R-19)	2.5	2.3	(A)	(A)	(A)	(A)	(A)	(A)
Programmable Thermostat	5.0	2.6	10.2	18.3	0.7	0.2	3.0	3.0
Key:								
<ul style="list-style-type: none"> ▶ (A) = Energy Audit required to determine feasibility for specific home. ▶ Measures with value (SIR) less than 1.0 (<i>shown in italics</i>) may be Energy Audited to determine feasibility for specific home. ▶ Wall Insulation (R-11) is specified for fiberglass insulation; Wall insulation (R-13) is specified for cellulose insulation. ▶ Empty (dashed) area indicates, in most instances, that measure is not applicable to the housing type. Energy audit may be used to determine feasibility for specific home if conditions warrant. 								

14. CLIMATE ZONE - 14 PRIORITY LIST

The energy analysis for the List for Climate Zone 13 included analysis of measures on residences with and without air conditioning.

Measures with a SIR greater than 1.0 are on the List. Measures with a SIR less than 1.0 will require an energy audit and a SIR result greater than 1.0 to install.

Each zone's table shows what can be installed without performing an energy audit to determine feasibility. All insulation measures in this List shall be installed pursuant to applicable WIS instructions for the respective type (ceiling, wall, or floor).

Measures shall be ranked from highest SIR value to lowest, and installed in that order.

CZ-14 PRIORITY LIST MEASURES	Pre-1950 SFU		Post-1950 SFU		Multi-Family		Mobile Home	
	SIR		SIR		SIR		SIR	
	w AC	w/o AC	w AC	w/o AC	w AC	w/o AC	w AC	w/o AC
Ceiling Insulation (When R-0, increase to min. R-30; Max. R-38)	9.8	5.0	7.6	4.4	6.8	3.1	-	-
Ceiling Insulation (When R-1 to R-11, increase to min. R-30; Max. R-38)	2.0	1.0	1.8	1.1	1.9	<i>0.8</i>	-	-
Ceiling Insulation (When R-12 to R-19, increase to min. R-30; Max. R-38)	2.3	1.0	2.0	4.9	1.5	<i>0.7</i>	-	-
MH Ceiling Insulation (When up to R-11, increase to R-30)	-	-	-	-	-	-	1.5	1.1
Wall Insulation (R-11 to R-13, based on type)	5.4	3.8	6.1	4.6	-	-	(A)	(A)
MFD Wall Insulation (R-11) 2-walls exterior	-	-	-	-	5.0	3.3	-	-
MFD Wall Insulation (R-11) North-facing exterior	-	-	-	-	5.8	3.8	-	-
MFD Wall Insulation (R-11) South-facing exterior	-	-	-	-	4.2	2.7	-	-
MFD Wall Insulation (R-11) East-facing exterior	-	-	-	-	(A)	(A)	-	-
MFD Wall Insulation (R-11) West-facing exterior	-	-	-	-	(A)	(A)	-	-
Floor Insulation (R-19)	(A)	(A)	(A)	(A)	(A)	(A)	(A)	(A)
Programmable Thermostat	6.0	2.3	2.9	1.5	0.5	0.2	4.4	4.4
Key:								
<ul style="list-style-type: none"> ▶ (A) = Energy Audit required to determine feasibility for specific home. ▶ Measures with value (SIR) less than 1.0 (<i>shown in italics</i>) may be Energy Audited to determine feasibility for specific home. ▶ Wall Insulation (R-11) is specified for fiberglass insulation; Wall insulation (R-13) is specified for cellulose insulation. ▶ Empty (dashed) area indicates, in most instances, that measure is not applicable to the housing type. Energy audit may be used to determine feasibility for specific home if conditions warrant. 								

15. CLIMATE ZONE - 15 PRIORITY LIST

The energy analysis for the List for Climate Zone 15 included analysis of measures on residences with and without air conditioning. Because this climate zone is cooling dominated with very few heating degree days, there is little cost savings from heating only units, even though measures would improve comfort.

Measures with a SIR greater than 1.0 are on the List. Measures with a SIR less than 1.0 will require an energy audit and a SIR result greater than 1.0 to install.

Each zone's table shows what can be installed without performing an energy audit to determine feasibility. All insulation measures in this List shall be installed pursuant to applicable WIS instructions for the respective type (ceiling, wall, or floor).

Measures shall be ranked from highest SIR value to lowest, and installed in that order.

CZ-15 PRIORITY LIST MEASURES	Pre-1950 SFU		Post-1950 SFU		Multi-Family		Mobile Home	
	SIR		SIR		SIR		SIR	
	w AC	w/o AC	w AC	w/o AC	w AC	w/o AC	w AC	w/o AC
Ceiling Insulation (When R-0, increase to min. R-30; Max. R-38)	11.6	2.1	2.9	0.3	5.0	1.0	-	-
Ceiling Insulation (When R-1 to R-11, increase to min. R-30; Max. R-38)	2.2	0.5	0.6	0.1	1.4	0.2	-	-
Ceiling Insulation (When R-12 to R-19, increase to min. R-30; Max. R-38)	2.2	0.5	0.6	0.1	1.3	0.2	-	-
MH Ceiling Insulation (When up to R-11, increase to R-30)	-	-	-	-	-	-	0.9	0.1
Wall Insulation (R-11 to R-13, based on type)	9.4	5.0	3.6	3.5	-	-	(A)	(A)
MFD Wall Insulation (R-11) 2-walls exterior	-	-	-	-	4.3	1.5	-	-
MFD Wall Insulation (R-11) North-facing exterior	-	-	-	-	4.3	1.5	-	-
MFD Wall Insulation (R-11) South-facing exterior	-	-	-	-	3.4	1.2	-	-
MFD Wall Insulation (R-11) East-facing exterior	-	-	-	-	(A)	(A)	-	-
MFD Wall Insulation (R-11) West-facing exterior	-	-	-	-	5.3	1.8	-	-
Floor Insulation (R-19)	2.8	2.1	(A)	(A)	(A)	(A)	(A)	(A)
Programmable Thermostat	5.5	3.0	2.0	0.5	0.7	0.1	4.4	0.7
Key:								
<ul style="list-style-type: none"> ▶ (A) = Energy Audit required to determine feasibility for specific home. ▶ Measures with value (SIR) less than 1.0 (<i>shown in italics</i>) may be Energy Audited to determine feasibility for specific home. ▶ Wall Insulation (R-11) is specified for fiberglass insulation; Wall insulation (R-13) is specified for cellulose insulation. ▶ Empty (dashed) area indicates, in most instances, that measure is not applicable to the housing type. Energy audit may be used to determine feasibility for specific home if conditions warrant. 								

16. CLIMATE ZONE - 16 PRIORITY LIST

The energy analysis for the List for Climate Zone 16 included analysis of measures on residences with and without air conditioning.

Measures with a SIR greater than 1.0 are on the List. Measures with a SIR less than 1.0 will require an energy audit and a SIR result greater than 1.0 to install.

Each zone's table shows what can be installed without performing an energy audit to determine feasibility. All insulation measures in this List shall be installed pursuant to applicable WIS instructions for the respective type (ceiling, wall, or floor).

Measures shall be ranked from highest SIR value to lowest, and installed in that order.

CZ-16 PRIORITY LIST MEASURES	Pre-1950 SFU		Post-1950 SFU		Multi-Family		Mobile Home	
	SIR		SIR		SIR		SIR	
	w AC	w/o AC	w AC	w/o AC	w AC	w/o AC	w AC	w/o AC
Ceiling Insulation (When R-0, add R-38)	24.7	24.6	14.8	14.7	21.3	21.1	-	-
Ceiling Insulation (When R-1 to R-11, add R-30)	6.2	6.2	3.3	3.3	6.2	6.2	-	-
Ceiling Insulation (When R-12 to R-19; add R-19)	5.5	5.5	3.3	3.3	4.6	4.6	-	-
MH Ceiling Insulation (When up to R-11; increase to R-30)	-	-	-	-	-	-	2.0	4.8
Wall Insulation (R-11 to R-13, based on type)	21.5	22.0	11.7	12.1	-	-	(A)	(A)
MFD Wall Insulation (R-11) 2-walls exterior	-	-	-	-	18.0	18.4	-	-
MFD Wall Insulation (R-11) North-facing exterior	-	-	-	-	(A)	(A)	-	-
MFD Wall Insulation (R-11) South-facing exterior	-	-	-	-	(A)	(A)	-	-
MFD Wall Insulation (R-11) East-facing exterior	-	-	-	-	19.0	19.3	-	-
MFD Wall Insulation (R-11) West-facing exterior	-	-	-	-	17.0	17.4	-	-
Floor Insulation (R-19)	8.3	5.4	(A)	(A)	(A)	(A)	(A)	(A)
Programmable Thermostat	3.2	3.2	6.9	6.9	2.4	2.4	1.7	1.7
Key:								
<ul style="list-style-type: none"> ▶ (A) = Energy Audit required to determine feasibility for specific home. ▶ Measures with value (SIR) less than 1.0 (<i>shown in italics</i>) may be Energy Audited to determine feasibility for specific home. ▶ Wall Insulation (R-11) is specified for fiberglass insulation; Wall insulation (R-13) is specified for cellulose insulation. ▶ Empty (dashed) area indicates, in most instances, that measure is not applicable to the housing type. Energy audit may be used to determine feasibility for specific home if conditions warrant. 								

CALIFORNIA DEPARTMENT OF COMMUNITY SERVICES AND DEVELOPMENT

DOE WEATHERIZATION ASSISTANCE PROGRAM

SINGLE-FAMILY / SMALL MULTI-FAMILY ENERGY AUDIT PROTOCOL



CALIFORNIA DEPARTMENT OF
COMMUNITY SERVICES AND DEVELOPMENT
PO Box 1947
SACRAMENTO, CA 95812-1947
916-576-7109

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PREPARED BY: **RHA**
program design+management

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1. SINGLE-FAMILY / SMALL MULTI-FAMILY ENERGY AUDIT PROTOCOL OVERVIEW

The California Department of Community Services and Development (CSD) adopts the following “Single-family /Small Multi-family Energy Audit Protocol” for inclusion in its Federal Department of Energy (DOE) Weatherization Assistance Program (WAP). The Single-family / Small Multi-family Energy Audit Protocol is a guidance document that describes required criteria for development of a site specific energy audit designed to justify the cost effectiveness for specific weatherization measures under CSD’s WAP. This document specifically addresses the audit protocol for single-family and small multi-family dwellings, as defined by the CSD energy audit policies including, without limitation, CSD Energy Policy & Procedures (EP) 11-06 and EP 11-07A.

Underlying this protocol are the principles of transparency, consistency, and accountability. Data contained in the audit shall be transparent in methodology of data collection and calculation. The report format and content must be presented in a consistent manner; and persons completing the audit must be accountable for their work by adhering to protocol requirements, maintaining professional certifications, and providing quality assurance measures.

It is important to note that this audit policy enhances and augments the standard assessment, diagnostic procedures and installation policies under CSD’s WAP. Any conflicts between the audit protocol and standard policies and standards should be brought to the attention of CSD for interpretation.

A key objective of an energy audit is to identify feasible and relevant energy conservation measures (measures) that qualify for funding under CSD’s DOE WAP program. In addition to identifying ways to reduce the energy burden, the audit process must also conduct standard assessment of the integrity of the building to identify any deficiencies that could result in health and safety violations as defined by CSD’s WAP.

The outcome of the site specific audit process is a report that identifies cost effective weatherization measures based on the:

- Location, climate zone, utility information and other relevant site information;
- Building profile, configuration and existing energy systems;
- Related health and safety checks and conditions;
- Calculated savings-to-investment ratio (SIR) of each measure including interactive effects of higher SIR measures (calculated in REM/Design); and
- Total calculated reduction in energy usage for the recommended measures (calculated in REM/Design).

The three main processes that constitute the CSD WAP Single-Family / Small Multi-family Energy Audit Protocol standards include the: 1) on-site visit, 2) energy modeling with energy savings analysis, and 3) report submittal. For energy audit purposes, CSD and DOE consider single-family dwellings to be those containing fewer than five units. In addition, this policy refers to multi-family dwellings containing fewer than 25 units and meeting the criteria of the CSD Energy Audit Policy referenced herein, and provided in Appendix A of this document.

2. AUDIT POLICY OVERVIEW

Agencies shall use one of two methods to determine feasible measures appropriate for any dwelling to be weatherized in accordance with the energy audit policy attached in Appendix A. The two methods are:

2.1. PRIORITY LIST METHOD (PRESCRIPTIVE APPROACH)

DOE-approved priority list for the dwelling climate zone and building type is used to determine allowable measures based on dwelling type and California Energy Commission (CEC) climate zone.

2.2. ENERGY AUDIT METHOD – REM/DESIGN (PERFORMANCE APPROACH)

Site-specific energy audit is used to justify energy saving measures based on cost effectiveness.

Table 1 shows the different categories of measures that are allowed under the two methods listed above. Measure categories are taken from “The DOE ARRA¹ Standard Agreement”, and 10 CFR 440 “Appendix A to Part 440—Standards for Weatherization Materials” (provided in Appendix B).

Table 1: Measure Matrix

MEASURE CATEGORY	PRIORITY LIST METHOD (PRESCRIPTIVE APPROACH)	ENERGY AUDIT METHOD (PERFORMANCE APPROACH)
MANDATORY; ASSESSMENT/DIAGNOSTICS	Mandatory for all dwellings	Mandatory for all dwellings
MANDATORY; HEALTH AND SAFETY	Mandatory for all dwellings	Mandatory for all dwellings
MANDATORY; INFILTRATION REDUCTION	Mandatory for all dwellings	Mandatory for all dwellings
MANDATORY; OTHER MEASURES	Mandatory for all dwellings	Mandatory for all dwellings
EXHIBIT F, ATTACHMENT IV ² - DOE PRIORITY LIST	Refer to priority list to determine if measures may be installed based on dwelling type and CEC Climate zone.	Measures implemented if Audit demonstrates cost effectiveness
OPTIONAL/AUDIT DRIVEN	Does Not Apply ³	Measures implemented if Audit demonstrates cost effectiveness
10 CFR 440 APPENDIX A	Does Not Apply ²	Measures implemented if Audit demonstrates cost effectiveness AND submitted to CSD for approval prior to installation

As shown in Table 1, there is the potential for a greater quantity of measures using energy audit method than the priority list method. Also shown in Table 1 is that all mandatory diagnostics, air sealing, duct sealing and health and safety measures must be installed per program rules, regardless of which path is taken. This adds complexity to the energy audit process because the calculations must be performed assuming that the air sealing, duct sealing and health and safety

¹ American Recovery and Reinvestment Act of 2009 (ARRA)

² 2009 DOE ARRA WAP Contract Amendment, Exhibit F, Attachment IV

³ Use of the 10 CFR 440 Appendix A and Audit Driven measures are not allowed when using the Priority List Method/Prescriptive Approach

measures have already been performed. Details will be addressed in Section 4, Energy Modeling and Analysis Process.

3. ON-SITE PROCESS

Every dwelling evaluation begins with a complete assessment of the building and building systems, including all environmental, structural and health and safety checks per the DOE program rules. In addition, a site-specific energy audit is designed to gather complete and accurate information in order to conduct energy calculations and produce an audit report.

3.1. AUDITOR CONDUCT STANDARDS AND MINIMUM CREDENTIALS

Auditors conducting audits shall have the minimum skills, credentials and experience required to effectively perform the audits. In the event that a single auditor lacks all of the required skills, a qualified team⁴ may be assembled to complete the audit. At a minimum, the audit team shall be capable of effectively performing the following tasks:

- Energy modeling (utilizing approved software);
- Building assessment (identifying safety, code , durability and energy systems issues) and field data collection;
- Diagnostic testing for energy efficiency and health and safety;
- Combustion appliance safety testing;
- Feasibility analysis for the installation of energy efficient building improvements;
- Construction cost estimating; and
- Financial analysis that generates investment grade level information/data.

3.2. SITE VISIT

The on-site energy audit shall be comprised of an in-person visit to the project by a qualified Auditor (or Audit Team) to complete the following tasks:

3.2.1. Dwelling Assessment

The dwelling assessment shall be performed by a person or team qualified to perform assessments under CSD's DOE WAP program and as described herein. The assessment is required for all properties regardless of prescriptive (priority list)-based approach or the performance (audit)-based approach. The assessment is used to ensure that all health and safety concerns are identified and the information collected during the assessment may be used in the modeling and analysis phase of the energy audit.

⁴ The audit team may include qualified non-agency/service provider personnel for purposes of building assessment if such personnel are otherwise disinterested third parties to the installation of weatherization services. Third party assessors/auditors/verifiers that assess dwelling units for energy purposes including, without limitation, mechanical systems, shall not be nor be affiliated with any person or entity responsible for installation or post-inspection of dwelling units receiving weatherization measure installation. Notwithstanding this requirement, nothing shall preclude the agency/service provider obtaining from any reliable party applicable construction costs to include in the energy audit.

3.2.2. On-Site Audit

In addition to the standard assessment, the information needed to populate an energy model must be collected for a REM/Design energy audit. This includes the information listed below. This data is recorded on the On-Site Data Collection Sheet included in Appendix C.

- General Building Design Characteristics
 - Foundation type
 - Total conditioned area
 - Approximate conditioned area of each floor
 - Number of bedrooms
 - Ceiling height and ceiling/attic characteristics
- Building Envelope Characteristics
 - Ceiling type and insulation level
 - Above-grade wall type and insulation level
 - Foundation wall type and insulation level
 - Frame floor type and insulation level
 - Door type and insulation level
- Window Properties of all Windows
 - Window Area (for each window/glazed area.) Includes: sliding glass doors, glass block, etc.
 - Window Type (single pane, dual pane low-E, etc.)
 - Window Material (metal frame, wood, vinyl, metal clad etc.)
 - Window Orientation (typically associated with each wall surface)
 - Window Overhang Details:
 - Depth of overhang
 - Distance between top of window and bottom of overhang at window center
 - Distance between bottom of window and bottom of overhang at window center
- Mechanical Equipment Properties
 - Heating Equipment
 - Fuel Type
 - Location and Type
 - Rated Output Capacity (in BTUh)
 - Seasonal Equipment Efficiency (AFUE, HSPF, %EFF, COP)
 - Cooling Equipment
 - Fuel Type
 - Rated Output Capacity (In BTUh)
 - Seasonal Equipment Efficiency (SEER, EER, %EFF, COP) Note: For most AC systems, SEER or EER are the most common metrics.
 - Ventilation Types (if applicable)
 - Ventilation Rate (CFM)
 - Hours/Day of Operation

- Ventilation Strategy for Passive Cooling (i.e., natural ventilation or whole house fan installed)
- Distribution Systems for HVAC Systems
 - Noted when the HVAC system has ducts (central HVAC) or is a ductless system (evaporative cooler or mini-split system).
- Water Heating Equipment
 - Water Heater Type
 - Fuel Type
 - Energy Factor
 - Tank Size
 - Extra Tank Insulation R-value

4. ENERGY MODELING AND ANALYSIS PROCESS

An energy model of the building's pre- and post- weatherization energy performance is the basis for the cost effectiveness calculation (the "SIR") and shall be completed using information collected during the on-site assessment. REM/Design is the adopted software program for single-family and small multi-family dwellings in the CSD WAP program, and is used to estimate annual energy consumption and energy cost savings of the optional energy conservation measures identified in Table 1.

4.1. UTILITY RATES

The energy consultant shall model electricity and natural gas utility rates using the blended electrical rates contained in Appendix D to determine SIR of the measures. These rates are based on statewide and utility-wide average rates and may not be an accurate representation of the actual rates paid by the tenant. These rates factor in applicable monthly service charges.

For all other fuel types such as wood, propane, fuel oil and others, the fuel cost shall be based on available billing data on a case-by-case basis.

4.2. SINGLE-FAMILY (2-4 UNIT) AND SMALL MULTI-FAMILY MODELING CONSIDERATIONS

These considerations apply to all small multi-family dwellings as well as any single-family dwelling composed of more than one individual unit, per the CSD Energy Audit Policy attached in Appendix A.

In REM/Design the building must be modeled in one simulation, and follow specific specifications as shown below:

Table 2: REM/Design Building Specifications

PARAMETER	REQUIREMENT
REM/DESIGN INPUT MODE	Detailed Mode
HOUSING TYPE	Multi-family whole building
WALLS	Account for all walls adjacent to unconditioned space such as garages or outdoors. (Do not model walls between units)
FLOOR	Account for all floors adjacent to unconditioned space such as garages, ground, crawlspace, etc. Do not include floors adjacent to other apartments or common areas.
CEILING	Account for all ceilings adjacent to unconditioned space such as

	attics or vaulted ceilings adjacent to outdoors. Do not include any ceilings adjacent to other apartments or conditioned space.
NUMBER OF BEDROOMS	Includes all bedrooms in the entire building
MECHANICAL EQUIPMENT	Each model of similar equipment types must be accounted for. Instances of similar models may be input as increases quantities of that model.

As seen in the specifications above, all interior walls and ceilings are omitted. When inputting the number of bedrooms the model must account for the TOTAL number of bedrooms in the entire building, not just the number of bedrooms per dwelling.

The model must also account for all mechanical equipment in the building. When inputting mechanical equipment each piece can be manually created or if all pieces of equipment are identical the number of units can be increased on the "Mechanical Equipment Properties Summary" page in REM/Design. The program will automatically split the system load based on capacity.

4.3. DEFAULT VALUES USED IN ANALYSIS

Certain measures (Per CSD contract measure matrix--Appendix B of each DOE standard and DOE ARRA contract) are mandatory for every dwelling weatherized. Some of these measures can be evaluated in the REM/Design software, but due to the mandatory requirement for these measures these need not be calculated in the program. (For example, a very leaky house will be sealed regardless of an energy audit; therefore the energy audit calculations are based on the estimated post-weatherization infiltration rate.). For this reason, this section provides guidance on the use of "default" values to represent accurate energy savings based on post retrofit building conditions.

4.3.1. Mechanical Equipment Properties

Whenever possible, actual equipment information indicated on the mechanical equipment, or made available by manufacturer or professional web site, are to be input as existing properties, e.g., AFUE, SEER and EF, for the furnace, air conditioner, and hot water heater, respectively. Further, a performance adjustment of 100% (functions as new) is used when modeling mechanical equipment for the building. Default properties are to be used ONLY when values are unavailable from equipment nameplates, equipment tags, etc., and must not be used as a standard operating procedure. Using the REM/Design energy audit for change out of mechanical equipment is strictly for "efficiency" purposes. The actual existing (not hypothetical) equipment must be represented as in its original installation; the audit is not for replacement of equipment that is deficient or faulty on its face.

Each piece of mechanical equipment must be considered at top efficiency as if new, and the replacement unit must reflect a SIR of 1.0 or better. Adjusting efficiency, noting a piece of equipment is inoperable, or using a "default" (without some type of reliable substantiation, e.g. a bona fide research print out) is generally not allowed. The client file must contain justification for use of any mechanical equipment default, including photographs (identifiable to the existing equipment being audited for efficiency change out) and, if applicable, any copy/print out of research results, for example, from the AHRI web site (<http://www.ahridirectory.org/ahridirectory/pages/home.aspx>) referenced in the

REM/Design program “help”. This applies to any mechanical equipment measure contemplated for installation. (See also Appendix G, Justification Images.)

4.3.2. Duct System

The duct system will be sealed and repaired during weatherization. Thus, any energy savings should be based on the estimated leakage of the duct system after repairs have been completed. On the “Duct System Properties Summary” screen in REM/Design the “Use Qualitative Default” button should be selected, and “RESNET/HERS Default” should be selected in the drop down box.

4.3.3. Shell Leakage

The building envelope will be sealed and repaired during weatherization; therefore, any energy retrofit savings should be based on the estimated shell leakage after repairs have been performed. On the “Whole House Infiltration” screen in REM/Design the following values should be specified:

Table 3: REM/Design Specified Values

MEASUREMENT TYPE:	USER ESTIMATE
HEATING SEASON INFILTRATION VALUE:	.4 (Natural ACH)
COOLING SEASON INFILTRATION VALUE:	.4 (Natural ACH)
SHELTER CLASS:	1
2009 IECC VERIFICATION	Visually Inspected
MECHANICAL VENTILATION:	As applicable based on type of mechanical ventilation present (ref. CSD WIS section 49)
VENTILATION STRATEGY FOR COOLING:	Natural ventilation or Whole House Fan

4.3.4. Lights and Appliances

Default values of lights and appliances may be used in analysis as follows. Justification must be included in the audit input form and kept in the client file for any values differing from these defaults. Actual measured performance and listed energy consumption may be used when available.

- Refrigerator: Total consumption needs to reflect “0” (zero) kWh/yr.
Note: Refrigerator replacement is addressed outside the REM/D energy audit in the Weatherization Installation Standards (WIS) manual at section 37.
- Dishwasher: EF 0.46, kWh/yr entry will be “0” (zero), place setting capacity is “12” if standard size dishwasher or “8” if a compact dishwasher
- Range/Oven: Select the correct “Fuel” used for cooking. If range and oven use different fuels, select fuel representing the dominant use (usually the range).
- Clothes Dryer:
 - The auditor/verifier may either obtain the “Efficiency Factor” (for new dryers) from the California Energy Commission (CEC) (go to

<http://www.appliances.energy.ca.gov/>, click on either “Quick Search” or “Advanced Search” tab, and proceed from there), or allow REM/D to auto fill this field with a default value if unable to find actual value.

- The Washer MEF (modified energy factor) is obtained from the same CEC database as the Efficiency Factor, above (note this is the *dryer* input area, but needs the *washer* MEF). If unable to obtain the Washer MEF, REM/D auto fills this field with a default value.

Note: If using the CEC information, copy, print, and keep in file the copied page of the CEC database that describes characteristics of the clothes dryer

- Clothes Washer:
 - Obtain the “Label Energy Rating” (kWh/hr) from the EnergyGuide label, and if washer has ENERGY STAR® label information can also be found at the ENERGY STAR® Products web site:
http://www.energystar.gov/index.cfm?fuseaction=clotheswash.search_clotheswashers.
 - “Capacity Cubic Ft.” is the washer tub capacity and is obtained in manufacturer data or from the EnergyGuide label or at the ENERGY STAR® Products web site, above. If the actual capacity cannot be found, REM/D auto fills this field with a default value
 - Obtain and input the Electric Rate, Gas Rate, and Annual Gas Cost from the EnergyGuide label, or REM/D auto fills these three fields with default values if you are unable to find actual values on the label

Note: If information from the EnergyGuide label, photograph the label and keep copy of the photograph in file; if information from the ENERGY STAR® web site, copy, print, and keep in file the copied page from the database that describes characteristics of the clothes washer

- Lighting:
 - CFL (%) input/leave “0.0” (zero percent); this is the REM/D default value
 - Pin-Based FL (%) input/leave at “10.0” (ten percent); this is the REM/D default value
 - Exterior Fixtures (%) input “100.0” (100 percent)
 - Garage Fixtures (%) input/leave at “0.0” (zero percent); this is the REM/D default value
- Ceiling Fan: Model as if there are no ceiling fans in the home, i.e. input “0” (zero)

4.4. EXCEPTIONAL CALCULATIONS

Energy conservation measures not directly modeled with REM/Design energy modeling software can be calculated outside of the program, provided that accepted engineering calculations and methodologies are used. Interactive effects must be accounted for in exceptional calculations. The methodologies, assumptions, and constants used in the exceptional calculations must be clearly documented and submitted to CSD as indicated in Sections 5.1. and 5.2. Sources of deemed savings must be referenced.

4.5. SAVINGS INVESTMENT RATIO (SIR) CALCULATIONS

When using REM/Design, the measure and package SIRs are calculated automatically by the software when the proposed measures are analyzed. The energy efficiency measures in REM/Design, the measure performance, and the cost to implement the measure must be carefully defined in the software. When calculating the cost to implement a measure, it shall only reflect the labor and materials needed to complete the measure, along with any incidental repair measure documented cost. Any administrative costs shall not be included in the SIR calculation.

DOE requires that all SIRs are calculated based on a “Discount Rate” of 3%. This must be entered in the “Mortgage/Discount Rate (%)” box during “Improvement Analysis Criteria” in REM/Design. Additionally, the “Mortgage Term” and “Appraised Value” need to reflect “0” (zero).

The allowable estimated useful life (EUL) for the audit-driven measures is provided in Appendix E. In the event that a proposed measure requires exceptional calculations, the measure and package SIRs shall be calculated using the methods outlined in Appendix F.

5. ENERGY AUDIT SUBMITTAL AND QUALITY ASSURANCE REVIEWS

A key objective of an energy audit under the CSD WAP is to identify feasible and relevant energy conservation measures that qualify for funding under the program. In order to ensure accuracy and integrity of site specific energy audits, and to assist service providers in improving the quality of audits, all energy audits are subject to review by CSD.

There are two distinct review levels, Tier 1 and Tier 2, each with respective submittal guidelines. The specifics of the required submittal materials are explained below. All auditors/verifiers begin in Tier 1. Upon successful completion of a minimum of 3 audits, with minor or no changes required, and at the sole discretion of CSD, the auditor/verifier will be notified by CSD of advancement to Tier 2 review status. However, at any time if submitted audits from Tier 2 auditor/verifiers need changes or do not meet CSD audit standards, the auditor/verifier’s Tier 2 status will revert back to Tier 1 review status.

NOTE: The submittal and audit review process outlined below is an interim process until an automated web-based system can be implemented. Upon release of the automated audit review process, submittal requirements and other details shown in Sections 5.1 through 5.3 of this document may be redefined. This document will be updated to reflect the new submittal requirements at that time.

5.1. SINGLE-FAMILY DWELLING (SINGLE UNIT) SUBMITTAL

100% OF COMPLETED ENERGY AUDITS SHALL BE SUBMITTED ELECTRONICALLY TO CSD VIA EMAIL TO REM@CSD.CA.GOV. THE SUBMITTAL SHALL CONSIST OF THE FOLLOWING:

5.1.1. TIER 1 Submittal:

- REM/Design digital building file (*.blg)
- REM/Design Improvement Analysis Report (IAR) (automatically generated in REM/Design)
- REM/Design Building File Report (BFR), generated and saved in REM/Design
- Justification Images (See Appendix G)
- Explicit Identification of any recommended measures not listed in the DOE standard or DOE ARRA contract. See Table 2 of this protocol.

- Documentation of any external calculations defined in Section 4.4.

5.1.2. TIER 2 Submittal:

- REM/Design digital building file (*.blg)
- REM/Design Improvement Analysis Report (IAR) (automatically generated in REM/Design)
- REM/Design Building File Report (BFR), generated and saved in REM/Design
- Explicit Identification of any recommended measures not listed in the DOE standard or DOE ARRA contract. See Table 2 of this protocol.
- Documentation of any external calculations defined in Section 4.4.

NOTE: CSD may request Justification Images on Tier 2 submissions.

5.2. *SINGLE-FAMILY DWELLING (2-4 UNITS) AND SMALL MULTI-FAMILY DWELLING SUBMITTAL*

100% OF COMPLETED ENERGY AUDITS SHALL BE SUBMITTED ELECTRONICALLY TO CSD VIA EMAIL TO REM@CSD.CA.GOV. THE SUBMITTAL SHALL CONSIST OF THE FOLLOWING:

5.2.1. TIER 1 Submittal:

- REM/Design digital building file (*.blg)
- REM/Design Improvement Analysis Report (IAR) reflecting the entire building (automatically generated in REM/Design)
- REM/Design Building File Report (BFR), generated and saved in REM/Design
- Justification Images (See Appendix G)
- REM/Design Multi-Family Input Cost Sheet (See Appendix H)
- Explicit Identification of any recommended measures not listed in the DOE standard or DOE ARRA contract. See Table 2 of this protocol.
- Documentation of any external calculations defined in Section 4.4.

5.2.2. TIER 2 Submittal:

- REM/Design digital building file (*.blg)
- REM/Design Improvement Analysis Report (IAR) reflecting the entire building (automatically generated in REM/Design)
- REM/Design Building File Report (BFR), generated and saved in REM/Design
- REM/Design Multi-Family Input Cost Sheet (See Appendix H)
- Explicit Identification of any recommended measures not listed in the DOE standard or DOE ARRA contract. See Table 2 of this protocol.
- Documentation of any external calculations defined in Section 4.4.

NOTE: CSD may request Justification Images on Tier 2 submissions.

5.3. TECHNICAL REVIEW

- 5.3.1. TIER 1: CSD will review a minimum 60% (3/5) of the first five audits from new agencies or new auditors/verifiers within an agency. Upon successful completion of a minimum of 3 audits (with minor or no changes required) and at the sole discretion of CSD, the auditor/verifier is notified by CSD of advancement to Tier 2 review status.
- 5.3.2. TIER 2: Once an agency or auditor/verifier has successfully advanced to Tier 2 status CSD will review approximately 15% (1/7) of all audits submitted by each Tier 2 auditor/verifier. EXCEPTION: Due to increased complexity all small multi-family energy audits are reviewed by CSD. Small multi-family audits should be discussed with CSD prior to submittal for approval to ensure conformance with current requirements.
- 5.3.3. CSD may, at its sole discretion, review any submitted energy audit for completeness and accuracy. Level of review will be determined on case by case basis by CSD staff and may require (re)submission of supporting documentation and/or site visit.
- 5.3.4. “Notice of Approval” of all approved (reviewed and non-reviewed) audits submitted to CSD will be issued electronically within 3 business days of receipt of REM/Design Building File (*.blg), REM/Design Improvement Analysis Report (IAR), and REM/Design Building File Report (BFR).
- 5.3.5. If, during quality assurance review, additional information is required prior to CSD approval, CSD will contact agency electronically to request information to complete the review. This contact normally will occur within 3 business days of receipt of REM/Design Building File (*.blg), REM/Design Improvement Analysis Report (IAR), and REM/Design Building File Report (BFR).
- 5.3.6. If an auditor/verifier is found to have submitted an energy audit that needs changed or otherwise does not meet CSD energy audit standards, the verifier’s Tier 2 status will revert to Tier 1 technical review status.

5.4. INSTALLATION OF MEASURES

- 5.4.1. TIER 1: Installation of measures may begin immediately after notice of approval from CSD has been received.
- 5.4.2. TIER 2: Installation of audited measures that indicate a savings-to-investment ratio (SIR) of 1.0 or greater may begin immediately after the submittal process, and need not wait for a formal letter of approval from CSD. See also “exception” in Section 5.3.2, above, related to small multi-family energy audits.

APPENDIX A: CSD AUDIT POLICY

REV. 10/24/11 • NAA/PLG

WEATHERIZATION ANALYSIS OVERVIEW

There are multiple weatherization strategies to consider when identifying allowable weatherization measures for homes under CSD's WAP. These strategies vary based on building type, building size, heating fuel type and type of mechanical systems installed in the dwelling being weatherized. This document identifies the allowable paths for each building type under the CSD WAP.

Table 2, below, shows the allowable weatherization strategies for each of four building types defined in this program. For the purposes of this program the four building types are:

- 1) FOUR-PLEX OR SMALLER:
 - a. "Four-Plex or Smaller" is a building containing 1-4 separate dwellings. This includes single-family dwellings and mobile homes.
- 2) SMALL MULTI-FAMILY DWELLING
 - a. "Small Multi-family Dwelling" is a multi-family dwelling that meets all of the following criteria:
 - i. 5-24 units
 - ii. 3 stories or fewer
 - iii. Individually metered (each unit pays its own utility bills)
 - iv. Each unit is heated and cooled independently
 - v. Each unit has its own hot water heater
- 3) MEDIUM MULTI-FAMILY DWELLING
 - a. "Medium Multi-family Dwelling" is a multi-family dwelling that meets the following two criteria:
 - i. 5-24 units
 - ii. Has at least one of the following characteristics
 1. 4 stories or greater
 2. Utilities are master metered
 3. Common heating system
 4. Common cooling system
 5. Common water heating system
- 4) LARGE MULTI-FAMILY DWELLING
 - a. "Large Multi-family Dwelling" is a multi-family dwelling that meets the following criteria:
 - i. 25 units or greater

Table 2: Allowable Weatherization Strategies based on Building Type

HOUSING TYPE	MANDATORY MEASURE LIST	PRIORITY LIST METHOD	REM/DESIGN AUDIT METHOD	TREAT AUDIT METHOD
FOUR-PLEX OR SMALLER	X ^{5,6}	X ⁷	X ⁸	
SMALL MULTI-FAMILY DWELLING	X ^{5,6}	X ⁷	X ⁸	
MEDIUM MULTI-FAMILY DWELLING	X ^{5,6}	X ⁷		X ⁸
LARGE MULTI-FAMILY DWELLING	X ^{5,6}			X ⁸

As shown in Table 2 above, there are three possible methods for identifying installable measures depending on building type. These methods are more fully explained in the following sections.

PRIORITY LIST METHOD

The CSD DOE ARRA priority list is a list of weatherization measures that are deemed to be cost effective by DOE. The priority list identifies cost effective measures in all climate zones for the “Single-family Dwelling” and “Small Multi-family Dwelling” building types.

For more information on how to implement the priority list in single-family and small multi-family dwellings, refer to the “CSD DOE ARRA Priority List.”

In some cases the priority list method is not effective at identifying cost effective measures for a particular dwelling. In these cases identified by the criteria below, the REM/Design audit is mandatory and the priority list may not be used.

WHEN: One or more measures in the priority list (for a particular climate zone and housing type) does not qualify for installation based on the priority list table.

AND a minimum of one of the conditions below exist:

- The primary heating fuel source is other than natural gas or wood (i.e. fuel oil, propane, etc.),
- The client/household is not on a reduced income-qualified rate,
- The building exhibits physical characteristics that fall outside of the range for the building types represented in the priority lists (i.e., pre-1950 single-family; post-1950 single-family; multi-family; and mobile homes). This is determined on a case-by-case basis, however, examples may include:
 - Single-family dwelling of 3 or more stories
 - Multiple ducted forced air systems (heating and/or air conditioning)

⁵ Mandatory Measures include “Mandatory Assessment/Diagnostic Measures”, “Infiltration Reduction”, Health and Safety”, and “Mandatory – Other”

⁶ Mandatory Measures apply only to single units and alteration of common system is not allowed.

⁷ Refer to the CSD Priority List Policy to determine allowable whole building measures and allowable measures when weatherizing a single unit.

⁸ All audits apply to the whole building. Audits may not be used to justify measures in a single unit of any building containing two or more units.

- Dwellings over 2,500 sq. ft.
- Etc.
- There are audit-driven measures provided in the attached “Appendix B: DOE Approved Measures (10CFR440 [2011], Appendix A)” that may be feasible and will require an energy audit to make that determination (i.e., replacing windows, replacing heating and cooling units for energy efficiency, adding a programmable thermostat even though the priority list does not allow for that scenario)

THEN: An energy audit is required. When an audit is conducted, the audit results supersede the priority list table data. Therefore, all available measures shall be evaluated by the audit for installation in the dwelling. In no case shall measures with higher SIRs be skipped or “leapfrogged” for measures with lower SIRs.

REM/DESIGN AUDIT METHOD

The REM/Design audit method is employed in a four-plex or smaller dwellings (i.e., single-family detached, duplex, tri-plex, or mobile home) when the priority list method may not sufficiently identify all cost effective measures. Using the REM/Design audit method, an agency will perform a standard assessment to identify all health and safety issues and will perform a computer based energy audit using site specific information collected on-site.

TREAT AUDIT METHOD

For Medium and Large Multi-family Dwellings, the TREAT Audit Method is appropriate. Due to the scope and expertise required to perform this type of energy audit, a qualified third party is usually employed to audit the building and identify any energy saving measures and health and safety issues.

For more information on the TREAT Audit Method for Medium and Large Multi-family Dwellings, refer to CSD’s “Medium and Large Multi-family Energy Audit Protocol”

APPENDIX B: DOE APPROVED MEASURES (10CFR440 [2011])**APPENDIX A TO PART 440—
STANDARDS FOR WEATHERIZATION
MATERIALS**

The following Government standards are produced by the Consumer Product Safety Commission and are published in title 16, Code of Federal Regulations:

Thermal Insulating Materials for Building Elements Including Walls, Floors, Ceilings, Attics, and Roofs Insulation—organic fiber—conformance to Interim Safety Standard in 16 CFR part 1209;

Fire Safety Requirements for Thermal Insulating Materials According to Insulation Use—Attic Floor—insulation materials intended for exposed use in attic floors shall be capable of meeting the same flammability requirements given for cellulose insulation in 16 CFR part 1209;

Enclosed spaces—insulation materials intended for use within enclosed stud or joist spaces shall be capable of meeting the smoldering combustion requirements in 16 CFR part 1209.

The following standards which are not otherwise set forth in part 440 are incorporated by reference and made a part of part 440. The following standards have been approved for incorporation by reference by the Director of the Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. These materials are incorporated as they exist on April 5, 1993 and a notice of any change in these materials will be published in the **Federal Register**. The standards incorporated by reference are available for inspection at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call 202-741-6030, or go to: http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html.

The standards incorporated by reference in part 440 can be obtained from the following sources:

Air Conditioning and Refrigeration Institute, 1501 Wilson Blvd., Arlington, VA 22209; (703) 524-8800.

American Gas Association, 1515 Wilson Blvd., Arlington, VA 22209; (703) 841-8400.

American National Standards Institute, Inc., 1430 Broadway, New York, NY 10018; (212) 642-4900.

American Society of Mechanical Engineers, United Engineering Center, 345 East 47th Street, New York, NY 10017; (212) 705-7800.

American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103; (215) 299-5400.

American Architectural Manufacturers Association, 1540 East Dundee Road, Palatine, IL 60067; (708) 202-1350.

Federal Specifications, General Services Administration, Specifications Section, Room 6654, 7th and D Streets, SW, Washington, DC 20407; (202) 708-5082.

Gas Appliance Manufacturers Association, 1901 Moore St., Arlington, VA 22209; (703) 525-9565.

National Electrical Manufacturers Association, 2101 L Street, NW, Suite 300, Washington, DC 20037; (202) 457-8400.

National Fire Protection Association, Batterymarch Park, P.O. Box 9101, Quincy, MA 02269; (617) 770-3000.

National Standards Association, 1200 Quince Orchard Blvd., Gaithersburg, MD 20878; (301) 590-2300; (NSA is a local contact for materials from ASTM).

National Wood Window and Door Association, 1400 East Touhy Avenue, Des Plaines, IL 60018; (708) 299-5200.

Sheet Metal and Air Conditioning Contractors Association, P.O. Box 221230, Chantilly, VA 22022-1230; (703) 803-2980.

Steel Door Institute, 712 Lakewood Center North, 14600 Detroit Avenue, Cleveland, OH 44107; (216) 899-0100.

Steel Window Institute, 1230 Keith Building, Cleveland, OH 44115; (216) 241-7333.

Tubular Exchanger Manufacturers Association, 25 North Broadway, Tarrytown, NY 10591; (914) 332-0040.

Underwriters Laboratories, Inc., P.O. Box 75530, Chicago, IL 60675-5330; (708) 272-8800.

More information regarding the standards in this reference can be obtained from the following sources:

Environmental Protection Agency, 401 M Street, NW, Washington, DC 20006; (202) 554-1080.

National Institute of Standards and Technology, U.S. Department of Commerce, Gaithersburg, MD 20899, (301) 975-2000.

Weatherization Assistance Programs Division, Conservation and Renewable Energy, Mail Stop 5G-023, Forrestal Bldg, 1000 Independence Ave, SW, Washington, DC 20585, (202) 586-2207.

THERMAL INSULATING MATERIALS FOR BUILDING ELEMENTS INCLUDING WALLS, FLOORS, CEILINGS,
ATTICS, AND ROOFS
[Standards for conformance]

Insulation—mineral fiber:	
Blanket insulation.....	ASTM ¹ C665–88.
Roof insulation board.....	ASTM C726–88.
Loose-fill insulation.....	ASTM C764–88.
Insulation—mineral cellular:	
Vermiculite loose-fill insulation.....	ASTM C516–80 (1990).
Perlite loose-fill insulation.....	ASTM C549–81 (1986).
Cellular glass insulation block.....	ASTM C552–88.
Perlite insulation board.....	ASTM C728–89a.
Insulation—organic fiber:	
Cellulosic fiber insulating board.....	ASTM C208–72 (1982).
Cellulose loose-fill insulation.....	ASTM C739–88.
Insulation—organic cellular:	
Preformed block-type polystyrene insulation.....	ASTM C578–87a.
Rigid preformed polyurethane insulation board.....	ASTM C591–85.
Polyurethane or polyisocyanurate insulation board faced with aluminum foil on both sides.....	FS ² HH-I-1972/1 (1981).
Polyurethane or polyisocyanurate insulation board faced with felt on both sides.....	FS HH-I-1972/2 (1981). And Amendment 1, October 3, 1985.
Insulation—composite boards:	
Mineral fiber and rigid cellular polyurethane composite roof insulation board.....	ASTM C726–88.
Perlite board and rigid cellular polyurethane composite roof insulation.....	ASTM C984–83.
Gypsum board and polyurethane or polyisocyanurate composite board.....	FS HH-I-1972/4 (1981).
Materials used as a patch to reduce infiltration through the building envelope.....	Commercially available.

¹ ASTM indicates American Society for Testing and Materials.

² FS indicates Federal Specifications.

THERMAL INSULATING MATERIALS FOR PIPES, DUCTS, AND EQUIPMENT SUCH AS BOILERS AND
FURNACES
[Standards for conformance]

Insulation—mineral fiber:	
Preformed pipe insulation.....	ASTM ¹ C547–77.
Blanket and felt insulation (industrial type).....	ASTM C553–70 (1977).
Blanket insulation and blanket type pipe insulation (metal-mesh covered) (industrial type).....	ASTM C592–80.
Block and board insulation.....	ASTM C612–83.
Spray applied fibrous insulation for elevated temperature.....	ASTM C720–89.
High-temperature fiber blanket insulation.....	ASTM C892–89.
Duct work insulation.....	Selected and applied according to ASTM C971–82.
Insulation—mineral cellular:	
Diatomaceous earth block and pipe insulation.....	ASTM C517–71 (1979)
Calcium silicate block and pipe insulation.....	ASTM C533–85 (1990).
Cellular glass insulation.....	ASTM C552–88.
Expanded perlite block and pipe insulation.....	ASTM C610–85.
Insulation—Organic Cellular:	
Preformed flexible elastomeric cellular insulation in sheet and Tubular form.....	ASTM C534–88.
Unfaced preformed rigid cellular polyurethane insulation.....	ASTM C591–85.
Insulation skirting.....	Commercially available.

¹ ASTM indicates American Society for Testing and Materials.

FIRE SAFETY REQUIREMENTS FOR INSULATING MATERIALS ACCORDING TO INSULATION USE
[Standards for conformance]

Attic Floor	Insulation materials intended for exposed use in attic floors shall be capable of meeting the same smoldering combustion requirements given for cellulose insulation in ASTM ¹ C739-88.
.....	
Enclosed space	Insulation materials intended for use within enclosed stud or joist spaces shall be capable of meeting the smoldering combustion requirements in ASTM C739-88.
Exposed interior walls and ceilings	Insulation materials, including those with combustible facings, which remain exposed and serve as wall or ceiling interior finish, shall have a flame spread classification not to exceed 150 (per ASTM E84-89a).
Exterior envelope walls and roofs	Exterior envelope walls and roofs containing thermal insulations shall meet applicable local government building code requirements for the complete wall or roof assembly.
Pipes, ducts, and equipment	Insulation materials intended for use on pipes, ducts and equipment shall be capable of meeting a flame spread classification not to exceed 150 (per ASTM E84-89a).

¹ ASTM indicates American Society for Testing and Materials.

STORM WINDOWS
[Standards for conformance]

Storm windows:	
Aluminum insulating storm windows	ANSI/AAMA ¹ 1002.10-83.
Aluminum frame storm windows	ANSI/AAMA 1002.10-83.
Wood frame storm windows.....	ANSI/NWWDA ² I.S. 2-87. (Section 3)
Rigid vinyl frame storm windows.....	ASTM ³ D4099-89.
Frameless plastic glazing storm.....	Required minimum thickness windows is 6 mil (.006 inches).
Movable insulation systems for windows.....	Commercially available.

¹ ANSI/AAMA indicates American National Standards Institute/American Architectural Manufacturers Association.

² ANSI/NWWDA indicates American National Standards Institute/National Wood Window & Door Association.

³ ASTM indicates American Society for Testing and Materials.

STORM DOORS
[Standards for conformance]

Storm doors—Aluminum:	
Storm Doors	ANSI/AAMA ¹ 1102.7-89.
Sliding glass storm doors.....	ANSI/AAMA 1002.10-83.
Wood storm doors	ANSI/NWWDA ² I.S. 6-86.
Rigid vinyl storm doors	ASTM ³ D3678-88.
Vestibules:	
Materials to construct vestibules	Commercially available.
Replacement windows:	
Aluminum frame windows	ANSI/AAMA 101-88.
Steel frame windows.....	Steel Window Institute recommended specifications for steel windows, 1990.
Wood frame windows.....	ANSI/NWWDA I.S. 2-87.
Rigid vinyl frame windows.....	ASTM D4099-89.

¹ ANSI/AAMA indicates American National Standards Institute/American Architectural Manufacturers Association.

² ANSI/NWWDA indicates American National Standards Institute/National Wood Window & Door Association.

³ ASTM indicates American Society for Testing and Materials.

REPLACEMENT DOORS
[Standards for conformance]

Replacement doors—Hinged doors:	
Steel doors	ANSI/SDI ¹ 100–1985.
Wood doors:	
Flush doors.....	ANSI/NWWDA ² I.S. 1–87. (exterior door provisions)
Pine, fir, hemlock and spruce doors	ANSI/NWWDA I.S. 6–86.
Sliding patio doors:	
Aluminum doors.....	ANSI/AAMA ³ 101–88.
Wood doors	NWWDA I.S. 3–83.

¹ ANSI/SDI indicates American National Standards Institute/Steel Door Institute.

² ANSI/NWWDA indicates American National Standards Institute/National Wood Window & Door Association.

³ ANSI/AAMA indicates American National Standards Institute/American Architectural Manufacturers Association.

CAULKS AND SEALANTS:
[Standards for conformance]

Caulks and sealants:	
Putty	FS ¹ TT–P–00791B, October 16, 1969 and Amendment 2, March 23, 1971.
Glazing compounds for metal sash	ASTM ² C669–75 (1989).
Oil and resin base caulks	ASTM C570–72 (1989).
Acrylic (solvent types) sealants	FS TT–S–00230C, February 2, 1970 and Amendment 2, October 9, 1970.
Butyl rubber sealants	FS TT–S–001657, October 8, 1970.
Chlorosulfonated polyethylene sealants...	FS TT–S–00230C, February 2, 1970 and Amendment 2, October 9, 1970.
Latex sealing compounds	ASTM C834–76 (1986).
Elastomeric joint sealants (normally considered to include polysulfide, polyurethane, and silicone)	ASTM C920–87.
Preformed gaskets and sealing materials	ASTM C509–84.

¹ FS indicates Federal Specifications.

² ASTM indicates American Society for Testing and Materials.

WEATHERSTRIPPING
[Standards for conformance]

Weatherstripping	Commercially available.
Vapor retarders.....	Selected according to the provisions cited in ASTM ¹ C755–85 (1990). Permeance not greater than 1 perm when determined according to the desiccant method described in ASTM E96–90.
Items to improve attic ventilation.....	Commercially available.
Clock thermostats.....	NEMA ² DC 3–1989.

¹ ASTM indicates American Society for Testing and Materials.

² NEMA indicates National Electrical Manufacturers Association.

HEAT EXCHANGERS
[Standards for conformance]

Heat exchangers, water-to-water and steam-to-water	ASME ¹ Boiler and Pressure Vessel Code, 1992, Sections II, V, VIII, IX, and X, as applicable to pressure vessels. Standards of Tubular Exchanger Manufacturers Association, Seventh Edition, 1988.
Heat exchangers with gas-fired appliances ²	Conformance to AGA ³ Requirements for Heat Reclaimer Devices for Use with Gas-Fired Appliances No. 1–80, June 1, 1980. AGA Laboratories Certification Seal.
Heat pump water heating heat recovery systems	Electrical components to be listed by UL. ⁴

¹ ASME indicates American Society of Mechanical Engineers.

² The heat reclaimer is for installation in a section of the vent connector from appliances equipped with draft hoods or appliances equipped with powered burners or induced draft and not equipped with a draft hood.

³ AGA indicates American Gas Association.

⁴ UL indicates Underwriters Laboratories.

BOILER/FURNACE CONTROL SYSTEMS
[Standards for conformance]

Automatic set back thermostats	Listed by UL. ¹ Conformance to NEMA ² DC 3–1989.
Line voltage or low voltage room thermostats	NEMA DC 3–1989.
Automatic gas ignition systems	ANSI ³ Z21.21–1987 and Z21.21a-1989. AGA ⁴ Laboratories Certification Seal.
Energy management systems.....	Listed by UL.
Hydronic boiler controls	Listed by UL.
Other burner controls.....	Listed by UL.

¹ UL indicates Underwriters Laboratories.

² NEMA indicates National Electrical Manufacturers Association.

³ ANSI indicates American National Standards Institute.

⁴ AGA indicates American Gas Association.

WATER HEATER MODIFICATIONS
[Standards for conformance]

Insulate tank and distribution piping	(See insulation section of this appendix).
Install heat traps on inlet and outlet piping	Applicable local plumbing code.
Install/replace water heater heating elements ..	Listed by UL. ¹
Electric, freeze-prevention tape for pipes	Listed by UL.
Reduce thermostat settings	State or local recommendations.
Install stack damper, gas-fueled	ANSI ² Z21.66–1988, including Exhibits A&B, and ANSI Z223.1–1988.
Install stack damper, oil-fueled.....	UL 17, November 28, 1988, and NFPA ³ 31–1987.
Install water flow modifiers.....	Commercially available.

¹ UL indicates Underwriters Laboratories.

² ANSI indicates American National Standards Institute.

³ NFPA indicates National Fire Prevention Association.

WASTE HEAT RECOVERY DEVICES
[Standards for conformance]

Desuperheater/water heaters	ARI ¹ 470–1987.
Condensing heat exchangers	Commercially available components and in new heating furnace systems to manufacturers' specifications.
Condensing heat exchangers	Commercially available (Commercial, multi-story building, with teflon-lined tubes institutional) to manufacturers' specifications.
Energy recovery equipment	Energy Recovery Equipment and Systems Air-to-Air (1978) Sheet Metal and Air-Conditioning Contractors National Association (SMACNA). ²

¹ ARI indicates Air Conditioning and Refrigeration Institute.

² SMACNA denotes Sheet Metal and Air Conditioning Contractors' National Association.

BOILER REPAIR AND MODIFICATIONS/EFFICIENCY IMPROVEMENTS
[Standards for conformance]

Install gas conversion burners	ANSI ¹ Z21.8–1984, (for gas or oil-fired systems) ANSI Z21.17–1984, ANSI Z21.17a-1990, and ANSI Z223.1–1988. AGA ² Laboratories Certification seal.
Replace oil burner	UL ³ 296, February 28, 1989 Revision and NFPA ⁴ 31–1987.
Install burners (oil/gas)	ANSI Z223.1–1988 for gas equipment and NFPA 31–1987 for oil equipment.
Re-adjust boiler water temperature or install automatic boiler temperature reset control.	ASME ⁵ CSD–1–1988, ASME CSD–1a-1989, ANSI Z223.1–1988, and NFPA 31–1987.
Replace/modify boilers	ASME Boiler and Pressure Vessel Code, 1992, Sections II, IV, V, VI, VIII, IX, and X. Boilers must be Institute of Boilers and Radiation Manufacturers (IBR) equipment.
Clean heat exchanger, adjust burner air shutter(s), check smoke no. on oil-fueled equipment. Check operation of pump(s) and replacement filters.	Per manufacturers' instructions.
Repair combustion chambers	Refractory linings may be required for conversions.
Replace heat exchangers, tubes.....	Protection from flame contact with conversion burners by refractory shield.
Install/replace thermostatic radiator valves	Commercially available. One pipe steam systems require air vents on each radiator; see manufacturers' requirements.
Install boiler duty cycle control system	Commercially available. NFPA 70, National Electrical Code (NEC) 1993 and local electrical codes provisions for wiring.

¹ ANSI indicates American National Standards Institute.

² AGA indicates American Gas Association.

³ UL indicates Underwriters Laboratories.

⁴ NFPA indicates National Fire Prevention Association.

⁵ ANSI/ASME indicates American National Standards Institute/American Society of Mechanical Engineers.

HEATING AND COOLING SYSTEM REPAIRS AND TUNE-UPS/EFFICIENCY IMPROVEMENTS
[Standards for conformance]

Install duct insulation	FS ¹ HH-I–558C, January 7, 1992 (see insulation sections of this appendix).
Reduce input of burner; derate gas-fueled equipment	Local utility company and procedures if applicable for gas-fueled furnaces and ANSI ² Z223.1–1988 (NFPA ³ 54–1988) including Appendix H.
Repair/replace oil-fired equipment	NFPA 31–1987.
Replace combustion chamber in oil-fired furnaces or boilers ...	NFPA 31–1987.
Clean heat exchanger and adjust burner: adjust air shutter and check CO2 and stack temperature. Clean or replace air filter on forced air furnace.	ANSI Z223.1–1988 (NFPA 54–1988) including Appendix H.

HEATING AND COOLING SYSTEM REPAIRS AND TUNE-UPS/EFFICIENCY IMPROVEMENTS--Continued
[Standards for conformance]

Install vent dampers for gas-fueled heating systems	Applicable sections of ANSI Z223.1-1988 (NFPA 54-1988) including Appendices H, I, J, and K. ANSI Z21.66-1988 and Exhibits A & B for electrically operated dampers.
Install vent dampers for oil-fueled heating systems.....	Applicable sections of NFPA 31-1987 for installation and in conformance with UL ⁴ 17, November 28, 1988.
Reduce excess combustion air: A: Reduce vent connector size of gas-fueled appliances.	ANSI Z223.1-1988 (NFPA 54-1988) Part 9 and Appendices G & H.
B: Adjust barometric draft regulator for oil fuels	NFPA 31-1987 and per manufacturers' (furnace or boiler) instructions.
Replace constant burning pilot with electric ignition device on gas-fueled furnaces or boilers.	ANSI Z21.71-1981, Z21.71a-1985, and Z21.71b-1989.
Readjust fan switch on forced air gas or oil-fueled furnaces.....	Applicable sections and Appendix H of ANSI Z223.1-1988 (NFPA 54-1988) for gas furnaces and NFPA 31-1987 for oil furnaces.
Replace burners.....	See power burners (oil/gas).
Install/replace duct furnaces (gas).....	ANSI Z223.1-1988 (NFPA 54-1988).
Install/replace heat pumps.....	Listed by UL.
Replace air diffusers, intakes, registers, and grilles.....	Commercially available.
Install/replace warm air heating metal ducts.....	Commercially available.
Filter alarm units.....	Commercially available.

¹ FS indicates Federal Specifications.

² ANSI indicates American National Standards Institute.

³ NFPA indicates National Fire Prevention Association.

⁴ UL indicates Underwriters Laboratories.

REPLACEMENT FURNACES, BOILERS, AND WOOD STOVES
[Standards for conformance]

Chimneys, fireplaces, vents and solid fuel burning appliances...	NFPA ¹ 211-1988.
Gas-fired furnaces.....	ANSI ² Z21.47-1987, Z21.47a-1988, and Z21.47b-1989. ANSI Z223.1-1988 (NFPA 54-1988).
Oil-fired furnaces.....	UL ³ 727, August 27, 1991 Revision and NFPA 31-1987.
Liquified petroleum gas storage.....	NFPA 58-1989.
Ventilation fans: Including electric attic, ceiling, and whole house fans.....	UL 507, August 23, 1990 Revision.

¹ NFPA indicates National Fire Prevention Association.

² ANSI indicates American National Standards Institute.

³ UL indicates Underwriters Laboratories.

AIR CONDITIONERS AND COOLING EQUIPMENT
[Standards for conformance]

Air conditioners: Central air conditioners.....	ARI ¹ 210/240-1989.
Room size units.....	ANSI/AHAM ² RAC-1-1982.
Other cooling equipment: Including evaporative coolers, heat pumps and other equipment.....	UL ³ 1995, November 30, 1990. ⁴

¹ ARI indicates Air Conditioning and Refrigeration Institute.

² AHAM/ANSI indicates American Home Appliance Manufacturers/American National Standards Institute.

³ UL indicates Underwriters Laboratories.

⁴ This standard is a general standard covering many different types of heating and cooling equipment.

SCREENS, WINDOW FILMS, AND REFLECTIVE MATERIALS
 [Standards for conformance]

Insect screens	Commercially available.
Window films.....	Commercially available.
Shade screens:	
Fiberglass shade screens	Commercially available.
Polyester shade screens.....	Commercially available.
Rigid awnings:	
Wood rigid awnings	Commercially available.
Metal rigid awnings	Commercially available.
Louver systems:	
Wood louver systems.....	Commercially available.
Metal louver systems	Commercially available.
Industrial-grade white paint used as a heat-reflective measure on awnings, window louvers, doors, and exterior duct work (exposed).	Commercially available.

APPENDIX C: ON-SITE DATA COLLECTION SHEET

CONTRACTOR SIMPLIFIED AUDIT INPUT REPORT

(Rev. 08/25/11)

Instructions

1. Contractor's auditor must complete a thorough review of each dwelling and note the specifics of the review in the Audit Input Report.
2. The auditor is required to sign and date the form to certify that the audit data collection was completed. A copy must be retained in the client file.
3. When filling in the form electronically, Project Name or ID will auto-populate throughout the form.
4. In the Audit Input Report, make sure to check all appropriate boxes. Where a line is left blank, the auditor must input (write-in) the appropriate information.
5. Each section of the form shall be completed with all available dwelling information, in order to input complete data into the REM/Design audit tool. Auditors are encouraged to make additional notes as necessary in available space or on the reverse of the appropriate pages.

"There is no contractor's equivalent allowed for this form"

State of California DEPARTMENT OF COMMUNITY SERVICES AND DEVELOPMENT CSD 544 (Rev. 08/25/11)	Auditor Name: _____													
REM ENERGY AUDIT ENTRY FORM														
AGENCY NAME: _____ Audit Date: _____														
PROJECT NAME OR ID _____														
PROPERTY INFORMATION														
<input type="checkbox"/> Comments on reverse														
Building Name _____ Occupant's Name _____ Property Address _____ Unit # _____ City, State, Zip _____ CA _____ Phone Number(s) _____														
BUILDING INFORMATION														
<input type="checkbox"/> Comments on reverse														
Owner's Name _____ Owner's Address _____ Phone Number(s) _____														
GENERAL BUILDING CHARACTERISTICS														
<input type="checkbox"/> Comments on reverse														
No. of Stories <input type="checkbox"/> 1 <input type="checkbox"/> 1-1/2 <input type="checkbox"/> 2 <input type="checkbox"/> 2-2/1 <input type="checkbox"/> 3 <input type="checkbox"/> Bi-Level <input type="checkbox"/> Tri-Level	Foundation Type(s) <input type="checkbox"/> Slab <input type="checkbox"/> Open Crawl Space <input type="checkbox"/> Enclosed Crawl Space <input type="checkbox"/> Conditioned Crawl Space <input type="checkbox"/> Unconditioned Basement <input type="checkbox"/> Conditioned Basement <input type="checkbox"/> More than One Type <input type="checkbox"/> Apartment over Cond. Space <input type="checkbox"/> None	Conditioned Floor Area _____ Sq. Ft. No. of Bedrooms _____ Mobile Home _____ Length (ft.) _____ Width (ft.) _____ Height (ft.)												
Heated <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th></th> <th>Basement</th> <th>1st Level</th> <th>Mid Level</th> <th>2nd Level</th> <th>3rd Level</th> </tr> </thead> <tbody> <tr> <td>Distribution of Cond. Floor Area:</td> <td>_____ %</td> <td>_____ %</td> <td>_____ %</td> <td>_____ %</td> <td>_____ %</td> </tr> </tbody> </table>				Basement	1st Level	Mid Level	2nd Level	3rd Level	Distribution of Cond. Floor Area:	_____ %	_____ %	_____ %	_____ %	_____ %
	Basement	1st Level	Mid Level	2nd Level	3rd Level									
Distribution of Cond. Floor Area:	_____ %	_____ %	_____ %	_____ %	_____ %									
Characteristics of Each Floor Level:														
Number of Corners	_____	_____	_____	_____	_____									
Percent Open to Level Above	_____ %	_____ %	_____ %	_____ %	_____ %									
Nominal Flat Ceiling Height	_____	_____	_____	_____	_____									
Percent Vaulted Ceiling	_____ %	_____ %	_____ %	_____ %	_____ %									
Conditioned Floor Area Over Garage: _____ % of Total Floor Area														

PROJECT NAME OR ID 0 _____							
GENERAL BUILDING CHARACTERISTICS (con't.)							<input type="checkbox"/> Comments on reverse
Ceiling(s):		Attic -1	Attic -2	Attic -3	Attic -4		Vaulted 1 Vaulted 2
Continuous Insulation R-Value							
Cavity Insulation R-Value							
Cavity Insulation Thickness (in.)							
Gypsum Thickness (in.)							
Ceiling Joist/Bottom Chord Size (w x h, in.)							
Ceiling Joist/Bottom Chord Spacing (in o.c.)							
Framing Factor (use default or calculate)							
Square Feet of Attic							
Above-Grade Wall(s):		Wall-1	Wall-2	Wall-3	Wall-4	Wall-5	Wall-6
Continuous Insulation R-Value							
Frame Cavity Insulation R-Value							
Cavity Insulation Thickness (in.)							
Stud Size (w x d, in.)							
Stud Spacing (in o.c.)							
Gypsum Thickness (in.)							
Framing Factor							
Use Default Framing Factor		<input type="checkbox"/>	<input type="checkbox"/>				
Gross Sq. Ft.							
Wall Construction: Standard Stud Frame		<input type="checkbox"/>	<input type="checkbox"/>				
Double Stud Frame		<input type="checkbox"/>	<input type="checkbox"/>				
Std Frame w/ Brick Veneer		<input type="checkbox"/>	<input type="checkbox"/>				
Standard Metal Frame		<input type="checkbox"/>	<input type="checkbox"/>				
Solid Concrete or Stone		<input type="checkbox"/>	<input type="checkbox"/>				
Double Brick		<input type="checkbox"/>	<input type="checkbox"/>				
Hollow-core Concrete Block		<input type="checkbox"/>	<input type="checkbox"/>				
Floors							
		Floor 1	Floor 2	Floor 3	Floor 4		
Slab Floor Perimeter Insulation (R-value)							
Perimeter Insulation Depth (ft.)							
Area (sq.ft.)							
Depth Below Grade (ft.) (0 if on-grade)							
Full Perimeter (ft.)							
Exposed Perimeter (ft.)							
Frame Floor:							
Continuous Insulation R-Value							
Cavity Insulation R-Value							
Cavity Insulation Thickness (in.)							
Joist Size (w x h, in.)							
Joist Spacing (in o.c.)							
Location:						Location:	
Floor Covering						Between conditioned space and	
Carpet		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	A. - ambient conditions	
Tile		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	B. - garage	
Hardwood		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	C. - open crawl space	
Vinyl		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	D. - unconditioned basement	
None		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	C. - enclosed crawl space	
Framing Factor							
Use Default Framing Factor:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

WINDOW & GLASS DOOR PROPERTIES								<input type="checkbox"/> Comments on reverse
PROJECT NAME OR ID _____								
Window #	1	2	3	4	5	6	7	8
Wall Assignment:								
Window Name (wall - #):								
Type of Window:								
Single - Metal	<input type="checkbox"/>							
Single - Wood	<input type="checkbox"/>							
Double - Metal	<input type="checkbox"/>							
Double - Metal w/ brk	<input type="checkbox"/>							
Double - Wood	<input type="checkbox"/>							
Double - Vinyl	<input type="checkbox"/>							
Triple - Metal w/ break	<input type="checkbox"/>							
Triple - Wood	<input type="checkbox"/>							
Triple - Vinyl	<input type="checkbox"/>							
Sliding Glass Door	<input type="checkbox"/>							
French Door	<input type="checkbox"/>							
Other (list on back)								
Window Area (sq.ft.):								
Interior Shading								
Winter	Yes	No	Yes	No	Yes	No	Yes	No
Summer	Yes	No	Yes	No	Yes	No	Yes	No
Adjacent Shading:								
None	<input type="checkbox"/>							
Some	<input type="checkbox"/>							
Most	<input type="checkbox"/>							
Complete	<input type="checkbox"/>							
Overhang:								
Depth (ft.):								
To Top of Window (ft.):								
To Bottom of Window (ft.):								
Orientation:								
Northwest	<input type="checkbox"/>							
North	<input type="checkbox"/>							
Northeast	<input type="checkbox"/>							
East	<input type="checkbox"/>							
Southeast	<input type="checkbox"/>							
South	<input type="checkbox"/>							
Southwest	<input type="checkbox"/>							
West	<input type="checkbox"/>							
DOORS								
Name:	Door #1	Door #2	Door #3	Door #4				
Wall:								
Type								
Wood hollow core	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
1-3/8 Wd solid core	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
1-3/8 Wd panel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
1-3/4 Wd panel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
1-3/4 Wd solid core	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
2-1/4 Wd solid core	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
Steel-polystyrene	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
Steel-fiberboard	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
Steel-urethane foam	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
Steel-polyurethane	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
Door Area (sq.ft.)								
Storm Door Present:	Yes	No	Yes	No	Yes	No	Yes	No

WINDOW & GLASS DOOR PROPERTIES								<input type="checkbox"/> Comments on reverse
PROJECT NAME OR ID _____								
Window #	9	10	11	12	13	14	15	16
Wall Assignment:								
Window Name (wall - #):								
Type of Window:								
Single - Metal	<input type="checkbox"/>							
Single - Wood	<input type="checkbox"/>							
Double - Metal	<input type="checkbox"/>							
Double - Metal w/ brk	<input type="checkbox"/>							
Double - Wood	<input type="checkbox"/>							
Double - Vinyl	<input type="checkbox"/>							
Triple - Metal w/ break	<input type="checkbox"/>							
Triple - Wood	<input type="checkbox"/>							
Triple - Vinyl	<input type="checkbox"/>							
Sliding Glass Door	<input type="checkbox"/>							
French Door	<input type="checkbox"/>							
Other (list on back) _____								
Window Area (sq.ft.):								
Interior Shading								
Winter	Yes No							
Summer	Yes No							
Adjacent Shading:								
None	<input type="checkbox"/>							
Some	<input type="checkbox"/>							
Most	<input type="checkbox"/>							
Complete	<input type="checkbox"/>							
Overhang:								
Depth (ft.):								
To Top of Window (ft.):								
To Bottom of Window (ft.):								
Orientation:								
Northwest	<input type="checkbox"/>							
North	<input type="checkbox"/>							
Northeast	<input type="checkbox"/>							
East	<input type="checkbox"/>							
Southeast	<input type="checkbox"/>							
South	<input type="checkbox"/>							
Southwest	<input type="checkbox"/>							
West	<input type="checkbox"/>							

SPACE HEATING ONLY Comments on reverse

PROJECT NAME OR ID 0 _____

Heating System Name:	HS-1	HS-2	HS-3	HS-4
Primary Heating System:				
Secondary Heating System:				
Thermostat Present:	Yes No	Yes No	Yes No	Yes No
T-stat Setting:				
Programmable T-stat:	Yes No	Yes No	Yes No	Yes No

System Type:

Fuel-fired air distribution	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fuel-fired hydronic distribution	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fuel-fired unit heater	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Electric baseboard or radiant	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Electric air distribution	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Electric hydronic distribution	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Air-source heat pump	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ground-source heat pump	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
None	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Fuel Type:

Nat. gas	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Propane	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fuel Oil	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Electric	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Kerosene	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wood	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Boilerplate:

Rated Output Capacity (kBtuh)				
Number of Units:				
Seasonal Equipment Efficiency:				
AFUE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
HSPF	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
% Efficiency	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
COP	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Auxiliary Electric Use:				
Eae	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
kWh/year	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Watts	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Performance Adjustment (%):				
Load Served (%)-If not capacity weighted:				

Location of heating system:

Conditioned area	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Uncond. basement/enclosed crawlspace	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Garage or open crawlspace	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Attic	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ambient	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

SPACE COOLING ONLY Comments on reverse

PROJECT NAME OR ID 0 _____

Cooling System Name:	CS-1	CS-2	CS-3	CS-4
Primary Cooling System:				
Secondary Cooling System:				
Thermostat Present:	Yes No	Yes No	Yes No	Yes No
T-stat Setting:				
Programmable T-stat:	Yes No	Yes No	Yes No	Yes No

System Type:

Air conditioner	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Central AC	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Window/Wall AC	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Air-source heat pump	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ground-source heat pump	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Evaporative Cooler	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
None	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Fuel Type:

Electric	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Number of Same Units:				
Seasonal Equipment Efficiency Rating (SEER):				
Rated Output Capacity (kBtuh)				
Tonnage (optional):				
Sensible Heat Fraction (SHF):				
Desuperheater:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Performance Adjustment (%):				
Load Served (%)-If not capacity weighted:				

Location:

Conditioned area	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Uncond. basement/enclosed crawlspace	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Garage or open crawlspace	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Attic	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ambient	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

DUCT SYSTEM Comments on reverse

PROJECT NAME OR ID 0 _____

- Location:
- | | |
|---|--|
| <input type="checkbox"/> Open crawlspace | <input type="checkbox"/> Attic, under insulation |
| <input type="checkbox"/> Enclosed crawlspace | <input type="checkbox"/> Attic, exposed |
| <input type="checkbox"/> Conditioned crawlspace | <input type="checkbox"/> Conditioned space |
| <input type="checkbox"/> Unconditioned basement | <input type="checkbox"/> Wall with no top plate |
| <input type="checkbox"/> Conditioned basement | <input type="checkbox"/> Garage |

Duct Insulation R-Value: _____

- Duct Leakage for Entire System:
- Observable leakage pathways
 - No observable leakage
 - Proposed leak free

Supply vs. Total Supply Area (%): _____

Return vs. Total Return Area (%): _____

WATER HEATING ONLY		<input type="checkbox"/> Comments on reverse
PROJECT NAME OR ID 0 _____		
Water Heater Type:	Fuel Type:	
<input type="checkbox"/> Conventional	<input type="checkbox"/> Nat. gas	<input type="checkbox"/> Electric
<input type="checkbox"/> Instant Water Heater	<input type="checkbox"/> Propane	<input type="checkbox"/> Kerosene
<input type="checkbox"/> Heat Pump	<input type="checkbox"/> Fuel Oil	<input type="checkbox"/> Wood
<input type="checkbox"/> Ground-source heat pump		
<input type="checkbox"/> Integrated		
<input type="checkbox"/> None	Number of Units: <input type="text"/>	
Water Tank Size (gallons): <input type="text"/>		
kBTU/h Input: <input type="text"/>	Extra Tank Insulation (R-Value): <input type="text"/>	
Recovery Efficiency: <input type="text"/>	Performance Adjustment (%): <input type="text"/>	
Energy Factor (EF): <input type="text"/>		
Location:		
<input type="checkbox"/> Conditioned area	<input type="checkbox"/> Attic	
<input type="checkbox"/> Uncond. basement/enclosed crawlspace	<input type="checkbox"/> Ambient	
<input type="checkbox"/> Garage or open crawlspace		

APPENDIX D: BLENDED RATE SCHEDULE

CSD has established a prescriptive Utility Rate Schedule for use in single-family and small-multi-family energy audits using REM/Design. Benefits of using a blended rate schedule include:

- Single, utility-wide, blended rate simplifies analysis.
- Blended rates are based on statewide and utility-wide averages. These blended rates are 20% - %50 higher than the low income rate schedules commonly encountered in weatherization. This will allow more measures to meet SIR requirements when an energy audit is performed.

Choosing Electric and Natural Gas Rates

Table 1 below shows the blended electric rate to be used for the major electric utilities in California.

Table 1: Blended Electric Rate by Utility

UTILITY	BLENDED RATE (\$/KWH)
PG&E	\$ 0.152
SCE	\$ 0.148
SDG&E	\$ 0.157
LADWP	\$ 0.129
SMUD	\$ 0.115
BURBANK MUD	\$ 0.143
GLENDALE WATER AND POWER	\$ 0.143
PASADENA WATER AND POWER	\$ 0.143
ALL OTHER UTILITIES	\$ 0.147

Table 2 below shows the blended gas rate to be used for the major gas utilities in California.

Table 2: Blended Natural Gas Rate by Utility

UTILITY	BLENDED RATE (\$/THERM)
PG&E	\$ 1.08
SCG	\$ 1.00
SDGE	\$ 1.19
ALL OTHER UTILITIES	\$ 1.01

As shown in Tables 1 and 2, specific blended rates are defined for the larger utilities in California. For the many smaller utilities not specifically listed in the tables, a statewide average rate is used. The blended rate factors in applicable monthly service charges.

To determine which electric rate should be used for a weatherization customer, look at the customer's bill to determine the utility company. Look up the rate defined for the company in Table 2. If the company is not explicitly identified in Table 2, use the "All Other Utilities" value.

To determine which natural gas rate should be used for a weatherization customer, look at the customer's bill to determine the natural gas utility company. Look up the rate defined for the company in Table 3. If the company is not explicitly identified in Table 3, use the "All Other Utilities" value.

For all other fuel types such as wood, propane, fuel oil and others, continue to estimate the fuel cost based on available billing data on a case-by-case basis.

APPENDIX E: MAXIMUM ALLOWABLE ESTIMATED USEFUL LIFE OF OPTIONAL MEASURES

The Estimated Useful Life values (EULs) in this section are suggested maximum useful lives of some common measures listed in the DOE Standard and DOE ARRA contract agreements, the DOE approved priority list, and “Appendix B: DOE Approved Measures (10CFR440, Appendix A)” of this document. If these values are exceeded justification should be provided and is subject to review. In the event a product is used with a shorter useful life than published below the actual useful life should be reported and used in SIR calculations.

SCOPE	APPLICATION	MEASURE	EUL
RESIDENTIAL	BUILDING ENVELOPE	COOL ROOF	15
RESIDENTIAL	BUILDING ENVELOPE	HIGH PERFORMANCE WINDOWS	20
RESIDENTIAL	BUILDING ENVELOPE	SUNSCREENS/SHADE SCREENS	10
RESIDENTIAL	BUILDING ENVELOPE	WINDOW FILM	10
RESIDENTIAL	BUILDING ENVELOPE	INSULATION (ATTIC/CEILING, WALL, FLOOR)	30
RESIDENTIAL	HVAC	CLEAN CONDENSER COILS	3
RESIDENTIAL	HVAC	EVAPORATIVE COOLER	15
RESIDENTIAL	HVAC	HIGH EFFICIENCY AIR CONDITIONER (PACKAGE AND SPLIT SYSTEMS)	19
RESIDENTIAL	HVAC	HIGH EFFICIENCY FURNACE	19
RESIDENTIAL	HVAC	HIGH EFFICIENCY HEAT PUMP	19
RESIDENTIAL	HVAC	PROGRAMMABLE THERMOSTAT	15
RESIDENTIAL	HVAC	REFRIGERANT CHARGE	10
RESIDENTIAL	HVAC	ROOM AC - ENERGY STAR	14
RESIDENTIAL	HVAC	WALL HEATERS	15
RESIDENTIAL	INDOOR LIGHTING	CFL FIXTURES	16
RESIDENTIAL	INDOOR LIGHTING	CFL LAMPS - 10,000 HOUR	6
RESIDENTIAL	WATER HEATING	FAUCET AERATORS	9
RESIDENTIAL	WATER HEATING	HEAT PUMP WATER HEATER	10
RESIDENTIAL	WATER HEATING	HIGH EFFICIENCY ELECTRIC WATER HEATER	15
RESIDENTIAL	WATER HEATING	HIGH EFFICIENCY GAS WATER HEATER	13
RESIDENTIAL	WATER HEATING	INSTANTANEOUS WATER HEATER	20
RESIDENTIAL	WATER HEATING	LOW-FLOW SHOWERHEAD	10
RESIDENTIAL	WATER HEATING	PIPE INSULATION - ELECTRIC WATER HEATER	13
RESIDENTIAL	WATER HEATING	PIPE INSULATION - GAS WATER HEATER	13
RESIDENTIAL	WATER HEATING	SOLAR WATER HEATING	15

APPENDIX F: MANUAL CALCULATION OF MEASURE AND PACKAGE SIR

Measure SIR shall be calculated as the ratio of present value of the measure energy savings⁹ compounded annually over the life of the measure divided by the total installed cost of the measure given by equation 1. When calculating measure SIR, all interactive effects of other measures in the improvement package shall be accounted for.

$$\text{EQUATION 1: } SIR_{\text{MEASURE}} = S * ((1+I)^N - 1) / (I(1+I)^N) / C$$

WHERE:

<i>S</i>	= 1 ST YEAR SAVINGS OF MEASURE (\$)
<i>I</i>	= DISCOUNT RATE (%)
<i>N</i>	= ESTIMATED USEFUL LIFE OF MEASURE (YEARS)
<i>C</i>	= INSTALLED COST OF MEASURE (\$)

1. PACKAGE SIR

Package SIR shall be calculated as the ratio of present value of the package energy savings¹⁰ compounded annually over the life of the package divided by the total installed cost of the package. Present value of package savings shall be calculated as the sum of the present value of individual measures divided by the cost of the package (the sum of the cost of all measures). The present value of an individual measure is shown in equation 2.

$$\text{EQUATION 2: } PV_{\text{MEASURE}} = S * ((1+I)^N - 1) / (I(1+I)^N)$$

WHERE:

<i>S</i>	= 1 ST YEAR SAVINGS OF MEASURE
<i>I</i>	= DISCOUNT RATE (%)
<i>N</i>	= ESTIMATED USEFUL LIFE OF MEASURE

Discount rate shall be the lesser of 3% or the percentage increase in the Consumer Price Index (all items, United States city average) for the most recent calendar year completed¹¹. Note: Energy escalation and inflation are not included in this calculation.

First-year savings of a single measure shall be calculated based on the energy usage profile of a building after all measures with higher SIR have been implemented. All savings calculations should be adjusted for "interaction between architectural and mechanical weatherization materials by using generally accepted engineering methods to decrease the estimated fuel cost savings for a lower priority weatherization material in light of fuel cost savings for a related higher priority weatherization material."¹²

Maximum Estimated Useful Life (EUL) of measure shall be determined using values published in Appendix E. In the event that a proposed EUL is greater than those listed in Appendix E justification must be provided in writing for review by CSD.

⁹ Water savings or other non-energy savings shall not be included in the SIR Calculation

¹⁰ Water savings or other non-energy savings shall not be included in the package SIR Calculation

¹¹ 10 CFR 440.18 Paragraph C.2.i

¹² 10 CFR 440.21, Paragraph E.1

Installed cost of measure should reflect the cost to install a measure as closely as possible. In cases where the cost to install a measure changes after approval of the scope of work due to extenuating circumstances, the updated cost must be reported and the measure will be reimbursed as follows:

- 1) If the updated cost is less than the reported cost, CSD will reimburse for the actual cost of the measures.
- 2) If the updated cost is greater than the reported cost, CSD will reimburse for the reported cost of measure.
 - a. The full amount of the installed cost of the measure may be reimbursed if an updated SIR calculation reveals that the measure and package SIR remain greater than 1.0 based on the updated cost, and the package has not exhausted the available funds for the property.
- 3) If the updated cost is greater than the reported cost and the increased cost reduces the measure SIR < 1.0, the additional funding source must be identified and must not be federal funds.

2. MEASURE BUY-DOWN

In some situations the owner of a rental property may contribute funds to “buy-down” the cost of a measure under the program. In the event that non-federal financial resources are leveraged to buy down a particular measure, the following criteria must be met¹³:

- 1) The SIR of the discounted measure must be 1.0 or greater when SIR is calculated as the ratio of present value of the measure savings compounded annually over the life of the measure divided by the WAP funds applied to the measure.
- 2) The package SIR shall be calculated as the ratio of present value of the package savings compounded annually over the life of the package divided by the total installed cost of the package including all WAP funds and all non-WAP funds. (Note: Point of Sale and other direct rebates may be used to lower the total cost of the measure, and this discount may be applied to the cost of the total package of measures.)

Discounted measures may not be installed before non-discounted measures and are only to be installed when all other available cost effective measures not requiring buy-down have been installed. In no case shall measures with higher SIRs be skipped or “leapfrogged” for measures with lower SIRs.

¹³ Weatherization Program Notice 10-17; Effective Date: July, 26, 2010

APPENDIX G: JUSTIFICATION IMAGES

In order to better serve the agencies and gain full knowledge of the dwelling being reviewed, justification images are seen fit. These images are to portray the characteristics of the dwelling under review. This will help CSD better understand the REM inputs, check for accuracy and aid in answering questions which arise during the review process either internally or with the agency/auditor submitting the files.

NOTE: Justification Images must be submitted by agencies/auditors in TIER 1. All photos must be kept on file for any audited dwelling and at any time CSD may request justification images during the review process of a TIER 2 REM submittal.

Minimum Required Justification Images:

1. Front View of Dwelling: Must include view of all walls, windows and any shading including but not limited to trees, other buildings, etc.
2. Back View of Dwelling: Must include view of all walls, windows and any shading including but not limited to trees, other buildings, etc.
3. Right Side View of Dwelling: Must include view of all walls, windows and any shading including but not limited to trees, other buildings, etc.
4. Left Side View of Dwelling: Must include view of all walls, windows and any shading including but not limited to trees, other buildings, etc.
5. Close-up of window to determine window type, one picture required for each window type
6. Whole Attic View: Must include as much attic space as possible
7. Up-close view of attic insulation showing thickness of insulation or a visible R-value
8. Primary Heating Source: Should include nameplate if possible, must photograph the primary heating source for all units in a multi-family dwelling
9. Primary Cooling Source: Should include condenser coil and nameplate if possible, must photograph the primary cooling source for all units in a multi-family dwelling
10. Any unusual circumstance of the dwelling which may cause questions or concerns

APPENDIX H: MULTI-FAMILY INPUT COST SHEET

Since only one Improvement Analysis Report (IAR) is generated to reflect the entire building, individual units need to be tracked and costs allocated using another mechanism. Rather than submitting a separate IAR and building (.blg) file to CSD for each unit in the building, only a single whole building IAR and building (.blg) file will be submitted. In place of individual unit IARs, the service provider needs to include in the submittal a REM/Design Multi-Family Input Cost Sheet that includes the appropriate information allocated by unit.

The Multi-Family Input Cost Sheet is completed by the energy auditor/verifier concurrently with performing the audit. The sheet contains common measures associated with a REM/Design energy audit and includes areas for additional input for unique (to a building or unit) measures.¹⁴

¹⁴ EP 11-06 REM/Design; Multi-Family

CALIFORNIA DEPARTMENT OF COMMUNITY SERVICES & DEVELOPMENT

MULTIFAMILY ENERGY AUDIT PROTOCOL



**California Department of Community
Services & Development**

Attn: Energy & Environmental Services Division

PO Box 1947

Sacramento, CA 95812-1947

PREPARED BY:

RHA
program design+management

April 18, 2011

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I. OVERVIEW

The **CSD Weatherization Assistance Program (WAP) Audit Protocol** is a guidance document that defines the required criteria for the development of an energy audit designed to justify the cost effectiveness of energy efficient building retrofits under CSD's DOE WAP. This document specifically addresses the audit protocol for multifamily buildings, as defined by the CSD energy audit policy.

Underlying this protocol are the principles of transparency, consistency, and accountability: data contained in the audit must be transparent in terms of methodology of collection and calculation; report format and content must be presented in a consistent manner; and persons completing the audit must be accountable for their work by adhering to protocol requirements, maintaining professional certifications, and providing quality assurance measures.

A key objective of an energy audit is to identify feasible and relevant energy conservation measures (measures) that qualify for funding under CSD's DOE WAP program. In addition to identifying ways to reduce the energy burden, the audit process must also conduct evaluation of the integrity of the building to identify any deficiencies that could result in health and safety violations as defined by CSD's DOE WAP.

The outcome of the audit process is an assessment that clearly reports on:

- Building profile, configuration, and existing energy systems.
- Relevant health and safety checks and conditions.
- Current energy and hot water consumption profile.
- The proposed scope of work that clearly defines the measures and related costs being applied for funding.
- Any relevant supplemental funding sources and owners contributions.
- The calculated savings investment ratio of each measure including interactive effects of higher SIR measures.
- The total calculated reduction in energy or water usage for the recommended measures.
- The total package of measures SIR calculation.
- The energy modeling software file and assumptions used to make the projections.
- The methodology of data collection and relevant calculations.
- A representation that the Audit meets CSD's DOE WAP criteria, and audit protocol as defined herein.

The three main processes that constitute the CSD Weatherization Assistance Program Multifamily Audit Protocol standards include: 1) the on-site visit, 2) the energy modeling and energy/water savings analysis, and 3) report submittal. For energy audit purposes, DOE considers multi-family buildings to be those containing five dwelling units or more. Approved single-family energy audits can be used in buildings with up to four dwelling units. As approved by DOE on a case-by-case basis, certain single-family energy audits may be used in multi-family buildings containing up to 25 individually heated and cooled dwelling units.¹

¹ Weatherization Program Notice 11-1; Effective Date: December 28, 2010

II. ON-SITE PROCESS

The purpose of the on-site visit is to collect all necessary information to conduct an appropriate energy, water, and health and safety analysis, including sufficient information to inform an energy model. The intent is to evaluate building envelope, assess building airflow, inventory HVAC and other energy systems equipment, identify ventilation systems, and perform diagnostic testing.

1. Auditor Conduct Standards and Minimum Credentials

- All sub-grantees and their consultants shall conform to the CSD contracts, policies, and referenced standards. In addition the Auditor shall comply with applicable professional standards for ethics as defined by the Building Performance Institute Code of Ethics.
- Auditors conducting audits shall have the minimum skills, credentials and experience required to effectively perform the audits. In the event that a single Auditor lacks all of the required skills, a qualified team may be assembled to complete the audit. At a minimum, Auditors shall be capable of effectively performing the following tasks:
 - Energy modeling (utilizing approved software).
 - Building assessment (identifying safety, code, durability and energy systems issues).
 - Diagnostic testing (see Attachment C).
 - Combustion appliance safety testing.
 - Feasibility analysis for the installation of energy efficient building improvements.
 - Construction cost estimating.
 - Financial analysis that generates investment grade level information/data.

2. Scheduling the Site Visit and Tenant Notification

- Notification of tenants whose units will be inspected as part of the audit site visit will be the responsibility of sub-grantee, the property owner, or their representative.
- The Auditor shall schedule the site visit(s) with the designated person(s) at a time that is convenient for the project contact person(s). The site visit should seek to cause minimal disruption to the tenants and neighbors at the project.

3. Site Visit Preparation

To facilitate the on-site portion of the energy audit, it is recommended that the following items be addressed prior to arrival.

- Review the Initial Building Assessment or similar screening report which establishes the building's eligibility to participate in the program, and verify that the accrual of benefits is sufficiently justified per Weatherization Program Notice 10-15A.²
- Review 12-24 months of prior utility bills (including gas, electric, and water) to know annual utility cost by fuel type and seasonal variations.
- Identify sampling of units representative of unit types, conditions, sizes and location.
- Arrange access to units to be reviewed with occupant and provide necessary formal notification of inspection.
- Verify availability of as-built drawings.

² Weatherization Program Notice 10-15A, Effective Date: April 8, 2010

- Review any historical improvement data available.
- Review O&M records, logs and protocols.
- Review existing mechanical equipment information as available.
- Verify availability of property representative with access to all portions of the property.
- Verify availability of O&M staff familiar with the building facilities and history.

4. Site Visit

The on-site energy audit shall be comprised of an in-person visit to the project by a qualified Auditor to complete the following tasks:

4.1 Project Interview(s)

The Auditor shall interview at least one of the following designated person(s) prior to or at the time of the site visit:

- Property Manager
- Maintenance Director or Maintenance Staff
- Owner or Owner Representative

The purpose of the interview(s) is to:

- Discuss project energy performance.
- Discuss tenant comfort, health and safety, and agree on a tenant synopsis for the site visit.
- Discuss any behavioral or other factors affecting energy performance (occupancy rates, tenant behavior patterns etc).
- Discuss operations and maintenance procedures.
- Address any other stakeholder questions or concerns.

The interview shall include questioning on operations and maintenance issues and will address the issues including but not limited to those in Attachment B. If any project team member wishes their responses to remain confidential, the Auditor shall respect those requests.

4.2 Safety and Code Observations at the Site Visit

Each site visit must address specific minimum health and safety checks. CSD Policies and Procedures and Health and Safety Plan, as well as other documents referenced in DOE contracts, apply to this policy. Where not referenced specifically, the following minimum health and safety checks shall be conducted and recorded in the Energy Audit Report or supporting documentation.

- Note likelihood of lead presence based on age of building and applicable prior inspections as relevant to EPA RRP Rule Asbestos Hazard Visual Inspection and testing (if necessary per CAL OSHA Title 8 Standards).
- Mold and Mildew Assessment per WPN 05-13
- Structural, electrical and mechanical systems visual inspections
- Combustion Appliance Safety Testing

4.3 Visual Inspection and Diagnostic Testing Protocols

³ Weatherization Program Notice 05-1; Effective Date: November 12, 2004

The site visit shall involve visual inspections and diagnostic testing of the building envelope, HVAC, combustion appliances, and lighting systems. Minimum visual and diagnostic testing criteria are provided in the CSD Weatherization installation Standards (2010). These standards provide the minimum required testing procedures for Combustion Appliance Safety, Blower Door and Duct Leakage Testing.

Blower Door Sampling: Blower door testing shall be conducted on a representative sample number of units in accordance with CSD contracts, standards and policy documents.

Where the CSD standards do not address specific diagnostic tests applicable to the commercial systems, BPI standards for Multifamily Building Analyst, and CEC HERS II standards shall apply. Where conflicts exist between these two standards, the most conservative standard shall apply. BPI Multifamily Building Analyst Standards are available for download at BPI's website (www.bpi.org). The California Title 24 Energy Efficiency Standards are available for download at the Energy Commission's website at (<http://www.energy.ca.gov/title24>).

The Auditor shall identify any building information required to complete the energy and cost analysis. At a minimum, all relevant data listed in Appendix A shall be documented. This information will be used in the energy modeling and analysis phase of the audit.

4.4 On-Site Unit Inspection Sampling Protocols

At least one in seven of every unit type (defined as having same/similar floor plan), with representation from differing building floors and including all four building orientations, shall be inspected. In no case shall the inspection of units be less than 10% of total units. In accordance with Attachment A, Auditor will ensure that a discussion of unit sampling addresses special building circumstances that may result in an increased level of unit inspections and testing.

4.5 Renewable Energy

The on-site inspection may also examine, evaluate and propose recommendations for the incorporation of renewable energy opportunities including, but not limited to, solar hot water. In addition, any existing renewable energy systems (wind, solar thermal, solar PV, Fuel Cell, etc.) shall be included in the audit analysis.

4.5.1 Solar Thermal Systems

Proposed solar thermal systems shall be specified in accordance with the California Solar Initiative Thermal Program Handbook⁴ if a CSI Thermal Rebate is included in the Analysis. In all cases, proposed systems shall comply with SRCC OG-300⁵ and 2009 Uniform Solar Energy Code⁶.

4.5.2 Photovoltaic Solar Systems

Existing photovoltaic systems shall be fully documented in EAR. NOTE: Currently Solar PV systems are not eligible for funding under the CA Weatherization Assistance Program.

⁴ California Solar Initiative Thermal Program Handbook Rev 4.0

⁵ Solar Rating and Certification Corporation Standard OG-300

⁶ Uniform Solar Energy Code, 2009

III. ENERGY MODELING AND ANALYSIS PROCESS⁷

An energy model of the building's pre- and post-retrofit performance shall be completed using building plans, initial inspection data, and diagnostic data collected during the on-site visits. TREAT energy modeling is used to estimate annual energy consumption and energy cost savings of most potential energy conservation measures for multifamily dwellings as defined in Section III, 1.1. All energy and cost savings results from the TREAT model must be verified against known conditions and usage profiles existing at the residence and against industry standard values. If results are not as generally expected and are not defensible based on information from the site visit, the TREAT model should be modified until expected results are obtained. All major assumptions used to develop the energy model and analysis must be clearly stated in the final report. Reporting emphasis should be placed on the assumptions that have the most impact on estimated energy savings. Occasionally, some building features may be inaccessible, such as crawl space insulation values. When certain building features can not be physically verified, values from Table R3-50, Default Assumptions for Existing Buildings in the 2008 Title 24 Alternative Calculation Method manual shall be used as default conditions in the energy model and analysis.

1. Energy Modeling Software Requirements:

Two energy modeling software platforms have been approved by DOE for use in the CA WAP program. REM/Design (Architectural Energy Corporation) is approved for single family homes and small multifamily dwellings, and TREAT (PSD Consulting) is approved for use in larger multifamily dwellings. The energy audit software policy is provided below.

1.1 Treat Dwelling Criteria

As defined in the policy, a TREAT audit is to be used for the following building types:

- Multi-Family residential buildings 4 stories and above.
- Multi-Family residential buildings 3 stories or fewer with shared HVAC systems and/or water heating systems.
- Multi-Family residential buildings containing 25 or more units.
- Multi-Family residential buildings not meeting the REM/Design criteria in section 1.3.

1.2 Treat Policy

For residential buildings meeting the above criteria, a "whole-building" energy audit and TREAT software based energy simulation must be conducted to determine the feasibility and cost effectiveness of all available measures.

For high-rise projects wishing to apply a priority list-only approach to individual unit weatherization measures, justification must be submitted in writing to CSD describing the reason a TREAT-based energy audit is not feasible.

1.3 REM/Design Dwelling Criteria

As defined in the policy, REM/Design audit is to be used for the following building types:

- Single-family dwellings up to 4-plexes,
- Mobile homes, and
- Low-rise multifamily buildings:

⁷ An addendum to the energy audit report may be prepared to fulfill the programmatic requirements of CSD's DOE WAP if necessary.

- Containing five to 25 dwelling units,
- Having 3 stories or fewer,
- Individually metered,
- Where the unit is heated and cooled independently, and
- Where the unit has its own hot water heater.

The REM/Design energy audit process requires a physical inspection of the home, specific diagnostic tests, and proper data input into the software program. An energy profile of the existing home is compared to a set of improvements recommended for installation. Each measure is then evaluated and a report is generated with the cost-effectiveness of each measure listed by SIR (Savings to Investment Ratio).

2. Utility Rates:

The energy consultant shall model the building using the current local utility rate schedules as verified during review of utility bills. When possible, tiered rate structures, demand charges, time of use charges and usage fees shall be included in the utility rate determination. At a minimum, energy cost shall be calculated as the total average cost of energy for the prior year based on billing data. Energy cost savings calculated outside of the modeling software shall be based on average utility and demand rates based on provided utility bills.

3. Model Calibration:

The energy model for all buildings shall be calibrated to actual utility billing data based on mastered metered data or aggregation of individual unit energy bills. When individual unit energy bills are used billing data should be collected from as many units as possible. Modeled baseline energy consumption shall be calibrated to monthly utility bills for a minimum of twelve months. The intent is to qualify the energy model by demonstrating similarity to the metered energy usage over a 12 month time frame.

- The energy model estimates of electricity and natural gas should calibrate to actual monthly consumption to $\pm 10\%$.
- TMY 30 year average weather data can be used in lieu of actual year weather, which may be difficult to obtain.
- Any adjustments made to the building description inputs used to calibrate the simulated building to actual energy usage shall be justified with explicit, transparent information and documented in this section of the audit report.
- In the event that the building is served by more than one meter, the bills for those meters shall be aggregated against the building calculated consumption as a whole.

4. Exceptional Calculations:

Energy conservation measures not directly modeled with TREAT or REM/Design energy modeling software can be calculated outside of the program provided that generally accepted engineering calculations and methodologies are used. Interactive effects must be accounted for in exceptional calculations. The methodologies, assumptions, and constants used in the exceptional calculations must be clearly documented in the final report. Sources of deemed savings must be referenced.

4.1 Solar Thermal Performance Calculation

Solar thermal calculations may be performed using the CSI-Thermal Program Multifamily/Commercial calculator available at

<https://www.csithermal.com/calculator/commercial/> using the methods outlined herein. If the CSI Thermal calculator is not available, Auditors shall present an alternative calculation methodology to CSD for review.

4.2 Photovoltaic Performance Calculation

Actual metered performance data shall be used to account for offset of photovoltaic production of existing solar systems during analysis. If measured data is not available, grid tied photovoltaic performance calculations may be performed using PV Watts V.2⁶ which can be initiated at this website. http://mapserve3.nrel.gov/PVWatts_Viewer/index.html.

NOTE: Currently Solar PV systems are not eligible for funding under the CA Weatherization Assistance Program.

5. Savings Investment Ratio (SIR) Calculations:

When using TREAT or REM/Design, the measure and package SIR may be calculated automatically by the software. In the event that a proposed measure requires exceptional calculations, the measure and package SIRs shall be calculated using the methods outlined below.

5.1 Measure SIR

Measure SIR shall be calculated as the ratio of present value of the measure energy savings⁸ compounded annually over the life of the measure divided by the total installed cost of the measure given by equation 1. When calculating measure SIR, all interactive effects of other measures in the improvement package shall be accounted for.

$$SIR_{measure} = S * ((1+i)^n - 1) / (i(1+i)^n) / C \quad eq. 1$$

Where:

- S = 1st year savings of measure (\$)
- i = discount rate (%)
- n = estimated useful life of measure (years)
- C = installed cost of measure (\$)

5.2 Package SIR

Package SIR shall be calculated as the ratio of present value of the package energy savings⁹ compounded annually over the life of the package divided by the total installed cost of the package. Present value of package savings shall be calculated as the sum of the present value of individual measures divided by the cost of the package (the sum of the cost of all measures). The present value of an individual measure is shown in equation 2.

$$PV_{measure} = S * ((1+i)^n - 1) / (i(1+i)^n) \quad eq. 2$$

Where:

- S = 1st year savings of measure
- i = discount rate (%)
- n = estimated useful life of measure

Discount rate used for present value calculations shall be the lesser of 3% or the percentage increase in the Consumer Price Index (all items, United States city average) for the most recent calendar year completed before the beginning of the year for which the determination is being made¹⁰. *Note: Energy escalation and inflation are not included in this calculation.*

First year savings of a single measure shall be calculated based on the energy usage profile of a building after all measures with higher SIR have been implemented. All savings

⁸ Water savings or other non energy savings shall not be included in the SIR Calculation.

⁹ Water savings or other non energy savings shall not be included in the package SIR Calculation.

¹⁰ 10 CFR 440.18 Paragraph C.2.i

calculations should be adjusted for “interaction between architectural and mechanical weatherization materials by using generally accepted engineering methods to decrease the estimated fuel cost savings for a lower priority weatherization material in light of fuel cost savings for a related higher priority weatherization material.”¹¹

Maximum Estimated Useful Life of measure shall be determined using values published in Appendix B. In the event that a proposed EUL is greater than those listed in Appendix B justification must be provided for review by CSD.

Installed cost of measure should reflect the cost to install a measure as closely as possible. In cases where the cost to install a measure changes after approval of the scope of work due to extenuating circumstances, the updated cost must be reported and the measure will be reimbursed as follows:

- 1) If the updated cost is less than the reported cost, CSD will reimburse for the actual cost of the measures.
- 2) If the updated cost is greater than the reported cost, CSD will reimburse for the reported cost of measure. The full amount of the installed cost of the measure may be reimbursed if an updated SIR calculation reveals that the measure and package SIR remain greater than 1.0 based on the updated cost, and the package has not exhausted the available funds for the property.¹²
- 3) If the updated cost is greater than the reported cost and the increased cost reduces the measure SIR<1.0, the additional funding source must be identified and must not be federal funds.

5.3 Measure Buy Down

In the event that non-federal financial resources are leveraged to buy down a particular measure, the following criteria must be met¹³:

- 1) The SIR of the discounted measure must be 1.0 or greater when SIR is calculated as the ratio of present value of the measure savings compounded annually over the life of the measure divided by the WAP funds applied to the measure.
- 2) The package SIR shall be calculated as the ratio of present value of the package savings compounded annually over the life of the package divided by the total installed cost of the package including all WAP funds and all non-WAP funds¹⁴.
- 3) Discounted measures may not be installed before non-discounted measures and are only to be installed when all other available cost effective measures not requiring buy-down have been installed. In no case shall measures with higher SIRs be skipped or “leapfrogged” for measures with lower SIRs.

¹¹ 10 CFR 440.21, Paragraph E.1

¹² Note: Point of Sale and other direct rebates may be used to lower the total cost of the measure, and this discount may be applied to the cost of the total package of measures.

¹³ Weatherization Program Notice 10-17; Effective Date: July, 26, 2010

APPENDIX A: ENERGY AUDIT REPORT REQUIREMENTS

This format is provided as a suggested template to aid in Energy Audit Report Generation and identifies the scope and level of detail that should be included in all reports. In many cases an energy audit will have applications in other programs with different requirements than those of CSD's DOE WAP. It is not CSD's intention to create extra work by requiring that an energy audit omit information pertinent to other programs. Programmatic concerns not addressed in the energy audit may be addressed in an addendum to the report that summarizes the relevant results of the energy audit with regard to the programmatic conditions of CSD's DOE WAP. Sections of the Audit Report Format below that are deemed programmatic in nature have been italicized. This information must be submitted to CSD as part of the submittal package, but is not necessarily part of an energy audit report prepared by an energy consultant.

ENERGY AUDIT REPORT FORMAT

Section 1: Executive Summary

The purpose of the executive summary is to summarize the main points of the project. When possible, labeled tables and graphs should be used to present data.

- 1) General Overview
 - a) Project Description
 - i) Location, building configurations
 - ii) Building sizes, # units and common areas description, utilities, energy cost summaries
 - iii) *Statement of eligibility to verify eligibility of the property*
 - (1) *Income Eligibility Criteria*
 - a. *Property appears on HUD/DOE or USDA/DOE eligibility list² or;*
 - b. *at least 66% of the units in the building are income qualified*
 - (2) *Accrual of benefits*
 - a. *Measures will result in reduction of tenants' energy costs or;*
 - b. *Demonstrated benefit to tenant as outlined in "Weatherization Program Notice 10-15A"² if tenant energy cost not directly paid by tenant*
 - (3) *Maximum Allowable Benefit for Property*
 - a. *Identification of maximum allowable benefit for property based on number of eligible units per-unit funding limit*
 - iv) Summary of site visit (dates, interviews, project team)
 - b) Description of any special analysis or conditions
 - c) Historical energy use summary
 - d) *Recommended measures summary*
 - i) *Name of measure*
 - ii) *Cost of measure*
 - iii) *Recommended improvement package documentation arranged in descending order of SIR*
 - (1) *Total Cost*
 - (2) *Total SIR*
 - (3) *Total DOE Contribution*

- (4) *Total Owner Contribution*
- (5) *Total Contribution of non-federal funds used to raise SIR*
- e) Measures evaluated but not recommended
 - i) Description
 - ii) Cost
 - iii) SIR
 - iv) Documentation of non-feasibility (already installed, not feasible, etc.)
- f) *Total and measure specific projected energy use summary after proposed measure package implementation*

Section 2: Existing Conditions

The narrative section of the report should guide the reviewer through the steps taken to conduct the energy audit and analysis. When applicable, labeled photos should be included in the appropriate sections.

- 1) Existing Building Conditions
 - a) Site layout
 - b) Number of units
 - c) Occupancy
 - d) Building construction types
 - e) Number of stories
 - f) Year built
 - g) Total building area identified by use (residential community/common, commercial)
 - h) History of previous retrofits or rehabs
 - i) Other significant building features
 - j) Photos as needed to document existing building conditions.
- 2) Existing Building Components and Energy Systems
 - a) Building Envelope
 - i) Wall construction and insulation
 - ii) Roof construction and insulation
 - iii) Types of windows found on each face of building
 - iv) Photos as relevant
 - b) Common Area Lighting
 - i) Fixture type
 - ii) Lamp and ballast type
 - iii) # of lamps/fixture
 - iv) Fixture wattage
 - v) # of fixtures
 - vi) Spaces served
 - vii) Lighting control
 - viii) Annual/daily hours used
 - ix) Photos as relevant
 - c) Common Area Lighting
 - i) Fixture type
 - ii) Lamp and ballast type
 - iii) # of lamps/fixture
 - iv) Fixture wattage
 - v) # of fixtures
 - vi) Spaces served

- vii) Lighting control
- viii) Annual/daily hours used
- ix) Photos as relevant
- d) Water Fixtures
 - i) Common Area Fixtures
 - (1) List all fixtures using hot water (common lavatories, laundry, kitchen, etc.)
 - (2) Water usage for each fixtures as relevant
 - (3) Code requirements for each fixture
 - (4) Photos as relevant
 - ii) Unit Fixtures
 - (1) List all fixtures using hot water (lavatory, laundry, kitchen)
 - (2) Water usage for each fixtures as relevant
 - (3) Code requirements for each fixture
 - (4) Photos as relevant
- e) HVAC Systems
 - i) Heating System Description
 - (1) Make, model, age, capacity and measured characteristics of all heating equipment
 - (2) Characterization of distribution system
 - (3) Photos of relevant equipment
 - ii) Cooling System Description
 - (1) Make, model, age, capacity and measured characteristics of all cooling equipment
 - (2) Characterization of distribution system
 - (3) Photos of relevant equipment
 - iii) Water Heating Description
 - (1) Make, model, age, capacity and measured characteristics of all water heating equipment
 - (2) Characterization of distribution system
 - (3) Photos of relevant equipment
- f) Forced ventilation Systems
 - (1) Make, model, age, capacity and measured characteristics of all heating equipment
 - (2) Ability of ventilation system to provide adequate ventilation
 - (3) Photos of relevant equipment
- g) Annual Utility Bill Breakdown
 - (1) Monthly utilities breakdown for all applicable fuels

Section 3: Evaluated Measures

- 1) Recommended Energy Efficiency Measures
 - a) Short narrative of each recommended energy efficiency measure should include all replacement measure parameters.
 - b) Recommended replacement specifications
 - c) Installed Cost summary of measure
 - d) Projected annual monetary savings
 - e) SIR
- 2) Energy Efficiency Measures Not Recommended
 - a) Short narrative of each measured investigated and reasons why it is not recommended.

- 3) Recommended Health and Safety Measures
 - a) Short narrative of recommended health and safety measures including description, frequency, and cost.

Section 4: Cost Benefit Analysis

- 1) Table of all reviewed measures in order of decreasing SIR.
 - a) Baseline measure description
 - b) Improvement measure description
 - c) Total cost of measure
 - d) Portion of non-federal buy down funds for each measure
 - e) Baseline measure fuel usage
 - f) Fuel usage of proposed measure
 - g) Measure savings
 - h) Measure EUL
 - i) Measure SIR
- 2) Package Cost Analysis
 - a) Total cost of Package
 - b) Portion of non-federal buy down funds for each measure
 - c) Baseline Package fuel usage
 - d) Fuel usage of proposed Package
 - e) Package SIR

Section 5: Analysis

- 1) Analysis Overview
 - a) Overview of energy simulation tool(s) used and order of operations.
 - b) Summary of the approach, and detailed calculations, used in any exceptional calculations.
 - c) True up of base model energy consumption to measured usage.
- 2) Utility Analysis and End Use Breakdown
 - a) Describe the applicable end uses for each type of fuel at the project and show a breakdown of the annual energy usage and energy cost by fuel type. The Auditor shall:
 - i) Graph energy usage for each fuel type for a minimum of 12 months.
 - ii) Review the utility rate structure to determine if it seems appropriate for the project.
 - iii) Make a recommendation for further investigation if the Auditor finds that the rate structure does not match the utility data.
- 3) Source of Information
 - a) Briefly describe all sources of information used to inform the analysis, including:
 - i) Source and scope of utility billing data supplied to the Auditor including the data source, the duration in months that the data covers, and whether the Auditor received copies of the actual utility bills or electronic interval data.
 - ii) Construction cost information used in economic analysis.
 - iii) Whether building plans or site verified data were used in the analysis.
 - iv) Any discrepancies between plans and verified conditions.
 - v) Utility rate and schedules.
 - vi) Source of deemed energy savings.
- 4) Energy Model Inputs and Assumptions
 - a) State any assumptions used when analyzing energy and water utility data. Reference the Building Data Form as well as the building simulation program input file.

- 5) Full Documentation Energy Model Inputs and Outputs
 - a) TREAT Reports
 - i) Actual Model to Billing Report
 - ii) Base Building Data Report
 - iii) Model Energy Comparison Report
 - iv) Base Load Reports
 - (1) Base Building
 - (2) Recommended Package
 - v) Improvement Package Report

Section 6: Qualifications and Certifications

- 1) Names and qualifications (as applicable) of parties responsible for following:
 - a. Project Management
 - b. Energy Auditing and Analysis
 - c. Building Assessment (if different from Auditing team)
 - d. Construction Cost Estimating (if different from above)

Section 7: Representation

Include a representation from an officer or owner of the firm conducting the Audit that the Audit meets the [Program Name] Audit Specifications without exception and that the final Audit Report has been reviewed for quality assurance purposes by a principal or officer of the firm.

**APPENDIX B: MAX ALLOWABLE ESTIMATED USEFUL LIFE
OF COMMON MEASURES**

The EULs in this section are suggested maximum useful lives of measures. If these values are exceeded, justification should be provided and is subject to review. In the event a product is used with a shorter useful life than published below the actual useful life should be reported and used in SIR calculations.

SCOPE	APPLICATION	MEASURE	EUL
Non-Residential	Building Envelope	Cool Roof	15
Non-Residential	Building Envelope	Roof/Ceiling Insulation	30
Non-Residential	HVAC - Boilers	High Efficiency Boiler	20
Non-Residential	HVAC - Chillers	High Efficiency Chillers	20
Non-Residential	HVAC - Miscellaneous	Clean Condenser Coils	3
Non-Residential	HVAC - Miscellaneous	Duct Insulation Material	30
Non-Residential	HVAC - Miscellaneous	Duct Sealing - Single Zone Package System	15
Non-Residential	HVAC - Miscellaneous	High Efficiency Furnace	19
Non-Residential	HVAC - Miscellaneous	High Efficiency Water Source Heat Pump	15
Non-Residential	HVAC - Miscellaneous	Hydronic Heat Pump Variable Flow Valve	10
Non-Residential	HVAC - Miscellaneous	Refrigerant Charge	8
Non-Residential	HVAC - Miscellaneous	Setback Programmable Thermostats	15
Non-Residential	HVAC - Miscellaneous	Time Clocks (heating/cooling)	11
Non-Residential	HVAC - Miscellaneous	VSD Supply Fan Motors	12
Non-Residential	HVAC - Other Central Plant	Cooling Tower for Packaged System	15
Non-Residential	HVAC - Split/Package	Air Conditioners / Heat Pumps (split and unitary)	15
Non-Residential	Motors	HVAC Fan Motors	13
Non-Residential	Motors	Premium-Efficiency Motors	15
Non-Residential	Motors	Water Loop Pumps	13
Non-Residential	Outdoor Lighting	HID Lighting - High Pressure Sodium	16
Non-Residential	Outdoor Lighting	HID Lighting - Metal Halide	16
Non-Residential	Outdoor Lighting	HID Lighting (T-5)	11
Non-Residential	Refrigeration	Insulation for Bare Suction Lines	11
Non-Residential	Refrigeration	Retro-commissioning	10
Non-Residential	Water Heating	Circulation Pump Time clock Retrofit	15
Non-Residential	Water Heating	High Efficiency Central Water Heater	15
Non-Residential	Water Heating	High Efficiency Commercial Storage Water Heater	15
Non-Residential	Water Heating	Instantaneous Water Heater	19
Non-Residential	Water Heating	Pipe Insulation - Electric Water Heater	11
Non-Residential	Water Heating	Pipe Insulation - Gas Water Heater	11
Non-Residential	Water Heating	Water Heater Tank Wrap	7
Residential	Appliances	High Efficiency Refrigerator	15
Residential	Building Envelope	Cool Roof	15
Residential	Building Envelope	Duct Sealing	18
Residential	Building Envelope	Floor Insulation	30

SCOPE	APPLICATION	MEASURE	EUL
Residential	Building Envelope	High Performance Windows	20
Residential	Building Envelope	Weather-stripping	11
Residential	Building Envelope	Sunscreens	10
Residential	Building Envelope	Roof/Ceiling Insulation	30
Residential	Building Envelope	Wall Insulation	30
Residential	HVAC	Thermostatic Radiator Valve (TRV)	8
Residential	HVAC	Constant Airflow Regulator	10
Residential	HVAC	Clean Condenser Coils	3
Residential	HVAC	Evaporative Cooler	15
Residential	HVAC	High Efficiency Air Conditioner (package and split systems)	15
Residential	HVAC	High Efficiency Furnace	19
Residential	HVAC	High Efficiency Heat Pump	15
Residential	HVAC	Programmable Thermostat	15
Residential	HVAC	Refrigerant Charge	10
Residential	HVAC	Room AC - Energy Star	14
Residential	Indoor Lighting	CFL Fixtures	16
Residential	Indoor Lighting	CFL Lamps - 10,000 Hour	7
Residential	Indoor Lighting	CFL Lamps - 12,000 Hour	8
Residential	Indoor Lighting	CFL Lamps - 6,000 Hour	4
Residential	Indoor Lighting	CFL Lamps - 8,000 Hour	5
Residential	Indoor Lighting	Linear Fluorescents - MF Common Area	10
Residential	Miscellaneous	0.3 W LED Night Light	11
Residential	Outdoor Lighting	CFL Fixtures	16
Residential	Outdoor Lighting	CFL Lamps - 10,000 Hour	4
Residential	Outdoor Lighting	CFL Lamps - 12,000 Hour	5
Residential	Outdoor Lighting	CFL Lamps - 6,000 Hour	3
Residential	Outdoor Lighting	CFL Lamps - 8,000 Hour	4
Residential	Outdoor Lighting	HID Lighting	16
Residential	Water Heating	Faucet Aerators	9
Residential	Water Heating	Heat Pump Water Heater	10
Residential	Water Heating	High Efficiency Electric Water Heater	15
Residential	Water Heating	High Efficiency Gas Water Heater	13
Residential	Water Heating	Instantaneous Water Heater	20
Residential	Water Heating	Low-Flow Showerhead	10
Residential	Water Heating	Pipe Insulation - Electric Water Heater	13
Residential	Water Heating	Pipe Insulation - Gas Water Heater	13
Residential	Water Heating	Solar Water Heating	15

APPENDIX C: ENERGY AUDIT REVIEW

I. Overview

A key objective of an energy audit under CSD's DOE WAP program is to identify feasible and relevant energy conservation measures (measures) that qualify for funding under the program. In addition to identifying ways to reduce the energy burden, the audit process must also conduct evaluation of the integrity of the building to identify any deficiencies that could result in health and safety violations as defined by CSD's DOE WAP.

A portion of the audits submitted by agencies to CSD will be reviewed by a third party to ensure that the audit process, analysis and report meet the requirements of the Multifamily Audit Protocol. This document describes the review process used evaluate the submitted reports.

II. Sampling Rate

100% of energy audits shall be submitted and reviewed by CSD for accuracy and completeness. In addition a sample of energy audits shall be reviewed by a technical reviewer under the following criteria:

- 1) 100% audits submitted by new agencies or performed by new consultants to an agency shall be reviewed by a technical reviewer until a minimum of three consecutive audits are approved as submitted (without need for modification and resubmission).
- 2) 25% of audits submitted by every agency shall be reviewed. If agency uses multiple consultants to perform audits, 25% of audits submitted by every consultant for that agency shall be reviewed.
- 3) At the discretion of CSD, agencies and/or consultants providing consistent and accurate audits may apply in writing for a lower sampling rate of one in seven audits.
- 4) CSD may, at its sole discretion, make specific requirements or changes to the number and percentage of quality assurance reviews conducted for any agency or consultant.

III. Review Process

The following table below shall be used by the reviewer to document satisfactory completion of the requirements. In the event that a section is not satisfactory, notes will be made describing the nature of the delinquency, and submitted to the sub-grantee for review and follow up.

Submittal Package	Compliant?	
	Yes	No
Includes completed EAR report		
Includes TREAT files		
General Overview		
Report is complete and organized		
Executive summary includes recommended measure package organized in descending SIR		
Measure package cost and SIR clearly identified		
Health and safety measures clearly identified		
Consistent information used throughout report		
Report demonstrates property eligibility and WAP funding available based on number of qualified units		
Site Evaluation		
Includes names of Auditors and names of site representatives interviewed		
Building size and occupancy reported		
Sufficient description building envelope including windows, walls, roof, etc.		
At least 1/7 of each unit type inspected		
At least 10% of total units inspected		
Comprehensive inventory of existing lighting, water heating, space heating and space cooling equipment, etc		
Comprehensive inventory of existing hot water fixtures (lavatories, showers, sinks, bathtubs, water closets)		
Sufficient detail of existing heating equipment		
Sufficient detail of existing cooling equipment		
Sufficient detail of existing water heating equipment		
Sufficient detail of existing ventilation equipment		
CAS testing performed per CSD general policy		
Environmental Hazard testing performed per CSD general health and safety policy		
12-24 months of utility bills included to verify fuel usage and cost		

Analysis		
TREAT analysis used for calculations		
TREAT input values consistent with data collected during site visit		
Sample calculations provided for analysis performed outside of TREAT		
Projected energy usage true-up to utility bills performed		
Projected energy usage is reasonable with respect to industry standards		
All savings calculations are reasonable and within industry standard ranges (<i>Note: When savings calculations are outside of expected ranges, TREAT input files may be reviewed or other means used to verify accuracy and to verify reasonable assumptions resulting in reasonable saving</i>)		
All measure EULs are within industry standard ranges		
All SIR calculations executed properly		
Recommended Measures		
All measures listed in measure package allowed measures		
Total requested funds does not exceed average maximum per unit		
Total package SIR>1.0 regardless of funding source		
Verifiable source of any non-federal funds used to implement package		
All measures described with enough detail to justify measure feasibility		

IV. Feedback and Resubmission

Customer feedback will be provided by way of an Energy Audit Review and Approval Form that will indicate whether an audit was accepted as is or needs further improvements. In the event that an audit is not approved, a copy of the review form and a detailed explanation of the section(s) needing improvement will be provided to the agency for correction and re-submittal. All audits returned for correction will be reviewed upon re-submittal to the extent deemed necessary by the reviewer.

APPENDIX D: DOE APPROVED MEASURES (10CFR440, APPENDIX A)

APPENDIX A—STANDARDS FOR WEATHERIZATION MATERIALS

If the standards listed in this appendix conflict with those required by current local codes, the local code shall have precedence and a copy of the applicable section will be retained with procurement records.

The following Government standards are produced by the Consumer Product Safety Commission and are published in title 16, Code of Federal Regulations:

Thermal Insulating Materials for Building Elements Including Walls, Floors, Ceilings, Attics, and Roofs Insulation—organic fiber—conformance to Interim Safety Standard in 16 CFR part 1209;

Fire Safety Requirements for Thermal Insulating Materials According to Insulation Use—Attic Floor—insulation materials intended for exposed use in attic floors shall be capable of meeting the same flammability requirements given for cellulose insulation in 16 CFR part 1209;

Enclosed spaces—insulation materials intended for use within enclosed stud or joist spaces shall be capable of meeting smoldering combustion requirements in 16 CFR part 1209.

The following standards which are not otherwise set forth in part 440 are incorporated by reference and made part of part 440. The following standards have been approved for incorporation by reference by the Director of the Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. These materials are incorporated as they exist on January 3, 2002 and a notice of any change in these materials will be published in the FEDERAL REGISTER. The standards incorporated by reference are available for inspection at the Office of the Federal Register Information Center, 800 North Capitol Street, Suite 700, Washington, DC 20001.

The standards incorporated by reference in part 440 can be obtained from the following sources:

Air Conditioning and Refrigeration Institute, 4301 N. Fairfax Drive, Suite 425, Arlington, VA 22203; (703) 524-8800.

American Architectural Manufacturers Association, 1827 Walden Office Square, Suite 104, Schaumburg, Illinois 60173-4268; (847) 303-5664.

American Gas Association, 400 N. Capitol Street, NW, Washington, DC 20001; (202) 824-7000.

American National Standards Institute, Inc., 11 West 42nd Street, New York, NY 10036; (212) 642-4900.

American Society of Mechanical Engineers, Three Park Avenue, New York, NY 10016-5990; (212) 591-7722.

American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959; (610) 832-9585.

Association of Home Appliance Manufacturers, 1111 19th Street, NW, Suite 402, Washington DC, 20036; (202) 872-5955.

Federal Specifications, General Services Administration, General Services Administration, Federal Supply Service, Office of the CIO and Marketing Division, Room 800, 1941 Jefferson Davis Hwy., Arlington, VA 22202; (703) 305-6288.

Gas Appliance Manufacturers Association, 2107 Wilson Boulevard, Suite 600, Arlington, Virginia 22201; (703) 525-7060.

National Electrical Manufacturers Association, 1300 North 17th Street, Suite 1847, Rosslyn, VA 22209; (703) 841-3200.

National Fire Protection Association, 1 Batterymarch Park, P.O. Box 9101, Quincy, MA 02269-9101; (617) 770-3000.

Sheet Metal and Air Conditioning Contractors Association, 4201 Lafayette Center Drive, Chantilly, Virginia 20151-1209; (703) 803-2980.

Solar Rating and Certification Corporation, c/o FSEC, 1679 Clearlake Road, Cocoa, FL 32922-5703; (321) 638-1537.

Steel Door Institute, 30200 Detroit Road, Cleveland, OH 44145-1967; (440) 899-0010.

Steel Window Institute, 1300 Sumner Avenue, Cleveland, OH 44115-2851; (216) 241-7333.

Tubular Exchanger Manufacturers Association, 25 North Broadway, Tarrytown, NY 10591; (914) 322-0040.

Underwriters Laboratories, Inc., 333 Pfingsten Road, Northbrook, IL 60062-2096; (847) 272-8800.

Window & Door Manufacturers Association, 1400 East Touhy Avenue, Suite 470, Des Plaines, IL 60018; (800) 223-2301.

More information regarding the standards in this reference can be obtained from the following sources:

Environmental Protection Agency, 401 M Street, NW, Washington, DC 20006; (202) 554-1080.

National Institute of Standards and Technology, U.S. Department of Commerce, Gaithersburg, MD 20899; (301) 975-2000.

Weatherization Assistance Program, Office of Building Technology Assistance, Energy Efficiency and Renewable Energy, 1000 Independence Avenue, SW, EE-42, Washington, DC 20585-0121; (202) 586-4074.

**THERMAL INSULATING MATERIALS FOR
BUILDING ELEMENTS INCLUDING WALLS,
FLOORS, CEILINGS, ATTICS, AND ROOFS**
[Standards for conformance]

Insulation—mineral fiber:	
Blanket insulation	ASTM ¹ C665-98.
Roof insulation board	ASTM C726-00a.
Loose-fill insulation	ASTM C764-99.
Insulation—mineral cellular:	
Vermiculite loose-fill insulation	ASTM C516-80 (1996)e1.
Perlite loose-fill insulation	ASTM C549-81 (1995)e1.
Cellular glass insulation block	ASTM C552-00.
Perlite insulation board	ASTM C728-97.
Insulation—organic fiber:	
Cellulosic fiber insulating board	ASTM C208-95.
Cellulose loose-fill insulation	ASTM C739-00.
Cellulose wet-spray insulation	ASTM C1149-97.
Insulation—organic cellular:	
Preformed block-type polystyrene insulation	ASTM C578-95.
Rigid preformed polyurethane insulation board	ASTM C591-00.
Polyurethane or polyisocyanurate insulation board face with aluminum foil on both sides	FS ² HH-I-1972/1 (1981).
Polyurethane or polyisocyanurate insulation board face with felt on both sides	FS HH-I-1972/2 (1981) and Amendment 1, October 3, 1985).
Insulation—composite boards:	
Mineral fiber insulation board	ASTM C726-00a.
Perlite board	ASTM C728-97.
Gypsum board and polyurethane or polyisocyanurate composite board	FS HH-I-1972/4 (1981).

¹ ASTM indicates American Society for Testing and Materials.

² FS indicates Federal Specifications.

**THERMAL INSULATING MATERIALS FOR
BUILDING ELEMENTS INCLUDING WALLS,
FLOORS, CEILINGS, ATTICS, AND
ROOFS—Continued**
[Standards for conformance]

Materials used as a patch to reduce infiltration through the building envelope	Commercially available.
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**THERMAL INSULATING MATERIALS FOR PIPES,
DUCTS, AND EQUIPMENT SUCH AS BOILERS
AND FURNACES**
[Standards for conformance]

Insulation—mineral fiber:	
Preformed pipe insulation	ASTM ¹ C547-00.
Blanket and felt insulation (industrial type)	ASTM C553-00.
Blanket insulation and blanket type pipe insulation (metal-mesh covered, industrial type)	ASTM C592-00.
Block and board insulation	ASTM C612-00.
Spray applied mineral fiber thermal and sound absorbing insulation	ASTM C1014-99ae1.
High-temperature fiber blanket insulation	ASTM C892-00.
Duct work insulation	ASTM C1290-00.
Insulation—mineral cellular:	
Calcium silicate block and pipe insulation	ASTM C533-95.
Cellular glass insulation	ASTM C552-00.
Expanded perlite block and pipe insulation	ASTM C610-99.
Insulation—organic cellular:	
Preformed flexible elastomeric cellular insulation in sheet and tubular form	ASTM C534-99.
Unfaced preformed rigid cellular polyurethane insulation	ASTM C591-00.
Insulation skirting	Commercially available.

¹ ASTM indicates American Society for Testing and Materials.

FIRE SAFETY REQUIREMENTS FOR INSULATING MATERIALS ACCORDING TO INSULATION USE

[Standards for conformance]

Attic floor	Insulation materials intended for exposed use in attic floors shall be capable of meeting the same smoldering combustion requirements given for cellulose insulation in ASTM ¹ C739-00.
Enclosed space	Insulation materials intended for use within enclosed stud or joist spaces shall be capable of meeting the same smoldering combustion requirements given for cellulose insulation in ASTM C739-00.
Exposed interior walls and ceilings	Insulation materials, including those with combustible facings, which remain exposed and serve as wall or ceiling interior finish, shall have a flame spread classification not to exceed 150 (per ASTM E84-00a).
Exterior envelope walls and roofs	Exterior envelope walls and roofs containing thermal insulation shall meet applicable local government building code requirements for the complete wall or roof assembly.
Pipes, ducts, and equipment	Insulation materials intended for use on pipes, ducts, and equipment shall be capable of meeting a flame spread classification not to exceed 150 (per ASTM E84-00a).

¹ ASTM indicates American Society for Testing and Materials.

STORM WINDOWS

[Standards for conformance]

Storm windows:	
All storm windows . . .	AAMA/NWWDA ¹ 101/I.S. 2-97.
Aluminum frame storm windows	AAMA ² 1002.10-93.
Rigid vinyl frame storm windows	ASTM ³ D4726-00.
Frameless plastic glazing storm	Required minimum thickness for windows is 6 mil (0.006 inches). Commercially available.
Movable insulation systems for windows	

¹ AAMA/NWWDA indicates American Architectural Manufacturers Association/National Wood Window & Door Association (now the Window & Door Manufacturers Association).

² AAMA indicates American Architectural Manufacturers Association.

³ ASTM indicates American Society for Testing and Materials.

REPLACEMENT WINDOWS

[Standards for conformance]

Replacement windows:	
All windows	AAMA/NWWDA ¹ 101/I.S. 2-97.
Steel frame windows	Steel Window Institute recommended specifications for steel windows, 1990.
Rigid vinyl frame windows	ASTM ² D4726-00.

¹ AAMA/NWWDA indicates American Architectural Manufacturers Association/National Wood Window & Door Association (now the Window & Door Manufacturers Association).

² ASTM indicates American Society for Testing and Materials.

STORM DOORS
[Standards for conformance]

Weather Vapor re	Storm doors:	
	All storm (glass) doors	AAMA/NWWDA ¹ 101/I.S. 2-97.
	Aluminum frame storm doors	AAMA ² 1102.7-89.
	Sliding glass storm doors	AAMA 1002.10-93.
	Rigid vinyl storm doors	ASTM ³ D3678-97 and D4726-00..
	Vestibules:	
	Materials to construct vestibules	Commercially available.
Items to ventil	¹ AAMA/NWWDA indicates American Architectural Manufacturers Association/National Wood Window & Door Association (now the Window & Door Manufacturers Association).	
¹ ASTM Materials.	² AAMA indicates American Architectural Manufacturers Association.	
	³ ASTM indicates American Society for Testing and Materials.	

REPLACEMENT DOORS
[Standards for conformance]

Heat exc to-water water	Replacement doors:	
	All replacement doors	AAMA/NWWDA ¹ 101/I.S. 2-97.
	Steel doors	ANSI ² A250.8-98.
	Wood doors:	
	Flush doors	ANSI/NWWDA ³ I.S. 1-97 (Amendment, exterior door provisions).
Heat exc gas-f	Stile and rail doors	NWWDA ⁴ I.S. 6-97.
	¹ AAMA/NWWDA indicates American Architectural Manufacturers Association/National Wood Window & Door Association (now the Window & Door Manufacturers Association).	
¹ ASME Engineers.	² ANSI indicates American National Standards Institute.	
² The h	³ ANSI/NWWDA indicates American National Standards Institute/National Wood Window & Door Association (now the Window & Door Manufacturers Association).	
vent connec appliances and not eq	⁴ NWWDA indicates National Wood Window & Door Association (now the Window & Door Manufacturers Association).	
³ ANSI/Institute/Un		

CAULKS AND SEALANTS
[Standards for conformance]

Caulks and sealants:	
Glazing compounds for metal sash	ASTM ¹ C669-00.
Oil and resin base caulks	ASTM C570-00.
Acrylic (solvent types) sealants	ASTM C920-98e1.
Butyl rubber sealants	FS ² Commercial Item Description A-A-272 (6/7/95).
Chlorosulfonated polyethylene sealants	ASTM C920-98e1..
Latex sealing compounds	ASTM C834-00e1..
Elastomeric joint sealants (normally considered to include polysulfide, polyurethane, and silicone)	ASTM C920-98e1.
Preformed gaskets and sealing materials	ASTM C509-00.
Duct sealing mastic	UL ³ 181A-M, Second Edition, 1994 and UL 181B-M, First Edition, 1995.

¹ ASTM indicates American Society for Testing and Materials.
² FS indicates Federal Specifications.
³ UL indicates Underwriters Laboratories.

WATER HEATER MODIFICATIONS

[Standards for conformance]

Insulate tank and distribution piping	(See insulation section of this appendix)
Install heat traps on inlet and outlet piping	Applicable local plumbing code.
Install/replace water heater heating elements	Listed by UL ¹ .
Electric, freeze-prevention tape for pipes	Listed by UL.
Install stack damper, gas-fueled	ANSI ² Z21.66-1996, including Exhibits A & B, and ANSI Z223.1-1999 (same as NFPA ³ 54-1999).
Install stack damper, oil-fueled	UL 17, Third Edition, 1994, NFPA 31-2001, NFPA 211-2000 (same as ANSI A52.1), and ANSI/NFPA 70-1999 (same as IEEE ⁴ National Electrical Code).
Install water flow modifiers	Commercially available.

¹ UL indicates Underwriters Laboratories.

² ANSI indicates American National Standards Institute.

³ NFPA indicates National Fire Prevention Association.

⁴ IEEE indicates Institute of Electrical and Electronics Engineers.

REPLACEMENT WATER HEATERS

[Standards for conformance]

Electric (resistance) water heaters	10 CFR ¹ 430 and UL ² 174.
Heat pump water heaters	UL 1995, Second Edition, 1995. Electrical components to be listed by UL.
Gas water heaters: Rated < 75 kBtu/hr . . .	10 CFR 430 and ANSI ³ Z21.10.1-1998.
Rated > 75 kBtu/hr . . .	ANSI Z21.10.3-1998.
Oil water heaters	UL 732, Fifth Edition, 1995.

¹ CFR indicates Code of Federal Regulations.

² UL indicates Underwriters Laboratories.

³ ANSI indicates American National Standards Institute.

SOLAR WATER HEATING SYSTEMS

[Standards for conformance]

Solar water heating systems including forced circulation, integral collector storage, thermo-syphon, and self-pumping systems	System must be certified per SRCC ¹ OG 300, July 16, 1998.
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¹ SRCC indicates Solar Rating and Certification Corporation.

WASTE HEAT RECOVERY DEVICES

[Standards for conformance]

Desuperheater/water heaters	ARI ¹ 470-1995 and UL 1995, Second Edition, 1995.
Condensing heat exchangers	Commercially available components installed per manufacturers' specifications. NFPA ² 211-2000 (same as ANSI A52.1) may apply in certain instances. See also the Heat Exchangers section of this appendix.
Heat pump water heating heat recovery systems	UL 1995, Second Edition, 1995. Electrical components to be listed by UL.
Energy recovery equipment	Energy Systems Analysis and Management, 1997 (SMACNA ³).

¹ ARI indicates Air Conditioning and Refrigeration Institute.

² NFPA indicates National Fire Prevention Association.

³ SMACNA denotes Sheet Metal and Air Conditioning Contractors' National Association.

**BOILER REPAIR AND
MODIFICATIONS/EFFICIENCY
IMPROVEMENTS—Continued**

[Standards for conformance]

Install gas conversion burners	ANSI ¹ Z21.8-1994 (for gas- or oil-fired systems), ANSI Z21.17-1998, and ANSI Z223.1-1999 (same as NFPA 54-1999). AGA ² Laboratories Certification Seal.	Replace heat exchangers, tubes	Protection from flame contact with conversion burners by refractory shield. Commercially available.
Replace oil burner	UL ³ 296, Ninth Edition, 1994 and NFPA 31-2001.	Install/replace thermostatic radiator valves	One-pipe steam systems require air vents on each radiator; see manufacturers' requirements.
Install burners (oil/gas)	ANSI Z223.1-1999 for gas equipment and NFPA ⁴ 31-2001 for oil equipment.	Install boiler duty cycle control system	Commercially available. ANSI/NFPA 70-1999 (same as IEEE National Electrical Code) and local electrical code provisions for wiring.
Re-adjust boiler water temperature or install automatic boiler temperature reset control	ASME ⁵ CSD-1-1998, ANSI Z223.1-1999, and NFPA 31-2001.		
Replace/modify boilers	ASME Boiler and Pressure Vessel Code, 1998, Section II, IV, V, VI, VIII, IX, and X. Boilers must be Hydronics Institute Division of GAMA equipment.		
Clean heat exchanger, adjust burner air shutter(s), check smoke no. on oil-fueled equipment. Check operation of pump(s) and replacement filters.	Per manufacturers' instructions.		
Replace combustion chambers	Refractory linings may be required for conversions.		

¹ ANSI indicates American National Standards Institute.
² AGA indicates American Gas Association.
³ UL indicates Underwriters Laboratories.
⁴ NFPA indicates National Fire Prevention Association.
⁵ ASME indicates American Society for Mechanical Engineers.

HEATING AND COOLING SYSTEM REPAIRS AND
TUNE-UPS/EFFICIENCY IMPROVEMENTS
[Standards for conformance]

Install duct insulation . . .	ASTM ¹ C612-00 (see insulation sections of this appendix).
Reduce input of burner; derate gas-fueled equipment	Local utility company and procedures if applicable for gas-fueled furnaces and ANSI ² Z223.1-1999 (same as NFPA ³ 54-1999) including Appendix H.
Repair/replace oil-fired equipment	NFPA 31-2001.
Replace combustion chamber in oil-fired furnaces or boilers	NFPA 31-2001.
Clean heat exchanger and adjust burner; adjust air shutter and check CO ₂ and stack temperature. Clean or replace air filter on forced air furnace	ANSI Z223.1-1999 (same as NFPA 54-1999) including Appendix H.
Install vent dampers for gas-fueled heating systems	Applicable sections of ANSI Z223.1-1999 (same as NFPA 54-1999) including Appendix H, I, J, and K. ANSI Z21.66-1996 and Exhibits A&B for electrically operated dampers.
Install vent dampers for oil-fueled heating systems	Applicable sections of NFPA 31-2001 for installation and in conformance with UL ⁴ 17, Third Edition, 1994.

HEATING AND COOLING SYSTEM REPAIRS AND
TUNE-UPS/EFFICIENCY IMPROVEMENTS—Continued
[Standards for conformance]

Reduce excess combustion air: A: Reduce vent connector size of gas-fueled appliances B: Adjust barometric draft regulator for oil fuels	ANSI Z223.1-1999 (same as NFPA 54-1999) part 9 and Appendices G & H. NFPA 31-2001 and per furnace and boiler manufacturers' instructions. ANSI Z21.71-1993.
Replace constant burning pilot with electric ignition device on gas-fueled furnaces or boilers	Applicable sections and Appendix H of ANSI Z223.1-1999 (same as NFPA 54-1999) for gas furnaces and NFPA 31-2001 for oil furnaces.
Readjust fan switch on forced air gas-or oil-fueled furnaces	See install burners (oil/gas). ANSI Z223.1-1999 (same as NFPA 54-1999).
Replace burners	ARI ⁵ 210/240-1994. UL 1995, Second Edition, 1995. Commercially available.
Install/replace duct furnaces (gas)	UL 181, Ninth Edition 1996, including UL 181A, Second Edition 1994 and 181B, First Edition, 1995.
Install/replace heat pumps	Commercially available.
Replace air diffusers, intakes, registers, and grilles	Commercially available.
Install/replace warm air heating metal ducts	Commercially available.
Filter alarm units	Commercially available.

¹ ASTM indicates American Society for Testing and Materials.

² ANSI indicates American National Standards Institute.

³ NFPA indicates National Fire Prevention Association.

⁴ UL indicates Underwriters Laboratories.

⁵ ARI indicates Air Conditioning and Refrigeration Institute.

**REPLACEMENT FURNACES, BOILERS, AND
WOOD STOVES**

[Standards for conformance]

Chimneys, fireplaces, vents and solid fuel burning appliances	NFPA ¹ 211-2000 (same as ANSI ² A52.1).
Gas-fired furnaces	ANSI Z21.47-1998 and ANSI Z223.1-1999 (same as NFPA 54- 1999).
Oil-fired furnaces	UL ³ 727, Eighth Edition, 1994 and NFPA 31- 2001.
Liquefied petroleum gas storage	NFPA 58-2001.
Ventilation fans: Including electric attic, ceiling, and whole-house fans	UL 507, Ninth Edition, 1999.

¹ NFPA indicates National Fire Prevention Association.
² ANSI indicates American National Standards Institute.
³ UL indicates Underwriters Laboratories.

**SCREENS, WINDOW FILMS, AND REFLECTIVE
MATERIALS**

[Standards for conformance]

Insect screens	Commercially available.
Window films	Commercially available.
Shade screens:	
Fiberglass shade screens	Commercially available.
Polyester shade screens	Commercially available.
Rigid awnings:	
Wood rigid awnings	Commercially available.
Metal rigid awnings .	Commercially available.
Louver systems:	
Wood louver awnings	Commercially available.
Metal louver awnings	Commercially available.
Industrial-grade white paint used as a heat- reflective measure on roofs, awnings, window louvers, doors, and exterior duct work (exposed)	Commercially available.

AIR CONDITIONERS AND COOLING EQUIPMENT

[Standards for conformance]

Air conditioners: Central air conditioners Room size units	ARI ¹ 210/240-1994. ANSI/AHAM ² RAC 1- 1992.
Other cooling equipment: Including evaporative coolers, heat pumps, and other equipment	UL ³ 1995, Second Edition, 1995.

¹ ARI indicates Air Conditioning and Refrigeration
Institute.
² ANSI/AHAM indicates American National Standards
Institute/Association of Home Appliance Manufacturers.
³ UL indicates Underwriters Laboratories.

REFRIGERATORS

[Standards for conformance]

Refrigerator/freezers (does not include freezer-only units)	UL ¹ 250. Replaced units must be disposed of properly per Clean Air Act 1990, Section 608, as amended by 40 CFR ² 82, May 14, 1993.
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¹ UL indicates Underwriters Laboratories.
² CFR indicates Code of Federal Regulations.

FLUORESCENT LAMPS AND FIXTURES

[Standards for conformance]

Compact fluorescent lamps	ANSI/UL ¹ 542, Seventh Edition, February 6, 1997 and UL 1993, First Edition, 1993.
Fluorescent lighting fixtures	UL 1570, Fourth Edition, 1995.

¹ ANSI/UL indicates American National Standards
Institute/Underwriters Laboratories.



California
Department of Community
Services & Development

DOE WEATHERIZATION ASSISTANCE PROGRAM
Blended Market Rate Definition for
Electric & Natural Gas Fuels

CALIFORNIA DEPARTMENT OF
COMMUNITY SERVICES AND DEVELOPMENT

PO Box 1947

Sacramento, CA 95812-1947

916-576-7109

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PREPARED BY:
RHA
program design+management

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EXECUTIVE SUMMARY

California utilities provide deep subsidies to income qualified customers for electric and natural gas energy bills. These rates reduce the cost of energy services from 30% to more than 75%, depending on the amount of energy each household consumes. The exclusive use of a subsidized energy rate when calculating the cost effectiveness of WAP funded energy retrofits significantly disadvantages low income customers because it misrepresents the true cost of energy, when compared to direct energy savings. This limits the number of weatherization measures that can be installed due to the requirement that measures and packages of measures included in a retrofit be cost effective.

In an August 3, 2011 meeting between DOE, CSD, the California Energy Commission (CEC), and various other local organizations, Robert Adams of the U.S. Department of Energy Office of Weatherization and Intergovernmental Program, approved the use of a “blended” residential market rate for use in cost effectiveness calculations in the California WAP program.

Following this decision, CSD performed a review of the state utilities’ rate data to determine reasonable and defensible blended residential market rates for use in the different utility districts in California. The CEC-published historic residential electric rate data, that represents approximately 95% of the metered electric customer base in California, was used to determine a blended rate within each California utility. The California Public Utilities Commission (CPUC)-published residential gas rate data for the three large gas utilities in California was used to determine a blended gas rate for each utility.

Blended Electric Rate for Each Utility

Utility	Average Residential Rate
PG&E	\$ 0.152
SCE	\$ 0.148
SDG&E	\$ 0.157
LADWP	\$ 0.129
SMUD	\$ 0.115
Burbank MUD	\$ 0.143
Glendale Water and Power	\$ 0.143
Pasadena Water and Power	\$ 0.143
All Other Utilities	\$ 0.147

Blended Gas Rate for Each Utility

Utility	Blended Rate
PG&E	\$ 1.08
SCG	\$ 1.00
SDG&E	\$ 1.19
All Other	\$ 1.01

1. INTRODUCTION

The goal of the Weatherization Assistance Program (WAP) is to enable low income families to permanently reduce their energy bills by making their homes more energy efficient. In California, energy-saving measures are identified in one of two ways: an energy audit to determine cost effective measures on a project by project basis; or by using the approved priority list of predefined cost effective measures. Both methods of identifying cost effective measures are dramatically impacted by the cost of energy element.

In the past, California agencies have exclusively used fully-subsidized low income utility rates to define cost effectiveness of measures. Recently, however, the expansion of the WAP program into multi-family housing and the use of energy audits has highlighted the issue that arises when a fully-subsidized rate is used. This dramatically-reduced cost of energy skews the true cost effectiveness calculation and this proves a disadvantage to low income clients. Further, this methodology only acknowledges one side of the energy savings equation, the cost of energy. The second and equally-weighted element of cost effectiveness is the projected energy savings.

Use of the subsidized rate in cost effectiveness calculations misrepresents the true cost of energy because only the un-subsidized portion of the cost of energy is attributed to the cost effectiveness of the measure. The true cost of energy includes the subsidized portion of the rate, plus the non-subsidized portion, and is equal to the average tariff paid by residential customers for a given utility. Further, the California utility rate structure is built on energy consumption tiers. Each tier above the baseline daily energy usage allowance represents an increase in per-unit cost of energy. Therefore, energy savings for customers eliminates the highest cost tiers first, further misrepresenting the true value of energy savings.

Use of the subsidized energy rate for cost effectiveness calculations creates a disadvantage for low income customers who do receive subsidized rates relative to those on non-subsidized rates because only the portion of energy that the low income customer pays for is used in the cost effectiveness calculation. The result is that fewer measures will qualify in a low income home than will qualify in a home with non-subsidized utility rates, regardless of energy savings. Use of a blended market rate that reflects an average cost of energy savings will assist in improving the weighting of cost effectiveness, reducing if not eliminating the inequity in the cost effectiveness equations.

Upon hearing this reasoning, Robert Adams of the U.S. Department of Energy Office of Weatherization and Intergovernmental Programs, provided a verbal approval for the use of a blended residential market rate for cost effectiveness calculations in the WAP program, assuming the state was able to provide adequate documentation of blended rates for each utility's customer base. This document defines market rates for electricity and natural gas for the large utilities in California and defines an average statewide market rate for customers that are not served by one of the listed utilities.

2. SCOPE

The rate determinations made herein apply to all weatherization measures conducted in California under CSD's DOE WAP program, where the displaced fuel is natural gas or electricity. This document does not address other fuels such as wood, fuel oil or propane rates. A per-unit cost determination (rate) for these fuels should be made on a case-by-case basis using current local costs for the project.

3. UTILITY RATE UPDATING PERIOD

CSD will update the blended rate on a periodic basis based on availability of new rate information. The rates contained herein shall be utilized until a new rate schedule is distributed.

4. CALIFORNIA ENERGY DISTRIBUTION

Electric and gas utilities are distributed in California via Investor-Owned Utilities, Small Multi-jurisdictional Utilities, Public Utility Districts, and Municipal Utility Districts. Figure 1¹ shows a geographic representation of the various electric utilities' service areas published by the California Energy Commission. Figure 2² shows the service territories of the natural gas providers in California.

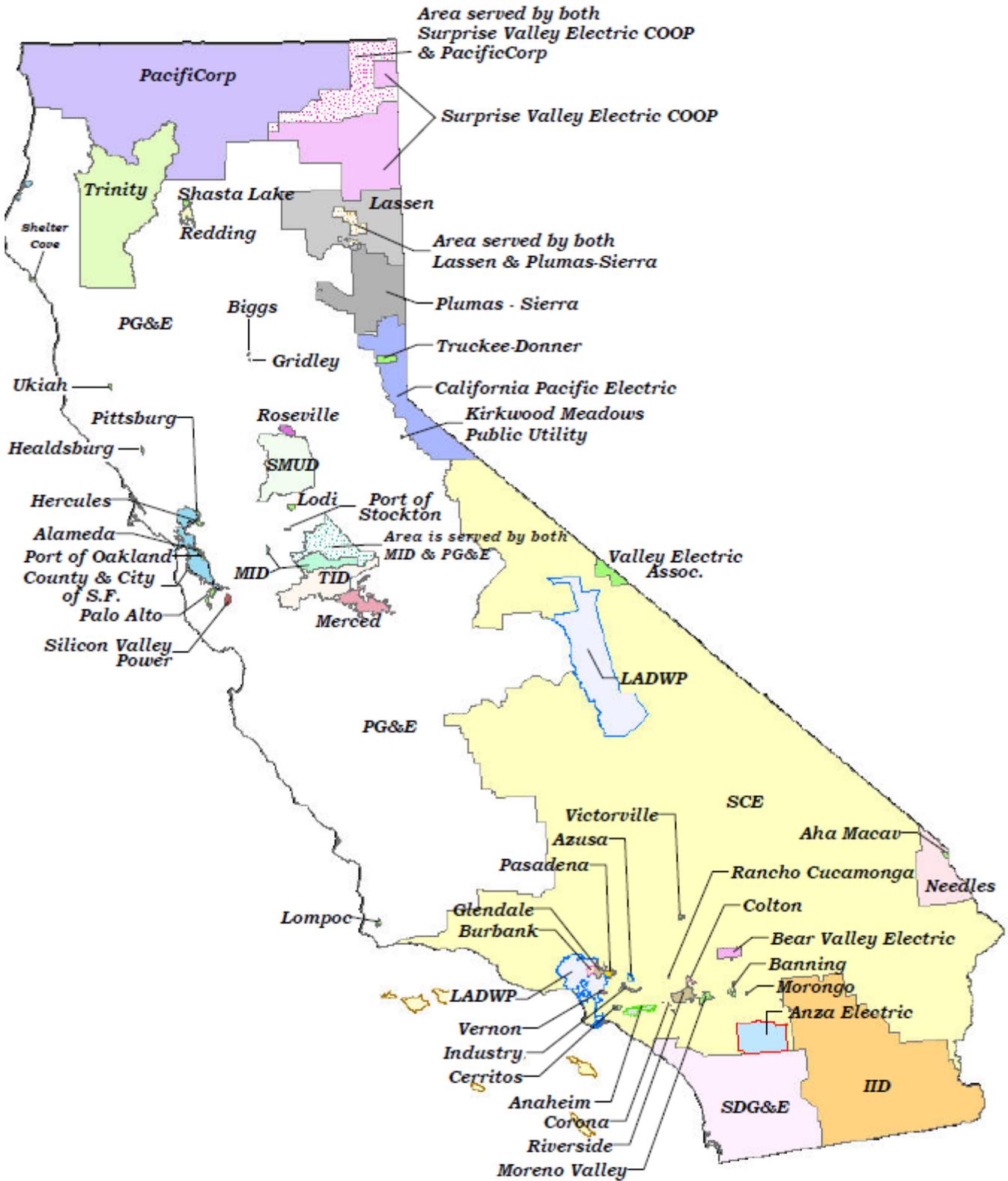


Figure 1: California Electric Utility Service Areas

As shown in Figure 1, the majority of the state’s electrical service is provided by the Investor-Owned Utilities (IOUs): Pacific Gas and Electric (PG&E), San Diego Gas and Electric (SDG&E), Southern California Gas Corporation (SCG), and Southern California Edison (SCE). In addition, two of the state’s most populous areas, Sacramento and Los Angeles, are serviced by Sacramento Municipal Utility District (SMUD) and Los Angeles Department of Water and Power (LADWP) respectively.



Figure 2: California Natural Gas Utility Service Areas

As shown in figure 2, natural gas is supplied to most of California by PG&E, SDG&E and Southern California Gas Corporation (SCG).

5. ENERGY HISTORICAL PRICING - ELECTRIC

Historic residential electric pricing was obtained from the California Energy Commission (CEC)³ for the larger utilities identified in Figure 1 and from the U.S. Energy Information Administration⁴ (EIA) for the state as a whole. This data is shown in Table 1. Note that “BGP” is an average of the Burbank, Glendale and Pasadena Municipal Utility District pricing. The utilities listed in Table 1 cover +/- 95% of the total California customer base based on CEC published data⁵.

Table 1: Historic Electrical Pricing in California (\$/kWh)

Year	PG&E	SCE	SDG&E	LADWP	SMUD	BGP	California Average (EIA)
2000	\$ 0.100	\$ 0.110	\$ 0.143	\$ 0.104	\$ 0.076	\$ 0.109	\$ 0.109
2001	\$ 0.121	\$ 0.139	\$ 0.151	\$ 0.104	\$ 0.088	\$ 0.120	\$ 0.121
2002	\$ 0.134	\$ 0.137	\$ 0.125	\$ 0.127	\$ 0.097	\$ 0.120	\$ 0.126
2003	\$ 0.151	\$ 0.159	\$ 0.098	\$ 0.141	\$ 0.104	\$ 0.113	\$ 0.122
2004	\$ 0.147	\$ 0.131	\$ 0.163	\$ 0.104	\$ 0.089	\$ 0.129	\$ 0.122
2005	\$ 0.129	\$ 0.133	\$ 0.167	\$ 0.104	\$ 0.094	\$ 0.119	\$ 0.125
2006	\$ 0.129	\$ 0.153	\$ 0.166	\$ 0.105	\$ 0.094	\$ 0.120	\$ 0.143
2007	\$ 0.129	\$ 0.136	\$ 0.166	\$ 0.108	\$ 0.094	\$ 0.127	\$ 0.144
2008	\$ 0.131	\$ 0.138	\$ 0.162	\$ 0.115	\$ 0.100	\$ 0.138	\$ 0.138
2009	\$ 0.151	\$ 0.143	\$ 0.173	\$ 0.125	\$ 0.109	\$ 0.149	\$ 0.147
2010	\$ 0.152	\$ 0.148	\$ 0.157	\$ 0.129	\$ 0.115	\$ 0.143	N/A

6. CALIFORNIA ENERGY HISTORICAL PRICING – NATURAL GAS

Historic residential natural gas pricing was obtained from the CPUC^{6,7,8,9} for the larger utilities identified in figure 2 and from the EIA¹⁰ for the state as a whole. This data is shown in Table 2.

Table 2: Historic Utility Wide Natural Gas Pricing in California (\$/therm)

Year	PG&E	SCG	SDG&E	California Average (EIA)
2000	\$ 0.82	\$ 0.86	\$ 0.92	\$ 0.83
2001	\$ 1.01	\$ 0.87	\$ 1.26	\$ 0.98
2002	\$ 0.68	\$ 0.75	\$ 0.80	\$ 0.72
2003	\$ 0.95	\$ 0.93	\$ 1.02	\$ 0.92
2004	\$ 0.95	\$ 1.04	\$ 1.06	\$ 0.98
2005	\$ 1.27	\$ 1.22	\$ 1.34	\$ 1.20
2006	\$ 1.27	\$ 1.12	\$ 1.30	\$ 1.15
2007	\$ 1.22	\$ 1.13	\$ 1.31	\$ 1.18
2008	\$ 1.32	\$ 1.32	\$ 1.48	\$ 1.35
2009	\$ 1.04	\$ 0.91	\$ 1.10	\$ 0.93
2010	\$ 1.08	\$ 1.00	\$ 1.19	\$ 1.01

7. RATES USED TO CALCULATE MONETARY SAVINGS OF ENERGY EFFICIENT MEASURES

As shown above, historic pricing data is available for the majority of customers in California. This data serves as the basis for determination of a utility-wide blended rate for use in the WAP program cost effectiveness calculations. The blended rate is based on the most recent utility wide average annual residential rate for each utility. Table 3 shows the blended electric rate and Table 4 shows the blended gas rate. For customers not serviced by the utilities listed in Table 3 and Table 4, the blended rate is the most recent Energy Information Administration (EIA) Published statewide average rate.

Table 3: Blended Electric Rate for Each Utility

Utility	Blended Rate (\$/kWh)
PG&E	\$ 0.152
SCE	\$ 0.148
SDG&E	\$ 0.157
LADWP	\$ 0.129
SMUD	\$ 0.115
Burbank MUD	\$ 0.143
Glendale Water and Power	\$ 0.143
Pasadena Water and Power	\$ 0.143
All Other Utilities	\$ 0.147

Table 4: Blended Natural Gas Rate for Each Utility

Utility	Blended Rate (\$/therm)
PG&E	\$ 1.08
SCG	\$ 1.00
SDGE	\$ 1.19
All Other	\$ 1.01

8. CONCLUSION

Market rates have been determined based on CEC and CPUC published data for most California customers, and based on EIA data for those customers that are served by the smaller utilities. Going forward, these blended market rates will be used in cost effectiveness calculations for single family and multifamily weatherization under the Department of Energy Weatherization Assistance Program in California.

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**FIRST AMENDED PROGRAMMATIC AGREEMENT
AMONG THE CALIFORNIA ENERGY COMMISSION,
THE DEPARTMENT OF COMMUNITY SERVICES AND DEVELOPMENT,
THE UNITED STATES DEPARTMENT OF ENERGY, AND
THE CALIFORNIA STATE HISTORIC PRESERVATION OFFICER
REGARDING SECTION 106 COMPLIANCE FOR DEPARTMENT OF ENERGY
AMERICAN RECOVERY AND REINVESTMENT ACT PROGRAMS**

WHEREAS, the United States Department of Energy (DOE) administers the *Energy Efficiency and Conservation Block Grant Program* under the Energy Independence and Securities Act of 2007 (EECBG), administers the *State Energy Program* under the Energy Policy and Conservation Act of 1975 and the State Energy Efficiency Programs Improvement Act of 1990 (SEP), and administers the Weatherization Assistance Program (WAP) for low-income persons under Title IV of the Energy Conservation and Production Act, the Energy Policy Act of 2005, and the Energy Independence and Security Act of 2007, and provides financial assistance for the EECBG, SEP, and WAP under the American Recovery and Reinvestment Act of 2009 (ARRA); collectively referred to as the "DOE ARRA" programs; and

WHEREAS, the unprecedented levels of funding available to the DOE ARRA programs has created a large volume of projects requiring expedited historic preservation reviews to ensure the timely obligation of funds, that create new jobs, and improve local and state economies; and

WHEREAS, the California State Office of Historic Preservation (OHP) is experiencing unprecedented numbers of requests for historic preservation review of undertakings funded by all Federal Agencies, including undertakings funded by the DOE ARRA programs; and

WHEREAS, the California State Energy Resources Conservation and Development Commission (Energy Commission) and the California Department of Community Services and Development (CSD) are receiving financial assistance from DOE to carry out the DOE ARRA programs; and

WHEREAS, the projects funded by the DOE ARRA programs are undertakings subject to review under Section 106 of the National Historic Preservation Act, 16 USC 470f (NHPA) and its implementing regulations at 36 CFR Part 800 and include energy efficiency retrofits, renewables, and weatherization (undertakings); and

WHEREAS, the DOE's August 28, 2009 *Memorandum from Office of Energy Efficiency and Renewable Energy Regarding Delegation of Authority for Section 106 Review of Undertakings, Assisted by the U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy* authorizes recipients of DOE ARRA program awards to initiate consultation with the California State Historic

Preservation Officer (SHPO) pursuant to Section 106 of the National Historic Preservation Act of 1966 (16 USC 470f), as amended, and implementing regulations in 36 CFR Part 800, and to carry out steps with the SHPO in that regulatory process; and

WHEREAS, the Energy Commission, CSD, and the DOE have determined that the administration of the DOE ARRA programs may have the potential to adversely affect properties included in or eligible for inclusion in the National Register of Historic Places (National Register), historic properties, and has consulted with the SHPO pursuant to 36 CFR § 800.14(b)(3) and DOE's aforementioned August 28, 2009 *Memorandum Regarding Delegation of Authority for Section 106 Review*; and

WHEREAS, the Energy Commission's consultation with the SHPO resulted in an interim agreement between the Energy Commission and the SHPO, dated December 29, 2009, that established an expedited review process for exempt undertakings not subject to the SHPO's direct review, and a subsequent programmatic agreement between the Energy Commission and SHPO, dated February 19, 2010, that clarified and more formally memorialized the review process for exempt undertakings not subject to the SHPO's direct review; and

WHEREAS, Section XI of the February 18, 2010, programmatic agreement between the Energy Commission and the SHPO contemplates amendments to the agreement from time to time to better clarify and identify exempt undertakings not subject to the SHPO's review; and

WHEREAS, the Energy Commission, CSD, the DOE, and the SHPO now desire to amend the February 18, 2010 programmatic agreement to add CSD and the DOE as parties and to further clarify the review process, identify additional exempt undertakings not subject to the SHPO review, and to conform the programmatic agreement to subsequent guidance by the DOE; and

WHEREAS, the Energy Commission, CSD, the DOE, and SHPO agree to amend the February 18, 2010 programmatic agreement.

NOW THEREFORE, the Energy Commission, CSD, the DOE, and SHPO agree that the DOE ARRA programs will be administered in accordance with the following stipulations in order to take into account the effects of the undertakings proposed under these programs on historic properties, and further agree that these stipulations shall govern the administration of these programs until this Agreement is amended, expires, or is terminated.

STIPULATIONS

The Energy Commission, CSD, and the DOE shall ensure that the following measures are carried out:

I. APPLICABILITY OF AGREEMENT

- A. The review process established by this Agreement will be completed prior to any property owner altering any property eligible for assistance under the subject DOE ARRA programs. The review process may take place after the Energy Commission, CSD, or the DOE have awarded DOE ARRA program funds for a particular program, project or undertaking, but must occur prior to the commencement of any work on the particular program, project or undertaking. Any program, project, or undertaking will be reviewed in accordance with the procedures outlined in 36 CFR Part 800.
- B. Attachment A establishes categories of individual undertakings under the DOE ARRA programs that are exempt from SHPO review. These individual undertakings are not expected to be on Tribal lands and are primarily smaller scale activities and routine projects, without the potential for adversely affecting historic properties, rather than complex undertakings with a greater potential to adversely affect historic properties. The Energy Commission, CSD and the DOE shall perform the following review to determine whether a particular undertaking qualifies for a review exemption under Attachment A.

1. Energy Commission Review.

The Energy Commission shall review documentation from applicants for DOE ARRA program funds to verify that individual undertakings qualify for review exemption under Attachment A, report such exemptions to the SHPO in accordance with stipulation VIII below, and retain that documentation for three (3) years. The applicant's documentation may include a certification by the applicant, a sub-grantee of the applicant, or the contractor conducting the project that the individual undertaking qualifies for a review exemption. It is understood by the SHPO that the Energy Commission review pursuant to this Agreement shall be performed by Energy Commission staff in the Cultural Resources Unit of the Environmental Protection Office of the Energy Commission's Siting, Transmission, and Environmental Protection Division, or by equivalent Energy Commission staff of similar qualifications, expertise, and experience in the Section 106 consultation process and that meet the Secretary of the Interior's Professional Qualifications Standards (36 CFR Part 61).

2. CSD Review.

The CSD shall review documentation from applicants for DOE ARRA program funds to verify that individual undertakings qualify for review exemption under Attachment A, report such exemptions to the SHPO in

accordance with stipulation VIII below, and retain that documentation for three (3) years. The applicant's documentation may include a certification by the applicant, a sub-grantee of the applicant, or the contractor conducting the project that the individual undertaking qualifies for a review exemption. It is understood by the SHPO that the CSD review pursuant to this Agreement shall be performed by CSD staff or consultant(s) having expertise in the Section 106 consultation process, and meeting the Secretary of the Interior's Professional Qualifications Standards (36 CFR Part 61), subject to SHPO approval.

3. DOE Review.

For other California recipients of DOE ARRA program funds (recipients other than the Energy Commission and CSD), recipients shall make documentation available to DOE to verify a recipient's individual undertakings qualify for review exemption under Attachment A. The recipient's documentation may include a certification by the recipient, a sub-grantee of the recipient, or the contractor conducting the project that the individual undertaking qualifies for a review exemption. DOE will provide the SHPO with an annual report in accordance with stipulation VIII below, and retain that documentation for three (3) years.

- C. Program-based undertakings that implement any of the individual undertakings identified in Attachment A are exempt from SHPO review. These program-based undertakings include retrofit projects in which the applicant does not know, at the commencement of the project, which buildings or structures will be retrofitted or which specific retrofit measures will be installed on such buildings or structures. The Energy Commission, CSD and the DOE shall perform the following review to determine whether a particular undertaking qualifies for a review exemption under Attachment A.

1. Energy Commission Review.

The Energy Commission shall review documentation from applicants that are awarded DOE ARRA program funds to verify that an individual undertaking under a program-based undertaking qualifies for a review exemption in accordance with Paragraph B. The applicant's documentation may include a certification by the applicant, a sub-grantee of the applicant, or the contractor conducting the retrofit project that the individual undertaking qualifies for a review exemption. The Energy Commission's review may take place after the applicant has been awarded DOE ARRA program funds, but must occur prior to the applicant's commencement of work on any undertakings. The applicant's award agreement from the Energy Commission shall be conditioned to preclude the applicant from commencing work on any proposed individual

undertaking until the Energy Commission has completed its review of the undertaking in accordance with Paragraph B.

2. CSD Review.

The CSD shall review documentation from applicants that are awarded DOE ARRA program funds to verify that an individual undertaking under a program-based undertaking qualifies for a review exemption in accordance with Paragraph B. The applicant's documentation may include a certification by the applicant, a sub-grantee of the applicant, or the contractor conducting the retrofit project that the individual undertaking qualifies for a review exemption. The CSD's review may take place after the applicant has been awarded DOE ARRA program funds, but must occur prior to the applicant's commencement of work on any undertakings. The applicant's award agreement from the CSD shall be conditioned to preclude the applicant from commencing work on any proposed individual undertaking until CSD has completed its review of the undertaking in accordance with Paragraph B.

3. DOE Review.

For other California recipients of DOE ARRA program funds (recipients other than the Energy Commission and CSD), recipients shall make documentation available to DOE to verify a recipient's individual undertakings qualify for review exemption under Attachment A. The recipient's documentation may include a certification by the recipient, a sub-grantee of the recipient, or the contractor conducting the retrofit project that the individual undertaking qualifies for a review exemption.

II. AREA OF POTENTIAL EFFECTS

For purposes of the Section 106 consultation of non-exempt undertakings, the Area of Potential Effects (APE) will be limited to the individual building when an undertaking is limited to the weatherization, rehabilitation, and/or improvement of the existing building. If construction of exterior additions or the expansion of an existing building is anticipated, the APE shall be expanded to include surrounding historic properties that may be visually impacted.

For DOE ARRA programs where undertaking implementation would include the construction or modification of ancillary facilities exterior to existing buildings or structures, the APE shall include the subject existing buildings and structures, the associated ancillary facilities, historic properties in the viewshed of the existing buildings and structures and the ancillary facilities, and any ground, the disturbance of which is requisite to the implementation of a proposed undertaking.

III. IDENTIFICATION OF HISTORIC PROPERTIES

When conducting their respective reviews of non-exempt undertakings, the Energy Commission, CSD and the DOE will initiate the Section 106 review process by studying all existing and pertinent information on all properties in an APE, including review of the National Register, local inventories, and records housed at the California Historical Resources Information System (CHRIS) regarding those properties which have been determined to be historic properties, either individually, as part of a historic district, or as part of a multiple property nomination. If an APE expands beyond an individual building and other properties in that APE have not been surveyed, the Energy Commission, CSD and the DOE will cause the applicant for DOE ARRA program funds to conduct an inventory effort consistent with 36 CFR § 800.4(b)(1). When considering the results of any such inventory effort,

- A. a property listed in the National Register is an historic property and subject to an assessment of the potential effects of an undertaking on it,
- B. if the agency official determines any of the National Register Criteria are met and the SHPO agrees, the property shall be considered eligible for the National Register for Section 106 purposes. If the agency official and the SHPO do not agree, or if the Council or the Secretary so request, the agency official shall obtain a determination of eligibility from the Secretary pursuant to 36 CFR Part 63.
- C. a property determined, pursuant to 36 CFR § 800.4(c)(2), to be ineligible for inclusion in the National Register in the last five (f) years is not historic and the property will not be subject to further review.

IV. ASSESSMENT OF EFFECTS

- A. When conducting their respective reviews, the Energy Commission, CSD and the DOE will assess, pursuant to 36 CFR §§ 800.4(d)(1) and 800.5(a) and (b), the potential effects of each nonexempt undertaking on historic properties, and will review the scope of work for each such undertaking to determine whether the undertaking would conform to the recommended approaches contained in the Secretary of the Interior's Standards for the Treatment of Historic Properties (Standards).
 - 1. If the Energy Commission, CSD, or the DOE find, pursuant to 36 CFR § 800.4(d)(1), that an undertaking would affect no historic properties, either because there are no historic properties present, or no historic properties will be impacted physically or visually, the Energy

Commission, CSD or the DOE will notify the applicant for that undertaking of that finding, and, upon receipt of the notification, the applicant will be able to proceed with the implementation of the subject undertaking, as submitted, without further review.

2. If the Energy Commission, CSD, or the DOE find, pursuant to 36 CFR § 800.5(b), that an undertaking would not adversely affect historic properties, because it will have only a minor impact and conforms to the Standards, the Energy Commission, CSD or the DOE will notify the applicant for that undertaking of that finding, and, upon receipt of the notification, the applicant will be able to proceed with the implementation of the subject undertaking, as submitted, without further review.
3. If the Energy Commission, CSD or the DOE is unable, pursuant to 36 CFR §§ 800.5(a) and (b), to find that an undertaking would not adversely affect historic properties, the Energy Commission, CSD or the DOE may recommend to the applicant for an undertaking modifications on the scope of work or conditions under which the project would be found to conform to the Standards, the Energy Commission, CSD or the DOE will subsequently forward all documentation on the subject undertaking to the SHPO for further review.
4. If the Energy Commission, CSD or the DOE believe, in accordance with 36 CFR § 800.5(d)(2), that an undertaking would adversely affect historic properties, because it will have a major impact to such properties and does not conform to the Standards, the Energy Commission, CSD and the DOE will subsequently forward all documentation on the subject undertaking to the SHPO for further review and consultation for purposes of addressing adverse effects.

V. ENERGY COMMISSION, CSD AND DOE RESPONSIBILITIES

A. Energy Commission Responsibilities.

1. The Energy Commission will require sub-grantees of DOE ARRA program funds to retain access to pre- and post-documentation of completed DOE ARRA program-funded work, including the work write-ups and photographs as part of its permanent project records.
2. The Energy Commission will monitor every program for compliance with this Agreement according to established guidelines.
3. The energy Commission will notify SHPO of any changes to an approved scope of work, other than exempted activities, and will

provide SHPO with the opportunity to review and approve such changes.

B. CSD Responsibilities.

1. The CSD will require sub-grantees of DOE ARRA program funds to retain access to pre- and post-documentation of completed DOE ARRA program-funded work, including the work write-ups and photographs as part of its permanent project records.
3. The CSD will monitor every program for compliance with this Agreement according to established guidelines.
4. The CSD will notify SHPO of any changes to an approved scope of work, other than exempted activities, and will provide SHPO with the opportunity to review and approve such changes.

C. DOE Responsibilities.

1. The DOE will require grantees of DOE ARRA program funds to retain access to pre- and post-documentation of completed DOE ARRA program-funded work, including the work write-ups and photographs as part of its permanent project records.
2. The DOE will monitor every program for compliance with this Agreement according to established guidelines.
3. The DOE or its recipients will notify SHPO of any changes to an approved scope of work, other than exempted activities, and will provide SHPO with the opportunity to review and approve such changes.

VI. SHPO RESPONSIBILITIES

- A. SHPO is permitted thirty (30) calendar days after the receipt of any submitted documentation to review and comment on such material. If the SHPO fails to respond within 30 days of receipt of request for review of a finding or determination, the agency official may either proceed to the next step in the process based on the finding or determination or consult with the Council in lieu of the SHPO in accordance with 36 CFR § 800.3(c)(4).

VII. DISCOVERIES AND UNFORESEEN EFFECTS

If, during the implementation of the DOE ARRA programs, a previous unidentified property that may be eligible for inclusion in the National Register is encountered, or is affected in an unanticipated manner, the

Energy Commission, CSD, or the DOE will consult with the SHPO pursuant to 36 CFR § 800.13(b).

VIII. REPORTING

A. Energy Commission and CSD Reporting.

In order to satisfy their respective responsibilities under this Agreement, the Energy Commission and CSD will forward to the SHPO, by the tenth calendar day following the last day of each calendar quarter, a report of all review exemptions verified and all reviews completed for undertakings covered by the terms of this Agreement. The exemptions and reviewed undertakings should be listed by the property address including city and/or county, and should include the original construction date of the property and the type of project.

B. DOE Reporting.

In order to satisfy their respective responsibilities under this Agreement, the DOE will forward to the SHPO within 30 calendar days following the last day of the calendar year, a report of all review exemptions verified and all reviews completed for undertakings covered by the terms of this Agreement. The exemptions and reviewed undertakings should be listed by the property address including city and/or county, and should include the original construction date of the property and the type of project.

IX. MONITORING

SHPO may monitor any activities carried out pursuant to this Agreement. The Energy Commission, CSD and the DOE will cooperate with SHPO in carrying out these monitoring and review responsibilities.

X. DISPUTE RESOLUTION

If the Energy Commission, CSD or the DOE are unable to resolve any disagreement with SHPO arising under the provisions of this Agreement, the Energy Commission, CSD or the SHPO will, unless the dispute relates to the National Register eligibility of any property, forward full documentation regarding the project, the basis for the dispute, and initiate consultation with the Advisory Council on Historic Preservation (Council) in accordance with 36 CFR § 800.2(b)(2).

XI. AMENDMENTS

Any signatory to this Agreement may request that it be amended, whereupon the parties will consult with each other. No amendment to this

Agreement will be come effective without the written concurrence of all signatories.

It is contemplated by the parties that Attachment A of the Agreement may be revised from time to time to better clarify and identify exempt undertakings not subject to the SHPO's direct review and consultation. The parties agree that Attachment A may be revised without having to formally amend the Agreement. All such revisions to Attachment A shall be approved in writing by the parties and shall take effect upon approval.

XII. TERMINATION

- A. Any party to this Agreement may terminate the Agreement by providing thirty (30) days notice to the other signatory, provided that the signatories consult during the period prior to the termination to seek agreement on amendments or other actions that would avoid termination.
- B. In the event of termination, the Energy Commission, CSD and the DOE will ensure compliance with 36 CFR §§ 800.4-6 with respect to individual undertakings covered by this Agreement that are subject to their respective reviews.

XIII. FAILURE TO COMPLY WITH TERMS OF AGREEMENT

In the event that the terms of this Agreement cannot be carried out by the Energy Commission, CSD or the DOE, no action will be taken or sanction of any action or any irreversible commitment by the Energy Commission, CSD or the DOE that would result in an adverse effect to historic properties or would foreclose the Council's consideration of modifications or alternatives to any DOE ARRA program undertaking.

XIV. LIABILITY LIMITATIONS

- A. Energy Commission and CSD Limitations.

In the event that the terms of this Agreement are not carried out by sub-grantees of the DOE ARRA program funds as indicated in work plans submitted to the Energy Commission or CSD, the sub-grantee will assume all responsibility for any undertaking as indicated in its respective agreement with the Energy Commission or CSD.

- B. DOE Limitations.

In the event that the terms of this Agreement are not carried out by grantees of the DOE ARRA program funds as indicated in work plans

submitted to the DOE, the grantee will assume all responsibility for any undertaking as indicated in its agreement with the DOE.

XV. DURATION OF THE AGREEMENT

- A. Unless terminated pursuant to stipulation XII, or an amended Agreement supersedes it, this Agreement will be in effect following execution by the signatory parties until the Energy Commission, CSD or the DOE, in consultation with the other signatories, determines that all of their respective stipulations have been satisfactorily fulfilled as concurred by the SHPO. This Agreement will terminate as to the Energy Commission, CSD or the DOE, and have no further force or effect with respect to this party, on the day that the party notifies the other signatory in writing of the party's determination that all stipulations of this Agreement have been satisfactorily fulfilled.
- B. The terms of this Agreement shall be satisfactorily fulfilled within five years following the date of execution by the signatory parties. If the Energy Commission, CSD or the DOE determine that this requirement cannot be met, the signatories to the Agreement will consult to reconsider its terms. Reconsideration may include continuation of the Agreement as originally executed, amendment of the Agreement, or termination. In the event of termination, the parties will comply with subpart B of stipulation XII if the parties determine that the administration of the DOE ARRA programs will proceed notwithstanding termination of the Agreement.
- C. If the administration of DOE ARRA programs is not complete five years following execution of this Agreement by the signatory parties, this Agreement shall automatically terminate and have no further force or effect. In such event, the Energy Commission, CSD and the DOE shall notify the SHPO in writing and, if it chooses to continue with the administration of DOE ARRA programs, shall reinstate the review of such programs in accordance with 36 CFR Part 800.

XVI. EFFECTIVE DATE

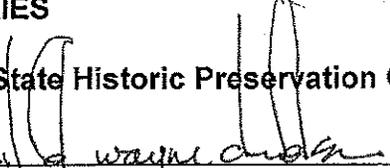
Amendment 1 of this Agreement will take effect on the date that it has been executed by the SHPO, the Energy Commission, CSD, and the DOE.

EXECUTION AND IMPLEMENTATION OF Amendment 1 of this Agreement, pursuant to 36 CFR § 800.14(b)(3), including its transmittal by the DOE to the Council in accordance with 36 CFR § 800.6 (b)(1)(iv), shall evidence that the DOE, the Energy Commission and the CSD, have taken into account the effects of the administration of DOE ARRA programs on historic properties in order to avoid, minimize, or mitigate any adverse effects on such properties and thereby

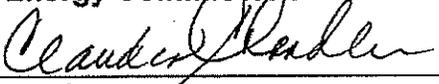
comply with Section 106 of the NHPA, and shall further evidence that the DOE has afforded the Council an opportunity to comment on the administration of DOE ARRA programs and their effects on historic properties.

SIGNATORIES

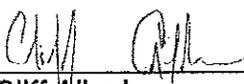
California State Historic Preservation Officer

By:  Date: 19 MAY 2010
Milford Wayne Donaldson, FAIA
State Historic Preservation Officer

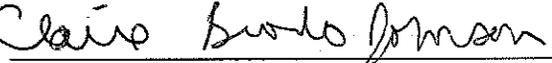
California Energy Commission

By:  Date: 5/19/2010
Melissa Jones
Executive Director

Department of Community Services and Development

By:  Date: 5-19-10
Cliff Allenby
Interim Director

**United States Department of Energy
Office of Energy Efficiency and Renewable Energy**

By:  Date: 5/24/10
Clair Broido Johnson
Acting Program Manager
Weatherization and Intergovernmental Program
Energy Efficiency and Renewable Energy

ATTACHMENT A

EXEMPT UNDERTAKINGS – UNDERTAKINGS NOT REQUIRING REVIEW BY SHPO

- A. ***Properties Less than Forty Five Years Old.*** Undertakings affecting only properties less than forty five (45) years old at the time the work takes place; provided it has not been determined to be eligible under National Register Criterion Consideration G for exceptional significance (36 CFR 60.4).
- B. ***Undertakings for Planning, Training and Educational Purposes***
1. Undertakings to fund regional workforce development programs focused on occupations in energy efficiency, water efficiency, renewable energy (distributed generation and utility-scale), and alternative and renewable transportation technologies.
 2. Undertakings to support existing clean energy job training for new hires and retraining programs for incumbent workers.
 3. Undertakings to fund energy efficiency, water efficiency, and renewable energy training for incumbent and new workers to add new skills to their professional toolbox.
 4. Undertakings to support state planning and energy assurance capabilities by improving state emergency preparedness plans and ensure quick recovery and restoration from any energy supply disruptions.
 5. Undertakings to fund training for energy infrastructure and supply systems, and conduct and participate in state and regional energy and emergency exercises.
 6. Undertakings to conduct residential and commercial building energy audits or assessments.
 7. Undertakings for the design and operation of programs to educate the public, identify the most effective methods for achieving the maximum participation and efficiency rates, establish measurement and verification protocols, and identify energy efficient technologies for possible implementation.
 8. Undertakings to develop and implement programs to conserve energy used in the transportation sector, including the use of flex time by employers, use of satellite work centers, development and promotion of zoning guidelines or requirements that promote energy efficient development, and synchronization of traffic signals.
 9. Undertakings to develop and implement building codes and inspection services, and associated training and enforcement of such codes in order to support code compliance and promote building energy efficiency.
- C. ***Building Interiors***

General Interior Work:

1. Undertakings limited to the interior spaces of properties not listed in the National Register where the work will not be visible from the exterior of the building.
2. Repairing or upgrading electrical or plumbing systems, installing fire, smoke or carbon dioxide detectors and alarms, and installing mechanical equipment, in a manner that does not affect the exterior of the building.
3. Conducting weatherization or energy conservation activities such as air sealing and insulating walls, ceilings, floors, attics, roofs, crawl spaces, ducts and foundations, provided repairs are made by a qualified contractor using current best practices.
 - a. Wall insulation – in terms of materials, blown in cellulose insulation, treated with fire-retardant salts is permitted. Spray foams should only be used in discrete locations for air-sealing and never for filling cavity walls. Urethane foams are not to be used. For moisture laden conditions and moisture vapor, more research should be conducted before in-wall insulation is used, refer to www.ohp.parks.ca.gov (go to sustainability).
4. Undertakings to replace existing residential appliances with new California-qualified residential ENERGY STAR® appliances, where the new appliances must replace appliances of the same type (AC for AC, clothes washer for clothes washer, etc.) and the replaced appliance must be properly recycled.
5. Undertakings to replace lighting in buildings with energy efficient technologies, where only the lighting equipment is replaced and there are no ground disturbances.
6. Undertakings to replace existing heating, ventilation, and air conditioning equipment, electric motors, lighting, and lighting controls with more energy efficiency equipment, where only the equipment is replaced and there are no changes to the building or structure or ground disturbance.
7. Undertakings to install dual technology occupancy sensors to control lighting for intermittently occupied spaces.
8. Undertakings to install variable frequency drives (VFDs) for electric motors, fans, and pumps.
9. Undertakings to install vending machine controls to conserve energy.
10. Undertakings to install programmable thermostats or integrated landscaping control systems to conserve energy.
11. Undertakings to install sensors and equipment controls for purposes of increasing energy efficiency.
12. Lead based paint abatement in accordance with the Standards and Preservation Brief #37.

Energy Efficiency Work with the Building Shell:

Special Note: Any work involving ground-disturbing activities requires SHPO review.

1. Performing plumbing work, including installation of water heaters, water heater tank and pipe insulation, and energy and water efficient distribution systems and controls.
2. Performing electrical work, including improving lamp efficiency, installing task/ambient lighting systems, installing lighting controls, and installing whole house fans and ceiling fans.
3. Sealing air leaks using weather stripping, doors sweeps, and caulk, and testing for and sealing of major air leaks within the building envelope and air delivery system.
4. Repair or replace water heaters, hot water distribution systems and controls.
5. Adding adjustable speed capability, such as on HVAC system distribution fans, cooling tower fans, and pumps.
6. Install insulation on water heater tanks and water distribution pipes and refrigerant lines.
7. Install solar water heating systems, provided the structure is not visible from the public right-of-way.
8. Install waste heat recovery devices, including desuperheater water heaters, condensing heat exchangers, heat pump and water heating heat recovery systems, and other energy recovery equipment.
9. Repair or replace electric motors and motor controls, such as variable speed drives.
10. Incorporate other lighting technologies, such as dimmable ballasts, day lighting controls, and occupant controlled dimming.
11. Lead based paint abatement in accordance with the Standards and Preservation Brief #37.
12. Building cleaning in accordance with the Standards and Preservation Briefs #1, #6, and #10.

Work on Heating and Cooling Systems:

Special Note: Any work involving ground-disturbing activities requires SHPO review.

1. Clean, tune, repair or replace heating systems, including furnaces, boilers, heat pumps, vented space heaters, and wood stoves.
2. Clean, tune, repair or replace cooling systems, including central air conditioners, window air conditioners, heat pumps, and evaporative coolers, and system components, to save energy and water.
3. Install insulation on ducts, heating system distribution pipes and air conditioner refrigerant lines.
4. Conduct other efficiency improvements on heating and cooling systems, including replacing standing pilot lights with electronic ignition devices and installing vent dampers, correcting improper refrigerant charge, and correcting improper airflow.

5. Modify duct and pipe systems so heating and cooling systems operate efficiently and effectively, including adding return ducts, replacing diffusers and registers, replacing air filters, installing thermostatic radiator controls on steam and hot water heating systems; provided interior of historic structures is not affected.
6. Install programmable thermostats, outdoor reset controls, UL listed energy management systems or building automation systems and other HVAC control systems.
7. Repairing or upgrading electrical or plumbing systems and installing mechanical equipment, in a manner that does not permanently change the appearance of the interior or exterior of the building.

Energy Efficiency Work Affecting the Electric Base Load of the Property:

1. Convert incandescent lighting to fluorescent or other high efficacy light source.
2. Add reflectors, LED exit signs, efficient HID fixtures, daylighting, occupancy (motion) sensors and other lighting controls that reduce lighting energy use.
3. Replace refrigerators and other appliances, replace or install controls or make other efficiency improvements to commercial refrigeration systems and to other equipment installed in nonresidential buildings.

Health and safety measures:

1. Installing fire, smoke or carbon dioxide detectors/alarms.
2. Repair or replace vent systems on fossil-fuel-fired heating systems and water heaters to ensure that combustion gasses draft safely to outside, including combustion safety testing.
3. Install mechanical ventilation, in a manner not visible from the public right-of-way, to ensure adequate indoor air quality.

D. Roofing

1. Repairing or replacing roofing with materials that closely match the historic materials and form, or with materials that restore the original feature based on historic evidence, and in a manner that does not alter the roofline.
2. Installing continuous ridge vents covered with ridge shingles or boards, or roof jacks/vents, bath and kitchen fan vents, gable vents, soffit and frieze board vents, and combustion appliance flues, if not located on a primary roof elevation or visible from the public right-of-way.
3. Installing reflective roof coating in a manner that closely resembles the historic materials and form, or with materials that restore the original feature based on historic evidence, and in a manner that does not alter the roofline, or where not on a primary roof elevation or visible from the public right-of-way.

4. Installation or replacement of downspout extensions, provided that the color of the extensions is historically appropriate for the period and style of the property.
5. Installing integrated shingle style or thin film solar systems on the rear roof of the structure, behind the parapet or not visible from the public right-of-way.
6. Repair of minor roof and wall leaks prior to insulating attics or walls, provided repairs closely resemble existing surface composite.

E. Exterior painting

1. Painting exterior surfaces unless the property is subject to review by SHPO under PRC 5024 and 5024.5 or by local landmark ordinance provisions, provided destructive surface preparation treatments, including, but not limited to, water-blasting, sandblasting and chemical removal, are not used.
2. Conducting Lead-based Paint Abatement of "Management in Place" activities carried out by a qualified contractor using current best practices and methods that are consistent with the preservation techniques in *Preservation Brief #37: Appropriate Methods for Reducing Lead-Paint Hazards in Historic Housing*.

F. Masonry

1. Power-washing exterior masonry performed by a qualified contractor at no more than 300 psi with mild detergent, using current best practices and methods that are consistent with the preservation techniques in *Preservation Brief #1: The Cleaning and Waterproof Coating of Masonry Buildings*.
2. Repairing masonry, including repointing, and rebuilding chimneys if the joints are done by hand and the mortar matches the original composition and color, and installing chimney flue liners, provided repairs are made by a qualified contractor using current best practices and methods that are consistent with the preservation techniques in *Preservation Brief #2: Repointing Mortar Joints in Historic Brick Buildings*.

G. Windows and Doors

1. Repairing or replacing caulking, weather-stripping, and other air infiltration control measures on windows and doors, and installing thresholds, in a manner that does not harm or obscure historic windows or trim.
2. Installing interior storm windows or doors, and wood screen doors in a manner that does not harm or obscure historic windows or trim.
3. Installing insulated exterior replacement doors where the openings are not altered and they cannot be viewed from the public right-of-way.
4. Installing removable film on windows (if the film is transparent), solar screens, or window louvers, in a manner that does not harm or obscure historic windows or trim.

H. Foundations

1. Underpinning and ventilating crawl spaces provided the underpinning materials are set at least two (2) inches behind the outer face of piers or foundations on the front façade.
2. Installing foundation vents, if painted or finished to match the existing foundation material.

I. General Efficiency Measures Not Affecting Exterior of Buildings

Special Note: Any work involving ground-disturbing activities requires SHPO review.

1. Installing thermal insulation, such as non-toxic fiberglass, cellulose, foam, and foil wrapped, in walls, floors, ceilings, attics, and foundations in a manner that does not harm or damage historic fabric.
2. Energy audits and feasibility studies.
3. Weatherization of mobile homes and trailers.
4. Caulking and weather-stripping around doors and windows in a manner that does not harm or obscure historic windows or trim.
5. Water conservation measures, such as low flow faucets, toilets, showerheads, urinals, and other efficient water using equipment.
6. Repairing in kind existing driveways, parking areas, and walkways with materials of similar appearance.
7. Ventilating crawl spaces.
8. Replacement of existing HVAC equipment including pumps, motors, boilers, chillers, cooling towers, air handling units, package units, condensers, compressors, heat exchangers that do not require a change to existing ducting, plumbing, electrical, controls or a new location, or if ducting, plumbing, electrical and controls are on the rear of the structure or not visible from any public right-of-way.
9. Adding or replacing existing building controls systems including HVAC control systems and the replacement of building-wide pneumatic controls with digital controls, thermostats, dampers, and other individual sensors like smoke detectors and carbon monoxide detectors (wired or non-wired).
10. Installing vents (such as continuous ridge vents covered with ridge shingles or boards, roof vents, bath and kitchen vents, soffit and frieze board vents or combustion appliance flues) if not visible from the public right-of-way.
11. New installation on non-hard wired devices including photo-controls, occupancy sensors, carbon dioxide, thermostats, humidity, light meters and other building control sensors, provided the work conforms with applicable state and local permitting requirements.
12. Adding variable speed capacity to electric motors, fans and pumps.
13. Insulation of water heater and boiler tanks and pipes.
14. Furnace or hot water tank replacement that does not require a visible new supply or venting.
15. Installing whole house fans or ceiling fans.

J. Insulation Measures Not Affecting the Exterior of the Building

1. Thermal insulation installation in walls, floors, attics and roof (excluding toxic spray foam insulation).
 - a. Wall insulation – in terms of materials, blown in cellulose insulation, treated with fire-retardant salts is permitted. Spray foams should only be used in discrete locations for air sealing and never for filling cavity walls. Urethane foams are not to be used. For moisture laden conditions and moisture vapor, more research should be conducted before in-wall insulation is used, refer to www.ohp.parks.ca.gov (go to sustainability).
2. Duct sealing, insulation, repair or replacement in unoccupied areas.
3. Attic insulation with proper ventilation.
4. Band joist insulation – R11 to R19 as applicable.
5. Water heater tank and pipe insulation, and heating system pipe insulation and air conditioner refrigerant line insulation.

K. Electric Base Load Measures Not Affecting the Exterior of the Building

1. Appliance replacement (upgrade to EnergyStar or higher efficiency appliances).
2. Compact fluorescent light bulbs or other high efficacy light source.
3. Energy efficient light fixtures, including ballasts (Replacement).
4. LED light fixtures and exit signs (Replacement).
5. Upgrade exterior lighting (replacement with metal halide bulbs, LEDs, or others) along with ballasts, sensors and energy storage devices not visible from any public right-of-way.
6. Refrigeration equipment and systems replacement, controls, tuning and repair.
7. Thermal energy storage devices and controls not visible from any public right-of-way.
8. Replacing lighting in parking lots, traffic signals and street lighting with energy efficient technologies, where only the lighting equipment is replaced and there are no ground disturbances.

L. Efficiency and Repair Measures

1. Installation or replacement of downspout extensions, provided that the color of the extensions is historically appropriate for the period and style of the property.
2. Repairing or upgrading electrical or plumbing systems and installing mechanical equipment, in a manner that does not permanently change the appearance of the interior or exterior of the building.
3. Installing integrated shingle style or thin film solar systems on the rear roof of the structure, behind the parapet or not visible from the public right-of-way.
4. Installing solar systems (including photovoltaic and solar thermal) not visible from the public right-of-way and if ground mounted can be installed

without ground disturbance and if roof mounted will not require new building reinforcement.

5. Lead based paint abatement in accordance with the Standards and Preservation Brief #37.
6. Building cleaning in accordance with the Standards and Preservation Briefs #1, #6, and #10.
7. Installing vents (such as continuous ridge vents covered with ridge shingles or boards, roof vents, bath and kitchen vents, soffit and frieze board vents or combustion appliance flues) if not visible from the public right-of-way.