

## Energy Conservation Measure Improvements

Energy Conservation Measure (ECM) improvements will target the adoption of energy-efficient consumer behavior, equipment, or devices that result in a decrease in energy consumption without reducing the amount or quality of energy services. This includes health and safety (H&S) measures, including those that use efficient equipment or devices to improve indoor air or drinking water quality, and equipment or electrification upgrades. The ECM improvements shall not cause an energy bill or cost increase in relation to the total cost a household spends on utilities. The following provisions are included to ensure the successful execution of projects.

A. Entity shall implement ECMs in an order that prioritizes greatest savings (e.g. sealing the building envelope prior to heat pump installation). Entity shall follow the U.S. Department of Energy (DOE) Weatherization Assistance Program (WAP) guidelines regarding prioritizing measures (air sealing, duct sealing outside the thermal boundary, and thermal boundary insulation [attic, wall, floor or belly, foundation, sill, etc.]) and installing in order of savings to investment Ratio (SIR) the ECMs and related H&S and incidental repairs measures (SIR calculation = (Annual \$ savings x Expected Usage Lifetime (EUL)) ÷ (Initial \$ cost). EUL durations can be found at: <https://www.energy.gov/sites/default/files/2023-03/WPN%2023-06%20Revised%20Energy%20Audit%20Procedures%20Attachments.pdf> (see a/so: Attachment 2, Subpart A: Allowable Default ECM Lifetimes).

B. ECM improvements for residential housing units may include, but are not limited to: envelope upgrades; air sealing; duct sealing; insulation installation; EnergyStar windows ; EnergyStar doors; LED lighting; water tank insulation and water heater pipe insulation;

- 1) cleaning, repair or replacement of heating and cooling systems;
  - i. Heating systems
    - a. Replacement or installation of secondary heating systems are not allowed.
    - b. Use proper sizing protocols according to Manual J, State approved sizing protocols, NEAT/MHEA outputs, etc.
    - c. High efficiency air source heat pumps. (Cold climate rated units as appropriate for climate zone).
  - ii. Cooling systems
    - a. Replacement or installation of secondary cooling systems are not allowed.
  - iii. Ensure no bill increase
    - a. Replace existing electric units or fuel switch from propane
- 2) prioritized appliance repair or replacement:
  - i. Clean or repair baseload appliances/fixtures, as well as (in no particular order);
  - ii. High efficiency heat pump water heaters,
    - a. Household should have a minimum of 3 persons.
    - b. New units should have an EF of 3.0 or higher.
    - c. Replace only electric resistance water heaters.
    - d. Cost is limited to \$1,750.

- e. Thermostat set to 120 degrees maximum.
  - f. Include water heater blanket, pipe insulation (as appropriate).
  - iii. EnergyStar refrigerator, cost is limited to \$900.
    - a. Must have automatic defrost, top freezer preferred. May be no more than 2 cubic feet larger than existing refrigerator.
  - iv. EnergyStar dishwasher, cost is limited to \$525.
  - v. EnergyStar clothes washer, cost is limited to \$675.
  - vi. EnergyStar clothes dryer, cost is limited to \$700.
    - a. Heat pump clothes dryer cost is limited to \$840.
  - vii. EnergyStar oven/range, cost is limited to \$1000
    - a. New units may only have a single oven, induction ranges must not increase spending for participant
  - viii. Programmable/smart thermostats, cost is limited to \$150.
- 3) incidental repairs; cost is limited to \$1000 per unit. Allowable items include, but are not limited to:
- i. Sealing of cracks
  - ii. Weather-stripping, caulking, hole patching.
  - iii. Installation of door sweeps
  - iv. Repair and replacement of thresholds
  - v. Repair and replacement of fireplace dampers.
  - vi. Repair or replacement of broken glass in window
  - vii. Exterior door repair
  - viii. Repair of building envelope to maintain the integrity of ECMs
  - ix. Low-flow showerheads diverter replacement or fixture repair.;
  - x. Electrical repair for lighting retrofits;
- 4) residential Health and Safety (H&S) measures, cost is limited to 20% average cost per unit. Allowable items include, but are not limited to:
- i. Safety devices: smoke and carbon monoxide alarms, fire extinguishers
  - ii. Heating and cooling system safety checks;
  - iii. Asbestos
    - a. In siding, walls, ceilings, etc., in vermiculite, on pipes, furnaces, and other small-covered surfaces
    - b. General abatement of asbestos siding or replacement with new siding is not an allowable H&S cost
  - iv. Biologicals and unsanitary conditions
  - v. Building structure and roofing
  - vi. Code compliance
  - vii. Combustion gases
  - viii. Unsafe electrical
  - ix. Formaldehyde, volatile organic compounds (VOCs), flammable liquids, other air pollutants
  - x. Fuel leaks
  - xi. Hazardous materials disposal
  - xii. Injury prevention of occupants and project workers
  - xiii. Lead based paint
  - xiv. Mold and moisture
  - xv. Radon

- xvi. Ventilation and indoor air quality
- xvii. Window and door replacement, window guards
  - a. Storm windows
  - b. Window coverings
    - 1. Purchase of new window guards not allowed

C. ECM improvements do not include installations of new roofs or photovoltaic solar (the CEED Program follows the DOE Weatherization Assistance Program determination that roof replacements and repairs are not energy saving measures (<https://www.energy.gov/sites/prod/files/2019/09/f66/WPN-19-5.pdf>)). Electrical fuse box/panel upgrades or installations are not included unless accompanied by an approved priority appliance installation. ECM improvements do not include replacement of functional, new (purchased within the last 10 years) appliances.

D. All ECMs and replacement units must meet safety guidelines. Under no circumstance should retrofit work that would exacerbate health and safety problems, for either the occupant or the worker, proceed.

- 1) All applicable State and local (or Authorities Having Jurisdiction (AHJ)) codes must be followed, and manufacturer approved materials and instructions must be used while installing any ECM.
  - i. Workers shall know when the AHJ requires a licensed professional to perform a certain task.

E. Replacement appliances shall comply with the minimum standards of energy efficiency for major appliances established by the National Appliance Energy Conservation Act (NAECA) of 1987.

- 1) Disposal according to applicable State and Federal laws, as appropriate. For Entities that contract out replacement and disposal to third-party contractors, Entities are responsible for obtaining assurances from the third-party contractor that these items were disposed of according to applicable State and Federal laws, as appropriate.

F. All activities carried out with CEED Program funding must meet the objectives of the program (in addition to meeting the list of eligible activities specified above) ensuring energy bill totals do not increase and ensuring cost limitations are followed. Beneficial electrification or fuel switching measures may be installed as part of the retrofit process but must follow those parameters.

G. The term 'retrofit' is used as 'rehabilitation' implies improvements beyond the scope of an energy efficiency program. Unallowable rehabilitation activities include but are not limited to: creating additions or accessory units, changing floor plans, finishing attics and basements, repairing or replacing plumbing or electrical systems, completing kitchen and bathroom remodeling, renovating or constructing a garage, or installing new roofing/gutters/siding/etc., or major roof repairs.

**SUBPART A**

**Maximum Lifetimes of Energy Conservation Measures**

**Table: Allowable Default ECM Lifetimes**

<https://www.energy.gov/sites/default/files/2023-03/WPN%2023-06%20Revised%20Energy%20Audit%20Procedures%20Attachments.pdf>

#	Measure Type	Measure Name	Life (yr.)
1	Building Insulation	Attic insulation: blown in and batt	30
2	Building Insulation	Attic insulation: all other types	20
3	Building Insulation	Sill box insulation	20
4	Building Insulation	Foundation wall insulation	20
5	Building Insulation	Slab insulation	20
6	Building Insulation	Floor insulation: loose and batt types installed in fully enclosed air-tight cavities, and rigid insulation	30
7	Building Insulation	Floor insulation: all other types including loose and batt not installed in fully enclosed air-tight cavities	20
8	Building Insulation	Wall insulation: dense pack insulation, rigid insulation and full-cavity batt insulation in fully enclosed air-tight cavities	30
9	Building Insulation	Wall insulation: all other types	20
10	Building Insulation	Kneewall insulation: loose and batt types installed in fully enclosed air-tight cavities, and rigid insulation	30
11	Building Insulation	Kneewall insulation: all other types including loose and batt types not installed in fully enclosed air-tight cavities	20
12	Building Insulation	Duct insulation	20
13	Building Insulation	Manufactured home skirting	10
14	Building Insulation	White roof coating	7
15	Building Insulation	Radiant barrier	15
16	Ducts/Infiltration	Whole house air sealing	10
17	Ducts/Infiltration	Duct sealing	10
18	Doors and Windows	Storm window	15
19	Doors and Windows	Window replacement	20
20	Doors and Windows	Door replacement	20
21	Doors and Windows	Storm door	10

22	Doors and Windows	Window shading: awning	10
23	Doors and Windows	Sun screen: fabric or screen	10
24	Doors and Windows	Sun screen: louvered	15
25	Doors and Windows	Window film	15
26	HVAC Systems	Thermal vent damper	10
27	HVAC Systems	Electric vent damper	10
28	HVAC Systems	Intermittent Ignition Device (IID)	10
29	HVAC Systems	Electric vent damper and IID	10
30	HVAC Systems	Flame retention burner	10
31	HVAC Systems	Heating system tune up	3
32	HVAC Systems	Heating system replacement: fossil fuel fired furnaces and boilers, standard and condensing	20
33	HVAC Systems	Heating system replacement: all other heating systems except heat pumps	18
34	HVAC Systems	Smart/programmable thermostat	15
35	HVAC Systems	Air conditioner tune up	3
36	HVAC Systems	Air conditioner replacement	15
37	HVAC Systems	Evaporative cooler	15
38	HVAC Systems	Heat pump replacement	15
39	Baseloads	Lighting retrofit: fluorescent and compact fluorescent	<i>(Note 1)</i>
40	Baseloads	Lighting retrofit: LED	<i>(Note 2)</i>
41	Baseloads	Lighting retrofit: halogen	<i>(Note 3)</i>
42	Baseloads	Refrigerator replacement	15
43	Baseloads	Water heater tank insulation	13
44	Baseloads	Water heater pipe insulation	13
45	Baseloads	Low flow showerhead	15
46	Baseloads	Water heater replacement	13
47	Baseloads	Water heater setpoint reduction	13
48	Solar	Solar PV installations	20

**Notes**

- 1. 10,000 hours
- 2. 30,000 hours
- 3. 4,000 hours