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# Sustainability Task Force Agenda

A Committee of the Chico City Council  
Mayor Ann Schwab, Chair

Meeting of September 21, 2009 – 3:00 p.m. to 5:00 p.m.

Council Chamber Building, 421 Main Street, Conference Room No. 1

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1. **CONSIDERATION OF PROPOSED REVISIONS TO THE CHICO MUNICIPAL CODE REGARDING RESIDENTIAL ENERGY CONSERVATION MEASURES REQUIRED UPON RESALE.**

At its 8/3/09 meeting, the Task Force considered recommendations from the City's Building Official to amend the Chico Municipal Code to upgrade the energy conservation measures required to be installed upon the sale, exchange, or transfer of residential properties. The Task Force continued discussion of this item to today's meeting and requested that representatives from the Chico Association of Realtors be invited to attend. The Task Force is requested to provide recommendations on whether to forward these proposed amendments to the City Council for consideration.

2. **CONSIDERATION OF "CREATING A SUSTAINABLE COMMUNITY" WORKSHOPS**

Task Force member McNall requested that the Task Force consider working with the Institute for Sustainable Development in presenting a series of educational workshops in the Spring 2010. More information regarding this request is attached to this agenda.

4. **REPORTS AND COMMUNICATIONS**

a. **Update on the 2030 General Plan/Sustainability Element Progress** - Planning staff will update the Task Force on the development of the Sustainability Element of the 2030 General Plan and how the Climate Action Plan and Sustainability Indicators fit in the process.

b. **Update on Preparation of the Climate Action Plan** - Staff will provide an update on the progress in developing a draft Climate Action Plan.

5. **BUSINESS FROM THE FLOOR**

Members of the public may address the Committee at this time on any matter not already listed on the agenda, with comments being limited to three minutes. The Committee cannot take any action at this meeting on requests made under this section of the agenda.

3. **ADJOURNMENT** – The meeting will adjourn no later than 5:00 p.m.

**ATTACHMENTS:**

Staff Report/Proposed Residential Energy Conservation Measures  
Creating a Sustainable Community Workshop Info

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Distribution available in the office of the City Clerk:

Prepared: 9/17/09  
Posted : 9/17/09  
Prior to: 5:00 p.m.

Chico City Clerk's Office  
411 Main Street, Chico, CA 95928  
(530) 896-7250



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**Members:**

Jason Bougie  
Deanna Dottai  
Jim Pushnik

Lindsay Buckley  
Chris Giampaoli  
Ann Schwab, Chair

BT Chapman  
Ken Grossman  
Jim Stevens

Tom DiGiovanni  
Jon Luvaas  
Scott Wolf

Tim Dobbs  
Scott McNall  
Julian Zener



DATE: September 16, 2009

TO: SUSTAINABILITY TASK FORCE

FROM: GENERAL SERVICES ADMINISTRATIVE MANAGER, Linda Herman, 896-7241

RE: CONSIDERATION OF PROPOSED REVISIONS TO THE CHICO MUNICIPAL CODE REGARDING RESIDENTIAL ENERGY CONSERVATION MEASURES REQUIRED UPON RESALE.

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## RECOMMENDATION:

The Sustainability Task Force is requested to provide recommendations on whether to forward these proposed amendments to the City Council for consideration.

## BACKGROUND:

Section 16.60 of the Chico Municipal Code (CMC), which was adopted in 1990, requires the installation of certain energy conservation measures upon the sale, transfer, or exchange of existing residential housing. Given the date these requirements were adopted, the City's Building Official felt it was worthy to review and make reasonable adjustments to bring them more in line with current and easily obtainable energy efficiency standards.

At its 7/6/09 and 8/3/09 meetings, the Task Force considered the following proposed CMC revisions:

1. Changing the applicability of these requirements to duplexes and single-family homes constructed before 1990 instead of 1983, and to multifamily dwellings constructed before June 1991.
2. Upgrading the Ceiling Insulation minimum requirement from a thermal resistance rating of R-19 to R-30.
3. Adding the provision to require under-floor insulation with a minimum rating of R-19 for houses where feasible.
4. Adding the insulation of the hot and cold water lines to water heaters.
5. Adding requiring low-flow ( 2.75 gallons per minute flow) and/or aerators on all sink faucets.
6. Adding requiring low-flow (1.6 gallon/flush) toilets.
7. Adding requiring permanently affixed weather-stripping and door sweeps.
8. Adding requiring duct insulation to a minimum of R-4-2.
9. Requiring re-inspection of all home resales
10. Increasing the \$500 cost limitation in Section 16.60.110, a 1990 figure.
11. Adding that Title companies not close escrow until the energy conservation certification is approved.

At its 8/3/09 meeting, the Task Force discussed the various components of the proposed revision in detail. In particular, the Task Force discussed the feasibility and costs associated with the under-floor and duct insulation and duct and whether the \$500 cost limitation should be increased.

The Task Force also discussed whether enforcement of this Code section should be through the disclosure or the title/escrow process, and requested that staff inquire about what other cities are doing. The Task Force continued discussion of this item to its 9/21/09 meeting and requested that members from the Association of Realtors be invited to attend the meeting.

**DISCUSSION:**

Staff sent a letter and the proposed CMC revisions to the Executive Director of the Chico Association of Realtors inviting members to the meeting. A copy of the letter is attached as Exhibit "A". The proposed CMC changes that have been revised to reflect the changes discussed by the Task Force at its 8/3/09 meeting are attached as Exhibit "B".

Staff also researched residential energy conservation ordinances (RECOs) and procedures used in other cities. The cities of Berkeley and San Francisco have RECOs that are implemented through the title and/or escrow process. The costs for the retrofit measures are determined based on either a percentage of the sales price or a cost per square foot basis. However, San Francisco caps its maximum cost at \$1300. The Information regarding the San Francisco RECO program and copies of the forms used by the City of Berkeley to implement their RECO programs are attached as Exhibit "C".

The City of Austin Texas requires that an actual energy conservation audit be conducted prior to resale, but does not require that the conservation measures actually be installed. Many cities, such as Santa Cruz, San Diego and San Luis Obispo, have long standing residential water conservation retrofit ordinances requiring the installation of low-flow showerheads, toilets etc. upon resale, and the implementation of these programs are handled through the real estate agencies and not through the title/escrow process.

**ATTACHMENTS:**

- Exhibit "A": Association of Realtors Letter
- Exhibit "B": Proposed CMC Revisions
- Exhibit "C": SF and Berkeley RECO Programs



GENERAL SERVICES DEPARTMENT

965 Fir Street  
P.O. Box 3420  
Chico, CA 95927-3420

(530) 896-7800 or (530) 894-4200  
Fax (530) 895-4731  
<http://www.ci.chico.ca.us>

August 31, 2009

Peggy Mead  
Chico Association of Realtors  
VIA: Email

RE: Proposed Revisions to the Residential

Dear Peggy:

As you may already be aware, Section 16.60 of the Chico Municipal Code (CMC), which was adopted in 1990, requires the installation of certain energy conservation measures upon the sale, transfer, or exchange of existing residential housing dwelling.

Given the date that these requirements were established, the City's Building Official felt it was prudent to review and make reasonable adjustments to bring these provisions more in line with current energy efficiency standards. In addition, the City's Sustainability Task Force have been reviewing the proposed revisions as a means in which the City and the community can reduce energy consumption and greenhouse gas emissions.

A copy of CMC Section 16.60 with the proposed revisions being considered by the Task Force is attached for your information. The revisions include:

1. Changing the applicability of these requirements to duplexes and single-family homes constructed before 1990 instead of 1983, and to multifamily dwellings constructed before June 1991. The reason for this is that the energy efficient requirements enacted in 1983 did not actually get enforced until 1990.
2. Upgrading the ceiling insulation minimum requirement from a thermal resistance rating of R-19 to R-30.
3. Adding the provision to require underfloor insulation with a minimum rating of R-19 for houses where feasible.
4. Adding the insulation of the hot and cold water lines to water heaters.
5. Adding requiring low-flow ( 2.75 gallons per minute flow) and/or aerators on all sink faucets.
6. Adding requiring low-flow (1.6 gallon/flush) toilets.
7. Adding requiring permanently affixed weather-stripping and door sweeps.
8. Requiring energy efficient re-inspections (not energy audits) of home resales every 20 years.

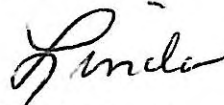
Some other items that are under consideration are:

1. Possibly requiring duct sealing and under floor insulation.
2. Possibly increasing the \$500 cost limitation in Section 16.60.110 to reflect current material and labor costs.
3. Whether to requiring Title companies not close escrow until the energy conservation certification is approved.

The Task Force also discussed the need to publicize the existing requirements since many realtors and homeowners are not aware of them. The Task Force is trying to determine whether the City should conduct a public awareness campaign and enforce the existing regulations, or whether to seek Council approval to revise the CMC with these additional energy efficient upgrades first.

The Task Force is interested in receiving comments and suggestions from the Chico Association of Realtors regarding this proposal, and would like to invite you and/or other representatives to attend its next meeting. The meeting will be held on Monday September 21, 2009 from 3:00 p.m.-5:00 p.m. in Conference Room 1 in the City Council Chamber Building, at 421 Main Street. If you are unable to attend, please feel free to forward any comments or ideas regarding the CMC revisions to me at the address listed above, or by email at [Lherman@ci.chico.ca.us](mailto:Lherman@ci.chico.ca.us). I would be happy to answer any questions you may have or provide additional information if needed. My direct phone number is 896-7241. Thank you and I look forward to hearing from you.

Sincerely,



Linda Herman  
Administrative Manager

**Chapter 16.60**

**ENERGY CONSERVATION MEASURES REQUIRED INCIDENT  
TO TRANSFERS OF RESIDENTIAL HOUSING**

**Section:**

- 16.60.010 Purpose.**
- 16.60.020 Administration by building official.**
- 16.60.030 Administrative review of a determination or an action of the building official by the community development director.**
- 16.60.040 Appeal from decision of the community development director.**
- 16.60.050 Administrative review and appeals - Aggrieved person.**
- 16.60.060 Residential housing defined.**
- 16.60.070 Sales, exchanges, and other transfers of residential housing subject to chapter.**
- 16.60.080 Sales, exchanges, and other transfers of residential housing subject to chapter - Exceptions.**
- 16.60.090 Agreements providing for the sale, exchange, or other transfer of residential housing.**
- 16.60.100 Energy conservation standards to be complied with incident to the sale, exchange or other transfer of residential housing.**
- 16.60.110 Cost limitations on compliance with energy conservation standards.**
- 16.60.120 Certification of compliance with energy conservation standards.**
- 16.60.130 Energy conservation inspections conducted by building official.**
- 16.60.140 Authorization of other persons to conduct energy conservation inspections.**
- 16.60.150 Transferee's assumption of obligation to correct noncomplying conditions.**
- 16.60.160 Violations.**

**16.60.010 Purpose.**

This chapter is adopted pursuant to the municipal affairs provisions of Section 201 of the city Charter for the purpose of requiring residential housing sold, exchanged, or otherwise transferred within the city to be provided with ceiling insulation and other energy conservation measures necessary to meet minimum energy conservation standards. (Ord. 1843 §1 (part))

**16.60.020 Administration by building official.**

The building official shall be primarily responsible for administration of the provisions of this chapter subject to the overall direction and control of the director. In carrying out such responsibilities, the building official, or an authorized representative, shall issue the energy conservation compliance certificates required by this chapter incident to a transfer of residential housing, conduct the inspections of residential housing necessary to issue such compliance certificates, grant authorization to make such inspections to persons qualified to do so, and enforce all other provisions of this chapter

as hereinafter provided for.

(Ord. 1843 §1 (part), Ord. 2012 §3 (part), Ord. 2268, Ord. 2364 §332)

**16.60.030 Administrative review of a determination or an action of the building official by the director.**

- A. Right to Administrative Review. Any person aggrieved by a determination made or action taken by the building official pursuant to this chapter may apply to the director for administrative review of such determination or action.
- B. Applications for Administrative Review. Applications for administrative review of a determination made or action taken by the building official shall be made in writing and shall be filed in the office of the director no later than 15 days following the date such determination or action was made or taken, or where a written report is required to be served, the date such report is served; provided that the director may extend the time for filing an application for good cause shown. In addition to setting forth a request for administrative review of a determination made or action taken by the building official, such application shall contain a brief statement of the reasons why the applicant believes that such determination or action does not comply with the provisions of this chapter and the relief requested by the applicant from such determination or action.
- C. Decision on an Application for Administrative Review. Upon the filing of an application for administrative review of a determination made or action taken by the building official, the director shall consider the application and render a decision either affirming the determination or action of the building official, or reversing or modifying such determination or action. Prior to rendering a decision, the director may, with sole discretion, convene an informal hearing for the purpose of reviewing evidence or hearing arguments bearing on such decision, provided notice of the date, time, and place of such hearing is served a reasonable time prior to such hearing on the applicant and on any other person who would be aggrieved by a decision reversing or modifying the determination or action of the building official and who has filed with the director a written request for notice of such decision. After rendering a decision, the director shall promptly inform the building official of the decision and cause a notice of the decision to be served on the applicant and any other person who would be aggrieved by a decision reversing or modifying the determination or action of the building official and who has filed with the director a written request for notice of such decision.

(Ord. 1843 §1 (part), Ord. 2012 §3 (part), Ord. 2268, Ord. 2364 §333)

**16.60.040 Appeal from decision of the director.**

Any person aggrieved by a decision of the director following the filing of an application for the administrative review of a determination made or action taken by the building official, may appeal such decision to the city council within the time and in the manner provided for by Title 2 of this code.

(Ord. 1843 §1 (part), Ord. 2004 §23, Ord. 2012 §3 (part), Ord. 2364 §334)

**16.60.050 Administrative review and appeals - Aggrieved person.**

A person shall be deemed "aggrieved" for purposes of the administrative review of a determination made or action taken by the building official pursuant to this chapter, or for

purposes of the appeal of a decision of the director following the filing of an application for administrative review of such determination or action, if such a person is an owner, transferee or occupant of the building or structure which is the subject of such determination, action or decision.

(Ord. 1843 §1 (part), Ord. 2012 §3 (part), Ord. 2364 §335)

#### **16.60.060 Residential housing defined.**

The term “residential housing,” as used in this chapter, shall mean any building or structure designed or used as a residence, provided, however, that the term “residential housing” shall not include “mobile homes,” “manufactured housing,” or “factory-built housing” as defined in Division 13 of the California Health and Safety Code (commencing with Section 17000 of the Health and Safety Code).

(Ord. 1843 §1 (part))

#### **16.60.070 Sales, exchanges, and other transfers of residential housing subject to chapter.**

Except as otherwise provided for herein, this chapter shall apply to any sale, exchange, or other transfer of a legal or equitable interest in and to the fee simple title to real property containing residential housing which entitles the transferee to possession of such housing, or any sale, exchange or other transfer of a separate interest in a “community apartment project,” a “condominium project,” or a “stock cooperative” as defined in Division 2 of the California Civil Code (commencing with Section 761 of the Civil Code), which entitles the transferee to possession of a residential dwelling unit located within such project or cooperative.

(Ord. 1843 §1 (part))

#### **16.60.080 Sales, exchanges, and other transfers of residential housing subject to chapter - Exceptions.**

This chapter shall not apply to the following transfers of residential housing:

- A. The sale, exchange, or other transfer of residential housing which contains no more than two dwelling units and was constructed pursuant to a building permit issued on or after June 1, ~~1983~~**1990**, or residential housing containing three or more dwelling units which was constructed on or after June 1, ~~1984~~**1991**;
- B. The sale, exchange, or other transfer of residential housing which was previously inspected and certified as being in compliance with the energy conservation standards adopted by this chapter ~~or included in Ordinance No. 1480 adopted by the city council on October 5, 1982~~ within twenty years of the date of construction or original inspection;
- C. Sales, exchanges, or other transfers of residential housing pursuant to a court order, including, but not limited to sales, exchanges, or other transfers ordered by a probate court incident to the administration of an estate, sales or other transfers made pursuant to a writ of execution, sales in any judicial foreclosure sale, sales, exchanges, or other transfers by a trustee in bankruptcy, and sales, exchanges, or other transfers resulting from a decree for specific performance;
- D. Sales or other transfers of residential housing to a mortgagee by a mortgagor in default, sales or other transfers to a beneficiary of a deed of trust by a trustor who is in



default, and sales in any nonjudicial foreclosure sale after a default in the obligations secured by a mortgage, deed of trust, or other instrument containing such power of sale;

- E. ~~Sales or other transfers of residential housing from one co-owner to one or more other co-owners;~~
- F. Sales or other transfers of residential housing made to a spouse, or to a person or persons in the lineal line of consanguinity of one or more of the transferor;
- G. Sales or other transfers of residential housing between spouses resulting from a decree of dissolution of marriage or a decree of legal separation, or from a property settlement agreement incident to such a decree; and
- H. ~~Sales, exchanges, or other transfers of residential housing to or from any governmental entity.~~

(Ord. 1843 §1 (part))

**16.60.090 Agreements providing for the sale, exchange, or other transfer of residential housing.**

Any agreement providing for the sale, exchange, or other transfer of residential housing subject to the provisions of this chapter, including any agreement granting an option to acquire such housing, shall include a provision which states as follows:

This agreement and the sale, exchange or other transfer of residential housing provided for by this agreement may be subject to the provisions of Title 16 of the Chico Municipal Code which prohibits the sale, exchange or other transfer of residential housing unless and until the city building official has certified that such housing is in compliance with the energy conservation standards adopted in Title 16 of the Chico Municipal Code.

(Ord. 1843 §1 (part))

**16.60.100 Energy conservation standards to be complied with incident to the sale, exchange or other transfer of residential housing.**

No person shall sell, exchange, or otherwise transfer residential housing subject to the provisions of this chapter unless and until the building official has certified that such housing is in compliance with the following energy conservation standards:

- A. The ceilings of all inhabitable portions of such residential housing shall be overlaid with insulation which has a minimum thermal resistance rating of at least ~~R-19~~ R-30 except:
  1. Where such ceilings are overlaid with insulation having a thermal resistance rating of not less than R-13 which was installed prior to March 23, 1978; or
  2. Where the attic of such buildings has a headroom of less than 30 inches at the attic peak.
- B. All electric resistance domestic water heaters, and all natural gas or other fossil fueled domestic water heaters, shall be fitted with external insulation blankets with a minimum thermal resistance rating of R-6 except:
  1. Where the thermal resistance rating of insulation within the water heater is at least R-12; or
  2. Where it is impractical to wrap the water heater with an external insulating

blanket by reason of the fact that the distance between the heater and an adjoining wall is less than two inches; or

3. Where the manufacturer's instructions for the water heater would preclude the water heater from being fitted with an external insulation blanket.

**C. All hot and cold water lines to existing water heaters shall be insulated with a minimum thermal resistance rating of R-3 up to 5 feet.**

**C.D.** All shower fixtures shall be fitted with in-line shower restrictors or low flow shower heads which restrict the maximum flow of water to not more than three gallons per minute except:

1. Where the shower head has an existing flow rate of less than three gallons per minute as a result of reduced water pressure behind the shower head; or
2. Where the shower head and shower arm are of a ball joint type which is connected within a wall.

**E. All toilets shall be fitted with toilets rated at 1.6 gallons per flush or less.**

D. All hinged doors exposed to the exterior or to unheated or uncooled areas shall be fully weather stripped or gasketed **with door sweeps and shoes** in a manner which effectively and reliably limits air infiltration.

E. All major cracks, joints, and other openings in building exteriors or portions of a building exposed to unheated or uncooled areas, and all openings from heated or air conditioned spaces into an attic, including but not limited to openings around plumbing vents, pipes, electrical wiring, or furnace flues, shall be caulked or otherwise sealed to limit air infiltration.

(Ord 1843 §1 (part), Ord 1870)

**16.60.110 Cost limitations on compliance with energy conservation standards.**

In order to comply with the ceiling insulation standards set forth in Subpart A of Section 16.60.100 of this chapter, the owner of residential housing subject to the provisions of this chapter shall be required to install all of the insulation necessary to comply with such standards without regard to the cost of such compliance. However, in order to comply with the remaining energy conservation standards set forth in Section 16.60.100 of this chapter, the owner of residential housing subject to the provisions of this chapter shall not be required to make an expenditure in excess of the following sums during the 18-month period prior to the date the sale, exchange, or other transfer of such residential housing occurs:

- A. In the case of residential housing which consists of a detached single-family dwelling unit, the sum of \$500.00, including the cost of installing ceiling insulation, if necessary; and
- B. In the case of residential housing which consists of two or more multifamily dwelling units, the sum of \$350 per dwelling unit, including the cost of installing ceiling insulation, if necessary.

Accordingly, if in complying with all of the remaining energy conservation standards set forth in Section 16.60.100, the owner of residential housing subject to the provisions of this chapter would be required to spend a sum in excess of the amounts set forth in this section, the owner of such housing shall comply with those energy conservation standards set forth in Section 16.60.100, in addition to ceiling insulation, which the owner of the

residential housing deems to be cost effective and for which the total cost does not exceed the sums set forth in this section.

(Ord. 1843 §1 (part))

**16.60.120 Certification of compliance with energy conservation standards.**

The building official shall issue a certificate evidencing that residential housing subject to the provisions of this chapter is in compliance with the energy conservation standards adopted by this chapter if:

- A. The building official has inspected such housing and found it to be in compliance with such standards; or
- B. A person authorized to make energy conservation inspections in the manner hereinafter provided by this chapter has filed a declaration with the building official, in a form prescribed by the building official, stating that such person has inspected such housing and found it to be in compliance with such standards.

(Ord. 1843 §1 (part))

**16.60.130 Energy conservation inspections conducted by building official.**

The building official shall conduct inspection of residential housing in order to determine whether such housing is in compliance with the energy conservation standards adopted by this chapter whenever an application for such inspection is filed with the building division by an owner of such housing or such owner's authorized representative. Such application shall be in a form prescribed by the building official and shall be accompanied by an inspection fee in an amount established by resolution of the city council.

If, as a result of such inspection, the building official determines that the residential housing being inspected is in compliance with the energy conservation standards adopted by this chapter, the building official shall promptly issue a certificate evidencing such compliance and cause a copy of such certificate to be served on the owner of such housing or such owner's authorized representative. However, if, as a result of such inspection, the building official determines that the residential housing being inspected is not in compliance with the energy conservation standards adopted by this chapter, the building official shall promptly cause a report to be prepared which identifies, with particularity, all noncomplying conditions and cause a copy of such report to be served on the owner of such housing or such owner's authorized representative.

Any certificate of compliance or inspection report issued or prepared by the building official pursuant to this section shall be deemed to have been served on the owner of residential housing or such owner's authorized representative when a copy of such certificate or report is personally delivered to such owner or representative, or when a copy of such certificate or report is placed in the United States mail, registered and postage prepaid, addressed to such owner or authorized representative at the address appearing on the inspection application.

(Ord. 1843 §1 (part))

**16.60.140 Authorization of other persons to conduct energy conservation inspections.**

The building official shall authorize other persons to conduct the energy conservation inspections which are necessary in order to certify compliance with the energy

conservation standards adopted by this chapter if such person is certified as a building inspector by the International Conference of Building Officials, holds a license as a general contractor or insulation contractor issued by the Contractors' State License Board, holds a license as a structural pest control operator issued by the Structural Pest Control Board, or is otherwise determined by the building official, on the basis of education and/or experience, to be qualified to conduct such inspections. Applications for such authorization shall be filed with the building division, shall be in a form and contain the information prescribed by the building official, and shall be accompanied by a fee in an amount established by resolution of the council.

If, after authorizing a person to conduct energy conservation inspections necessary in order to certify compliance with the energy conservation standards adopted by this chapter, the building official determines that such person misrepresented such person's qualifications for such authorization, no longer holds the certification or license relied upon by the building official as the basis for granting such authorization, or filed a declaration certifying that such residential housing is in compliance with such energy conservation standards without having inspected such housing or when it is clear that the housing did not comply with such standards, the building official shall revoke the authorization granted to such person. However, the building official shall not revoke an authorization to conduct energy conservation inspections unless the building official has given reasonable prior notice of the building official's proposed action to the person granted such authorization and given to such person an opportunity to appear before the building official and be heard on the proposed revocation.

(Ord. 1843 §1 (part), Ord. 2268)

#### **16.60.150 Transferee's assumption of obligation to correct noncomplying conditions.**

When residential housing has been inspected in the manner provided for by this chapter and been found to be not in compliance with the energy conservation standards adopted by this chapter, the owner of such housing, notwithstanding any provisions of this chapter to the contrary, may nevertheless sell, exchange or otherwise transfer the housing without a certification that the housing complies with such energy conservation standards, if prior to such transfer, the transferee enters into an agreement with the city, in a form approved by the city attorney, by which the transferee acknowledges the existence of the noncomplying conditions and agrees to correct same within 180 days following the date such transfer occurs, or such later date as may be approved by the building official for good cause shown.

(Ord. 1843 §1 (part))

#### **16.60.160 Violations.**

A violation of the provisions of this chapter shall constitute an infraction which is punishable by a fine in an amount provided for by Section 1505 of the Charter of the City of Chico.

(Ord. 1843 §1 (part), Ord. 2136 §8)

After the inspection by one of the above, the owner or the owner's agent shall then file a copy of the Residential Energy & Water Conservation Inspection Form indicating the results of the Energy inspection with the Housing Inspection Services at 1660 Mission St., 6th floor within 15 days of completing the inspection. A filing fee per Section 110, Table 1-N of the San Francisco Building Code is required.

*NOTE: If you are converting your building to a condominium, DBI will perform the energy inspection as part of the total conversion inspection review, (at no additional charge for inspection or the filing of the Residential Energy & Water Conservation Inspection (Certificate of Compliance) Form.*

- 2 **COMPLY WITH THE REQUIRED STANDARDS** as specified by the inspector in the report. You may choose to perform the work yourself and greatly reduce the costs of compliance, or you may hire someone to perform the work.
- 3 **OBTAIN FINAL COMPLIANCE** by having the Residential Energy & Water Conservation Inspection (Certificate of Compliance) Form completed by one of the inspectors designated below certifying that all the required items have been fully complied with.
  - ✓ The same inspector who did the initial inspection;
  - ✓ A DBI certified private energy inspector;
  - ✓ An authorized DBI inspector;
  - ✓ For 1 and 2 family dwellings only, if the work was performed by a State Licensed Contractor, the contractor, in this case, may sign the compliance certificate, provided that an initial inspection report was written by an authorized energy inspector.

After the Residential Energy & Water Conservation Form is properly signed by either the certifying inspector or contractor and the owner or his agent, the Central Permit Bureau copy of the compliance form shall be filed with the Housing Inspection Services Division at 1660 Mission St., 6th Floor, as proof of compliance. A filing fee per Section 110, Table 1-N is required.

After filing & approval of the Residential Energy & Water Conservation Inspection (Certificate of Compliance) Form, the original document must be recorded by the building owner or his agent, with the San Francisco County Recorder's office. This recordation must occur prior to or concurrent with transfer of title.

### SPECIAL APPEALS

A person may appeal the results of an energy inspection, if:

- 1 There is disagreement regarding the

requirements as determined by the energy inspector:

- 2 The application of an energy ordinance measure is not cost effective.

There is a fee per Sec. 110, Table 1-N San Francisco Building Code required for the appeal. Appeals must be made to the Department of Building Inspection, within 10 working days from the date the completed inspection form was filed with DBI. The determination of the Director shall be final.



### ESCROW ACCOUNT

(Energy Conservation Escrow Account) The seller or the seller's authorized agent may transfer responsibility for compliance to the buyer PROVIDED the following conditions are met prior to sale:

- 1 A valid energy inspection has been performed and filed with HIS along with a Notice of Escrow Account (Form C).
- 2 A written agreement signed by the buyer and seller which is placed into the escrow account and states the following:
  - ✓ Buyer agrees to comply within 180 days of transfer of title;
  - ✓ Seller agrees that in the case of buildings containing 3 units more, funds equal to 1% of the purchase price indicated on the accepted purchase offer, shall be placed in the escrow account. In the case of a single or two family dwelling, 1% of the purchase price not to exceed \$1,300 in any case, shall be placed in an escrow account and disbursed according to the terms of the ordinance.

*NOTE: Not all title companies have agreed to hold these funds according to the terms of the ordinance. Consult with your title company first if you choose to transfer responsibility.*



### WHAT ARE THE COSTS?

The maximum amount you will have to spend in order to comply with the ordinance depends upon when you choose to comply, as well as the number of units in your building.

In the case of 1 or 2 family dwellings and individual condominiums and co-op units when complying as an entire building, the maximum expenditure will be \$1,300.

In the case of buildings containing 3 units or more (including condominiums), if you comply before you sell your property, your maximum expenditure will be 1% of the assessed value of the building. If you comply as a result of a pending sale, the maximum expenditure will be 1% of the purchase price as stated in the real estate sales contract.

The \$1,300 limitation applies ONLY to 1 and 2 family dwellings and condominium and co-op units.

Department of Building Inspection  
 1660 Mission Street  
 San Francisco, CA 94103



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# WHAT YOU SHOULD KNOW ABOUT THE RESIDENTIAL ENERGY CONSERVATION ORDINANCE (RECO)



Department of Building Inspection  
 1660 Mission Street  
 San Francisco, CA 94103  
 415 . 558 . 6088 General Information  
 415 . 558 . 6084 Code Questions  
 415 . 558 . 6220 Fax-415 . 558 . 6249  
[www.ci.sf.ca.us/dbi](http://www.ci.sf.ca.us/dbi)

May 2000

San Francisco enacted a Residential Energy Conservation Ordinance effective September 20, 1982 and amended in 1983 and 1991, that requires residential property owners to provide certain energy and water conservation measures for their buildings. The intent is to lessen the impact of rising energy costs and water usage on renters and homeowners alike.

It is advantageous for all property owners to comply with the requirements now. Even if you do not intend to sell your property in the near future, the energy and water cost savings are immediate. You can do most of the work yourself now at your leisure, and save even more. The following information is a summary of the code requirements found in Chapters 12 and 12A of the San Francisco Housing Code.



## WHO MUST COMPLY?

### 1 Prior to sale, all owners of:

- ✓ Single and two family dwelling;
- ✓ Apartment buildings (including each condominium unit sold);
- ✓ Residential hotels.

### 2 Owner's compliance is also required when one of the following situations occurs:

#### ➤ Metering Conversion:

As a condition for issuance of a Certificate of Inspection and Approval for metering conversion by the Department of Building Inspection (DBI). A metering conversion is defined as the removal of one or more units from the master to an individual meter;

#### ➤ Major Improvements:

As a condition for issuance of a Certificate of Inspection and Approval upon completion of improvements having an estimated valuation as follows:

- 1 1 & 2 family units - in excess of \$20,000;
- 2 3 units and up, excluding residential hotels - in excess of \$6,000 per unit;
- 3 residential hotels - in excess of \$1,300 per unit;

#### ➤ Condominium Conversion:

As a condition of issuance of a Certificate of Final Completion and Occupancy for a residential Condominium Conversion;

## X EXEMPTIONS FROM THE ORDINANCE

No inspection will be required for:

- 1 Any residential building for which proof of compliance has been properly recorded;
- 2 Any residential building that was granted a building permit application for its construction on or after July 1, 1978;
- 3 Any mobile home;
- 4 Any residential building or portion thereof, which is occupied as a hotel or motel unit

and which has a certificate of use for tourist occupancy;

- 5 Any portion of a residential building converted to a tourist hotel;
- 6 Any building or portion thereof which is a live/work occupancy.

### Title Transfer Exemptions:

Transfers of title which result from an operation of law rather than by purchase are exempt from the ordinance. Examples of such exemptions include:

- 1 Transfers pursuant to court order, e.g., Probate Court; transfers under the Independent Administration of Estates Act are not exempted, unless ratified by a court order.
- 2 Transfers as a result of default;
- 3 Transfers by a fiduciary in the course of the administration of a trust, conservatorship, etc.;
- 4 Transfers from one co-owner to one or more co-owners;
- 5 Transfers to a spouse or certain relatives;
- 6 Transfers between spouses as a result of divorce proceedings; and,
- 7 Other transfers as defined in the ordinance.



## WHAT THE ORDINANCE REQUIRES

Effective September 20, 1982, owners of residential property who wish to sell their property, must obtain a valid energy inspection, install certain energy (since 1991) and water conservation devices or materials and then obtain a certificate of compliance. All of this must occur prior to transfer of title of any residential buildings as specified in the ordinance, and the seller must provide a copy of the compliance certificate to the buyer prior to title transfer.

The following items are required to be completed with as applicable:

### One and Two Family Dwellings:

#### 1 Insulate accessible attic space to a minimum value of R-19. Existing R-11 insulation is deemed acceptable as meeting ordinance requirements.

As of January 1, 1984, cellulose may be blown directly over all types of wiring without need of providing a two inch clearance. Fiberglass or other organic insulation materials may be blown directly over all types of wiring. All Electrical junction boxes, flues, and light fixtures must be kept clear or protected from all insulation materials. Prior to insulation in areas with knob and tube wiring, the wiring system must be inspected and approved by a licensed electrical contractor and this signed approval, with the electrical contractor's state license number, must be submitted with the energy inspection report.

#### 2 Weatherstrip all doors leading from heated to unheated areas.

Combination rigid metal and vinyl bead type strip is the most durable and effective. All sides of the door must be weatherstripped, including the threshold. Foam and felt type strip is not acceptable, and all stripping must be permanently secured.

#### 3 Insulate hot water heaters.

A jacket of R-6 insulation value or greater must be provided on all applicable heaters. Pressure relief valves, if missing, must be provided prior to installation of jacket in order to prevent any explosion hazards. Additionally, the first 4 feet of hot water line must be insulated to a minimum R-4 value. Fiberglass pipe wrap or precut, closed cell foams with a wall thickness of 3/4" or greater are most commonly used for this job.

#### 4 Installation of low flow showerhead.

The maximum flow permitted through a showerhead is 2.5 gallons per minute (previously 3 gpm and amended in July, 1991) or less. If your showerhead does not meet this criteria, you will need to replace it with one that does. Showerheads need not be replaced when it is necessary to remove the supply piping to remove the showerhead.

#### 5 Caulk and seal openings in building exterior.

This is meant to reduce air infiltration by closing any openings or cracks greater than 1/4 inch wide. Pipes to plumbing fixtures, mail-slots without flaps, and open pantry vents are all examples of areas that can be sealed to prevent air infiltration.

#### 6 Insulate accessible heating and cooling ducts.

Insulation with a R-3 value or greater must be provided for all heating and cooling ducts, including plenums. This insulation should be secured with 16d coated nails or baling wire. Duct tape tends to come apart and is not recommended. If located in a high traffic area, a "faced" insulation may be desirable.

Enactment of Water conservation Ordinances #346-91 and 185- 91 effective June 15, 1991 and October 20, 1991 respectively required the following water conservation measures.

#### 7 Faucet Aerators

An aerator with a flow restrictor is to be installed on all sink faucets that are designed to accept aerators. Faucets not designed to accept aerators are exempt.

#### 8 Low flush toilets and flush reducers on existing toilets.

All toilets must be either low flush (3.5 gallons per flush or less) or be retrofitted to use less gallons per flush, using one of the following permanently - installed devices:

- ✓ Quick-closing flapper device;
- ✓ Dual-option flushing mechanism;

- ✓ Water saving kit for flushometer toilets;
- ✓ Another permanently-installed flush valve device which lowers the volume of water needed to flush the toilet.

*NOTE: Water displacement devices such as toilet dams are acceptable and meet this criteria.*

*NOTE: Toilets which can not be modified without impedes functioning or flushing are exempt.*

### Apartments & Residential Buildings:

- 1 All items required for one and two family dwellings, plus;
- 2 Insulate steam and hot water pipes and tanks;
- 3 Clean and tune boilers;
- 4 Repair boiler leaks;
- 5 Time clock control on the burner. Work pertaining to the boiler, including time clock control, must be performed by a licensed C-4 contractor will, after completing all required boiler work, affix a tag of compliance certification on the boiler time clock door or nearby.



## POSTPONEMENT OF REQUIREMENTS

Application for a demolition permit will allow the postponement of the requirements of this ordinance for one year. Failure to demolish after one year will require immediate compliance with the ordinance.



## HOW CAN YOU COMPLY?

- 1 Obtain an energy inspection from one of the following:

➤ **THE DEPARTMENT OF BUILDING INSPECTION (DBI)/HOUSING INSPECTION SERVICES (HIS)** will inspect within one or two days after your call. Payment for the inspection must be made before the report can be released. If you desire to have DBI/HIS perform the inspection, call 558-6220, 8 AM - 5 PM., or visit 1660 Mission St., 6th floor. These City inspections are limited to conducting only the Energy Inspection. The Housing Inspectors will not include other code violations in the report nor can they do any of the required work.

➤ **A CERTIFIED PRIVATE ENERGY INSPECTOR**, who will inspect for a fee (fees are not set by the City). A list of DBI certified inspectors is available at the Housing Inspection Division (HIS), 1660 Mission St. 6th Floor, between 8 AM - 5 PM, for a copy. You can call 558-6220 for information regarding how to become a certified energy inspector.



"Each year the amount of energy lost through UNINSULATED homes in the United States is equivalent to the amount of fuel delivered annually through the Alaskan Pipeline."  
— U.S. Department of the Interior, 2000

## Residential Energy Conservation Ordinance (RECO)

**Under the Housing Code of Berkeley, the following steps must be taken in residential units prior to their sale or substantial remodel (costs meeting or exceeding \$50,000):**

1. Install ceiling insulation to bring thermal resistance value of ceiling insulation to R30.  
**Exempt:** • Those buildings with no attic, or inadequate attic space between roof and ceiling below. Inadequate space is defined as that where the roof slope is less than two and one-half feet in twelve feet, and that there is less than thirty (30) inches of vertical clear height at the roof ridge, measured from the top of the bottom chord of the truss or ceiling joist to the underside of the roof structural members or rafters.  
**Not Exempt:** • Houses or units having an attic but no attic access hole. An access hole must be constructed and R30 or greater insulation installed.  
**Not Exempt:** • Ceilings having existing insulation rated at R11 or less. To comply with RECO standards, ceiling or attic insulation must be increased to a resistance value of R30 or greater.
2. Furnace ducts are sealed at plenum and all joints in air duct system, and ducts insulated to resistance value R3 or greater.  
**Exempt:** • Ducts between floors, inside interior walls or otherwise inaccessible without alteration.
3. Insulate all domestic water storage heaters with external insulation blanket rated at a minimum thermal resistance value of R6.  
**Exempt:** • Minimum clearance of 2 inches from wall or other permanent fixture does not exist.  
• Total internal and external water heater insulation jacket in excess of R12.
4. Low-flow devices with a maximum flow rate of three gallons per minute installed in all shower fixtures, 2.75 gallons per minute for sink and lavatory faucets, and 4 gallons per minute for all other faucets; or replaced with fixtures designed to meet the same limits.
5. All exposed hot water pipes insulated to at least a thermal resistance value of R3 in pumped, recirculating domestic forced hot water heating systems.
6. Insulate to at least a thermal resistance of R3 exposed hot water pipes, and cold water pipes within twenty-four inches of water heater.  
**Exempt:** • Hot water pipes between floors, inside interior walls, or otherwise inaccessible without alteration.
7. Incandescent light bulbs, located in multiunit structure common areas, replaced with lamps of at least 25 lumens per watt.
8. Approved weatherstripping installed on all exterior doors, including doors to unheated garages, basements, crawl spaces, attics and porches. Weatherstrip must be permanently affixed; adhesive strip insulation tape does not meet RECO requirements unless it is screwed or tacked in place every six inches.
9. Approved dampers, doors or other devices to block air flow and reduce heat loss through chimneys.
10. Replace existing tank or flushometer-type toilets with fixtures designed to use no more than 1.6 gallons per flush, or modify the existing fixtures to reduce the amount of water used while ensuring correct operation. Any toilet installed in a renovation must be designed to use not more than 1.6 gallons per flush.

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***If, after taking title to a residential structure or unit in Berkeley (as defined in the Code), you find that it does not meet the above requirements, you may:***

- A. Bring the property into compliance within one year of purchase, and request a RECO inspection from the City. (See the *RECO--Guide to Compliance* available from the City of Berkeley Energy Office or the CESC RECO Inspector.)
- B. Once the building has passed the RECO inspection, you will receive the *Form A--Certificate of Compliance*. File the original (FAX or photocopy not accepted) at the Permit Service Center, 2120 Milvia Street, Berkeley, CA 94704. The fee is \$20.00
- C. You may recover your costs and damages from the seller if the Unit was presented as being RECO-compliant. Damages may include higher utility bills paid due to lack of compliance with the requirements, plus filing and inspections fees, and attorney's fees.



City of Berkeley  
Chapter 19.16  
Ordinance 6099 -N.S.

# Residential Energy Conservation Ordinance (RECO)

# FORM B

## Buyer-Seller Warranty Acknowledgment // Agent Notification Form

Date: \_\_\_/\_\_\_/\_\_\_ Address of Property: \_\_\_\_\_

This form is and acknowledgment of implied warranty between seller and buyer, and a notification by the real estate agent. It applies only to this property sale. In order to gain compliance with RECO (Resolution No. 62,181-N.S.), a Certificate of Compliance (Form A) requiring an inspection of the property is necessary.

This form and a \$20 Filing Fee must be filed with: *Berkeley Building & Safety Office, 2120 Milvia St., Berkeley, 94704*

**RECO MEASURES:**

- |  | YES                      | NO                       | N/A                      |
|--|--------------------------|--------------------------|--------------------------|
| 1. Ceiling insulation of minimum thermal resistance value R-30 installed .....   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| EXEMPT: Dwelling does not have an attic.<br>Dwelling does not have an accessible attic space as defined in the Ordinance.  |                          |                          |                          |
| 2. Furnace heating ducts sealed at plenum and all joints in heating duct system sealed with mastic and insulated to a minimum of R-3 .....   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| EXEMPT: Ducts inaccessible between stories, inside walls, or otherwise inaccessible without alteration.  |                          |                          |                          |
| 3. All domestic storage water heaters insulated with external insulation blanket rated at a minimum thermal resistance of R-6 .....  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| EXEMPT: Minimum clearance of 2 inches from wall or other permanent fixture does not exist<br>Total internal and external water heater insulation is already in excess of R-12.   |                          |                          |                          |
| 4. Low-flow faucet devices or fixtures with a maximum flow rate of 3 gallons/minute in all showers; 2.75 gallons per minute in all sinks and lavatories; and 4 gallons/minute in all other faucets. ....   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| EXEMPT: None   |                          |                          |                          |
| 5. Hot water pipes in pumped, recirculating domestic water heating systems insulated to a minimum thermal resistance of R-3. ....  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| EXEMPT: Where water pipes are inside walls or in floors between stories, or otherwise inaccessible without alteration.   |                          |                          |                          |
| 6. All exposed hot water pipes, and cold water pipes connected to, and with 24 inches of water heater, must be insulated to a minimum thermal resistance of R-3. ....  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 7. Incandescent light bulbs, located in multiunit structure common areas, must be replaced with lamps of at least 25 lumens per watt .....   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 8. Approved weatherstripping must be installed on all exterior doors .....   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 9. Approved dampers, doors, or other devices to block air flow and reduce heat loss through chimneys .....   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 10. Replace existing tank or flushometer-type toilets with fixtures designed to use no more than 1.6 gallons per flush, or modify existing fixtures to reduce the amount of water used while ensuring correct operation. Any toilet installed in a renovation must be <i>designed to use no more than 1.6 gallons per flush.</i> ..... | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

Seller/Owner: \_\_\_\_\_ Buyer \_\_\_\_\_  
(Type/Print Name) (Type/Print Name)

Seller/Owner: \_\_\_\_\_ Buyer: \_\_\_\_\_  
(SIGNATURE) (SIGNATURE)

Address: \_\_\_\_\_ Address: \_\_\_\_\_

Phone:(\_\_\_\_\_) \_\_\_\_\_ Phone:(\_\_\_\_\_) \_\_\_\_\_

- I have notified both Buyer and Seller of the requirements of the RECO ordinance, but do not know of my own knowledge that the property is in compliance.
- I have notified both Buyer and the Seller of the requirements of the RECO ordinance, have provided a copy of a valid Form A signed by an authorized RECO auditor, and I know that the property is in compliance, and have so represented it to the buyer.

Agent Signature: \_\_\_\_\_ Firm: \_\_\_\_\_

Address: \_\_\_\_\_ City \_\_\_\_\_ Zip \_\_\_\_\_





City of Berkeley  
Chapter 19.16  
Ordinance 6099 -N.S.

## Residential Energy Conservation Ordinance (RECO)

FORM C

### Transfer of Responsibility from Seller to Buyer

**NOTE: This Form is not applicable if seller has accepted responsibility through a previous sale. Contact Building & Safety at 981-7440 for a determination. A \$20 filing fee is required for each structure.**

Escrow Closing Date: \_\_\_\_\_/\_\_\_\_\_/\_\_\_\_\_ Escrow #: \_\_\_\_\_

Address of Property: \_\_\_\_\_ Title Company Name: \_\_\_\_\_

No. Residential Structures: \_\_\_\_\_

No. Units per Structure: A: \_\_\_ B: \_\_\_ C: \_\_\_ D: \_\_\_ E: \_\_\_ F: \_\_\_ G: \_\_\_ H: \_\_\_ I: \_\_\_ J: \_\_\_ K: \_\_\_ L: \_\_\_

**RECO MEASURES Transferred to the Buyer:**

1. Ceiling insulated to a minimum thermal resistance value of R-30 installed .....
2. Furnace heating ducts sealed at plenum and all joints in heating duct system sealed with mastic and insulated to a minimum of R-3 .....
3. All domestic storage water heaters insulated with external insulation blanket rated at a minimum thermal resistance of R-6 .....
4. Low-flow faucet devices or fixtures with a maximum flow rate of 3 gallons/minute in all showers; 2.75 gallons/minute in all sinks and lavatories; and 4 gallons/minute in all other faucets. ....
5. Hot water pipes in pumped, recirculating domestic water heating systems insulated to a minimum thermal resistance of R-3. ....
6. All exposed hot water pipes, plus cold water pipes connected to, and within 24 inches of water heater, must be insulated to a minimum thermal resistance of R-3. ....
7. Incandescent light bulbs, located in multiunit structure common areas, replaced with lamps of at least 25 lumens per watt .....
8. Approved weatherstripping must be installed on all exterior doors (self-sticking type not acceptable) .....
9. Approved dampers, doors, or other noncombustible devices to block air flow and reduce heat loss through chimneys .....
10. Replace existing tank or flushometer-type toilets with fixtures designed to use no more than 1.6 gallons per flush, or modify existing fixtures to reduce the amount of water used while ensuring correct operation. Any toilet installed in a renovation must be *designed* to use no more than 1.6 gallons per flush. ....

**Subsequent to this sale, the property will be :**     **Owner Occupied**     **Rental property**

Seller/Owner: \_\_\_\_\_ Buyer \_\_\_\_\_  
(Type/Print Name CLEARLY) (Type/Print Name CLEARLY)

Seller/Owner: \_\_\_\_\_ Buyer: \_\_\_\_\_  
(SIGNATURE) (SIGNATURE)

Address: \_\_\_\_\_ Address: \_\_\_\_\_

Phone:(\_\_\_\_\_) \_\_\_\_\_ Phone:(\_\_\_\_\_) \_\_\_\_\_

- I have notified both Buyer and Seller of the requirements of Ordinance 6099--N.S., but I do **not** know of my own knowledge that the property is in compliance.
- I have notified both Buyer and the Seller of the requirements of Ordinance 6099--N.S., and I know of my own knowledge that the property is in compliance, and have so represented it to the buyer.

Agent Name: \_\_\_\_\_ Firm: \_\_\_\_\_

Address: \_\_\_\_\_ City \_\_\_\_\_ Zip \_\_\_\_\_



## Reducing Energy Consumption

The following is a summary of what we know about the conditions under which people make decisions, change their behavior, and the relevance of this information to energy consumption. The summary draws on research from the fields of economics, sociology, psychology, and their related sub disciplines (e.g., behavioral economics, environmental psychology, social psychology, network theory).

1. There is currently an energy efficiency gap.<sup>[1]</sup> This means there are current technologies, which are economically viable (short payback period), that can reduce energy consumption and greenhouse gas emissions. The gap refers to the fact that the technologies are not used because people don't know about them (lack relevant information), have limited access to capital to use them, or do not believe the incentives to use them are sufficiently attractive.
  2. People do not make rational choices.<sup>[2]</sup> Most people, most of the time, do not have sufficient information (about markets, financing, etc.) to make rational choices about energy consumption. Therefore, simply presenting information about energy choices, climate change, costs, amortization rates, etc., will not cause most people to change their behavior. "It's good for you and good for the planet," will not motivate people.
  3. People can only worry about a limited set of factors at any given time. The things most people worry about relate to food, shelter, economic welfare, and health. Energy use and climate change are far down on the lists of things that consume people's attention. Issues related to climate change and energy consumption must be linked to the issues that most concern people.
  4. People focus on short term, not long term, threats. Energy reduction campaigns need to focus on short-term gains and short-term benefits for a household. Focusing on what will happen in 50-100 years will not be sufficient.
  5. More information about the complex nature of energy consumption and rapid climate change will not necessarily lead to the desired outcome---less energy use.
  6. Most consumption behavior results not from rational deliberation but from automatic responses or emotional responses.
    - We do something one way, because we've always done it that way. Therefore, simply changing default setting on thermostats, washing machines, etc., will change consumption behavior.
    - Because our decisions are driven by emotions, selling comfort and fulfilled desires can motivate homeowners to renovate their home better than the prospect of energy efficiency. (Wilson and Dowlatabadi, 2007: 175).
  7. People constantly receive conflicting messages about which actions they should take. We are told to save energy at the same time we are encouraged to purchase new technologies (computers, cell phones, etc.) or inefficient technologies (large SUVs that destroy the environment while transporting us into "nature.")
-

8. People need to have a pathways to efficiency pointed out and need to be encouraged to take small steps toward reducing their carbon footprints.
  - Raising awareness alone will not lead to action. Mass media campaigns are good for raising awareness, not moving people to action.
  - People need to be given appropriate information and the tools to move toward action; there are different stages in the decision-making process. People have to understand the benefits of each step or stage.
  - There need to be feedback loops created that help to reinforce the behavior desired, e.g., comparison with others who use energy, an energy bill that makes it clear how energy is being consumed in the home, advice about how to reduce energy consumption.
9. People do follow leaders. Social feedback is critical.
  - Early adopters need to be identified and their actions outlined for others. Key community leaders need to be identified, “Who is driving a Prius?”
  - There need to be demonstration projects from which people can learn, e.g., “zero-energy” homes.
  - Barriers to adoption, as opposed to drivers of adoption, need to be identified. They are not the same thing. A barrier to the use of solar panels on a residential rooftop is that most people would need to get a second mortgage to do this. Rising energy prices and tax incentives are drivers, but they may not solve the problem. Instead of tax incentives, government sponsored low cost loans to install solar panels should be considered.
10. Information is diffused through social networks. Social networks must be employed if change is to occur. Energy reduction programs should concentrate on dense networks, whether they are found in churches, unions, fraternal organizations, or bowling leagues.
11. Information is more readily diffused, if the source is regarded as trustworthy and credible. Effective information is therefore simple, personally relevant, and easily comparable. (Technical and factual is less helpful.)
12. People must know how their behavior and their energy use are related. Differentiated energy bills are important, as are visible meters that allow instant feedback.
13. Our use of energy is socially constructed. How much energy we use depends on social and cultural norms. Energy use is embedded in cultural practices, style-of-life choices, and social context. These conditions must be taken into account in developing energy-reduction programs.
  - Price is not a primary driver of behavior. (It may be if the price shock is great enough but a study of real time pricing showed that an increase of 8:1 (peak, off-peak load), could account for only 11% of the change.)
  - Our demand for energy needs is shaped by our concepts of cleanliness and comfort---washing machines, refrigerators, freezers, vacuum cleaners, dishwashers, heating, cooling, lighting, etc.
  - Much of our energy use needs to be understood as embedded---locked up in habits of child care, cooking, mobility, etc.

- Embedded energy use differs by household type and therefore energy programs need to be directed at households, not individuals.
14. Technology alone is not going to save us. Not all of our technologies have led to lower energy use. On the contrary such things as air conditioning and furnaces changed the design of homes, and eliminated many energy-saving features, e.g., room size, verandas, overhangs, thermal mass, etc. Space heating and cooling accounts for 50% of all home-energy use.
  15. Programs to change energy consumption need to focus on social norms for energy use. “Interventions should. . .shift in focus from energy efficiency technologies to energy service provision. . . It is not energy efficiency investments that sell weatherization but comfort, health, and noise reduction (189).
  16. There is no silver bullet. Campaigns to reduce energy use must be multidimensional and should include a focus on:
    - Health.
    - Safety.
    - Convenience.
    - Cost.
    - Household practices.
    - Simplicity.
    - Networks as modes of communication for change.
    - Clear pathways with strong feedback loops.

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