

Columbia Water & Light

Home Performance with Energy Star Program

Columbia, Missouri

The primary goal of Home Performance with Energy Star (HPwES) is to use a whole house approach addressing efficiency improvements. Building component interaction impacts the efficiency of the overall project. Prioritized comprehensive improvements help each home owner make an educated decision to get the best ROI. Average projected energy savings using this approach have been 30% per home.

A contractor delivery model is used to deliver HPwES. Local Contractors have been Building Performance Institute (BPI) trained and approved to offer comprehensive home audits (Home Performance Assessments). The list of contractors is available on request or can be found at the City of Columbia website.

Policy and Procedures for Home Performance

1. Customer eligibility
 - a. Water & Light residential **electric** customers - Home owners and landlords
 - i. Single family unattached homes
 - ii. Duplexes and condos with 3 major walls facing ambient or an attached garage and a minimum attic footprint of 900 sq ft
 - iii. Each location is eligible for HPwES every 10 years
2. Home Performance Pre and Post Assessment – Data collection and customer recommendations
 - a. Must be performed by a Water & Light approved contractor
 - i. Same contractor must perform both
 - b. Utility usage history
 - i. Customers must supply electric or fossil fuel history for 1 year prior to the pre assessment if available
 1. This information is critical for tracking actual energy saving achieved
 - ii. Customers must supply electric or fossil fuel history for 1 year after energy improvements
 - c. Post Assessment should be completed within 6 months of Pre Assessment
3. Home Performance Rebates and Incentives
 - a. Requires Home Performance Pre and Post Assessment
 - b. Pre assessment must be performed before any improvement is started
 - i. Any work done before the pre is not eligible for rebates, incentives or loans
 - c. Signed rebate and incentive application along with itemized invoices and mechanical permits (if applicable) are required to process.
 - d. Home Performance rebate or incentives should not exceed invoice total for each address

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4. Rebate items and amounts

- a. Attic insulation - Must be increased to at least R-38. Two different tiers are used based on pre R-value. Each has a \$500 cap
 - i. Pre 26 R-value or less rate is 1 cent per sq ft per R-value
 - ii. Pre 27 R-value or more rate is ½ cent per sq ft per R-value
 - iii. R-50 is the rebate limit for post R-value
- b. Wall insulation - \$500 cap
 - i. Rate is 3 cents per sq ft per R-value
 - ii. R-19 is the rebate limit for post R-value
- c. Crawl space insulation – Two different configurations are approved. Each has a \$500 cap
 - i. Floor insulation must be R-19 minimum. Rate is 1 ½ cent per sq ft per R-value
 1. R-19 is the limit for post R-value
 - ii. Wall insulation must be at least R-10 with 6 mil vapor barrier. Rate is 5 cent per sq ft per R-value
 1. This is not a good option if ground water issues are present
 2. R-13 is the rebate limit for post R-value
 3. Must meet applicable codes
- d. Duct insulation - The maximum rebate is based on a slab home with a distributed supply and return in the attic. \$300 cap
 - i. Prorated by R-value and the percentage of the total system that is outside the building envelope. At least R-13 must be added to be eligible for rebate. Strongly suggest it equals attic insulation.
 - ii. Other duct systems configurations are evaluated by the percentage of the total system that is outside the building envelope.
 1. For example, the same type slab home could have one central return completely inside the envelope. This scenario would be 50% of the total system outside the envelope, for a \$150 rebate.
- e. Rim joist insulation - The maximum rebate is based on total exposed perimeter. \$20 cap
 - i. Must be R-13 R-value. If foam is used R-10 is acceptable.
 - ii. Should be air sealed before rim joist is air sealed
 - iii. Prorated by percent of total exposed perimeter
- f. Air sealing – The incentive offered is \$84 per ACH reduction. \$420 cap for envelope and \$300 for ductwork. The cost of the post blower door inspection can be included in the total cost of air sealing.
 - i. Envelope air sealing. Must achieve 0.5 ACH50 or 0.05 ACHn to receive prorated incentive.
 1. Requires pre and post blower door assessment to quantify

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- ii. Duct sealing – Must achieve 50 CFM reduction to receive prorated incentive. The incentive offered is \$50 per 100 CFM reduction
 - 1. Requires pre and post duct blaster test to quantify
- g. Windows and doors - Rate is \$100 per opening. \$500 cap
 - i. Either must be 0.30 U-value and low E for windows
 - ii. Documentation from the manufacturer or the efficiency sticker is required for verification
- h. Heat pump - Rate is \$200 per location
 - i. Must be 14 SEER minimum and heat at least 50% of conditioned space. Air conditioning, Heating and Refrigeration Institute verification is required for rebate
 - 1. Suggest 15 SEER to be eligible for tax credits

Approved Contractor Requirements

1. Activity
 - a. HP Contractor must report to the Program a minimum of ten completed jobs per year, to remain on the approved list
2. Certification – BPI Building Analyst
 - a. Employ at least one BPI certified building analyst professional
 - b. Building analyst must be on site while the pre and post HPA are performed
3. Equipment - Have in possession or available the following equipment while performing the HPA.
 - a. Blower door
 - b. Blower door software
 - c. Pressure pan
 - d. Diagnostic smoke
 - e. Combustion analyzer
 - f. Gas leak detector
4. Equipment calibration
 - a. Properly maintain all diagnostic test equipment, including calibration according to manufacturers recommended calibration schedules. Calibration records for diagnostic testing instruments will be made available to CWL upon request.
5. Brand use – Only authorized while HPwES partnership is valid
 - a. Use brand and logos in accordance with HPwES guidelines
 - b. Use of CWL logo requires review and approval.

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6. Marketing
 - a. Properly represent your relationship to CWL. This relationship being that the approved contractor is a Home Performance Contractor, accredited by BPI and approved to participate in EPA's Home Performance with ENERGY STAR® Program. Consultants shall **not** represent themselves as working for, CWL, DNR, EPA, or DOE.
 - b. Promote whole house approach
 - c. Educate customers about energy saving opportunities for appliance and lighting upgrades

7. Job Reporting – Pre and Post Assessments
 - a. Respond to customer referrals within 48 hours
 - b. Use forms or procedure approved by CWL
 - c. Deliver reports to CWL and customer within two weeks of completion – preferably one week
 - d. The contractor that conducts the pre HPA will also conduct the post HPA, after improvements are completed
 - e. Pre and Post Assessments must be on file before rebates or loans can be processed
 - f. Use calculator and post form to verify projected savings
 - i. Once BPI specifies approved modeling software, provide a report from modeling to each customer

8. Suggest only recommendations approved by CWL & BEC and prioritize for each customer. The following are approved:
 - a. Air Sealing to building tightness limit if possible
 - b. Insulation
 - i. Attic Up to R-50 – Strongly suggest cellulose
 - ii. Crawl space to R-19 – Insulation must be in contact with floor decking. Suggest encapsulating insulation
 1. Or crawl space wall to R-10 min with 6 mil plastic vapor barrier covering exposed ground - Not suggested if ground moisture issues are present
 - c. Ducts – min of R-13
 - d. Rim joist – min R-13. If foam is used R-10 is acceptable
 - e. Replace windows and doors if existing are single pane or beyond repair - Windows and doors must be 0.30 U-value or less and low E for windows
 - f. Replace furnace if older than 25 years
 - g. Replace condensing unit if older than 15 years
 - h. Suggest installing a heat pump – 14 SEER min - 15 recommended
 - i. Replace refrigerators, freezers and washing machines if older than 16 years

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9. Assessment Incentive - \$100 Pre - \$400 Post
 - a. CAZ testing must be performed during either pre, post or both to receive \$400 post incentive
 - i. Locations with no CAZ testing will receive \$300 post incentive
 - b. 10% savings are required to receive maximum post incentive
 - i. Less than 10% savings will receive a \$200 post incentive with CAZ testing
 - ii. Less than 10% savings will receive a \$100 post incentive without CAZ testing
10. Insurance
 - a. Have, at minimum, general liability insurance in the amount of \$1,000,000
 - b. Provide workers compensation in accordance with state requirements

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