Portland Clean Energy Fund

Single Family Guidelines & Eligible Measures

Energy Friendly Homes Program v20260301

Document Overview

The Portland Clean Energy Community Benefits Fund (PCEF) invests in climate action projects, in alignment with the City's climate action goals, that support environmental justice and environmental, social, and economic benefits for all Portlanders. This document is a resource for home energy upgrade projects, outlining project requirements, quality assurance processes, and measures that are eligible for PCEF funding through the Energy Friendly Homes Program.

This document is intended for the following audiences:

- Prospective and active clients participating in the Energy Friendly Homes Program.
- Active participating contractors.
- Energy Friendly Homes Program staff and implementation teams evaluating participating projects.

If you have questions, please contact info@energyfriendlyhomes.com.

PORTLAND CLEAN ENERGY COMMUNITY BENEFITS FUND

Summary of Changes in v20260301

- Revised contingency cost language
- Added project minimum viability
- Clarifications in QA Process
- Clarification of whole home air sealing requirement
- New ducted heat pump requirements, diagnostic tests
- Heat pump water heater required product list
- Included costs for pre-paid heat pump maintenance plans and home energy assessments
- Clarification on venting requirement
- Revised carbon monoxide and smoke detector requirements in line with code

Program Framework

PCEF-funded Energy Friendly Homes Program projects will meet all requirements in the following documents, available on the PCEF energy resources page and the EnergyFriendlyHomes.com

- **Energy Friendly Homes Program Eligible Measures**
- **PCEF Installation Specifications Checklists**
- **Participation and Eligibility**
- **Contractor Handbook**

Project Funding Caps and Minimum Viability

Energy Friendly Homes Program has maximum funding caps within each income eligibility tier. As a result, not every home can be served by the program. Projects will be pre-screened with a Home Walk-through to determine minimum viability prior to the contractor-performed home energy assessment. Projects that will not meet minimum viability:

- Homes with structural damage, leaning, falling or in need of roof replacement or significant repair.
- Homes that need significant major renovation, repair or deferred maintenance mitigation. Costs for critical repairs cannot exceed 30% of project costs, so repairs exceeding $7,000-$15,000 (depending on Tier) are unlikely to qualify.
- New construction or homes currently undergoing construction where no existing heating system or water heating system is in place. All projects need to produce minimum energy savings. (See measure requirements.)
- Contractors need access to all areas of the home, so homes that contain contents, furniture, or belongings that block access, cannot be moved, or create a biohazard, may not qualify.

Measure Requirements

- **Eligible Measures:** PCEF-funded EE projects must be listed as eligible or receive program approval.
- **Measure Prioritization:** Project Scope of Work (SOW) shall be designed to prioritize the measures that will produce the greatest utility bill and energy savings.
- **Minimum Savings:** PCEF-funded projects will achieve a minimum 10% energy savings, but targeted modeled savings for Energy Friendly Homes Program retrofits should meet or exceed 20-30%; there is no guarantee of utility bill savings. Scope of work (SOW) for whole home energy retrofits must prioritize measures that produce high utility bill savings. **Projects must obtain PCEF pre-approval for SOWs that include any measures with negative modeled utility bill savings.**
- **Critical Repair Allowance:** Up to 30% of PCEF funds for clean energy projects can be used for any life, health, and safety upgrades (CR) necessary to enable energy efficiency (EE) improvements.
- **Match energy incentives critical repair allowance:** When approved incentives, rebates, or other energy-related contributions are included in the project budget, PCEF funds may be used to cover enabling repairs or health and safety improvements in an amount up to 30% of the additional energy funds, provided that:
    - At least 70% of the total construction budget (PCEF funds + matching funds) is applied to energy improvements.
    - No more than 50% of the total PCEF-funded construction budget is used for non-energy improvements.
- **Matching funds requirement:** For Program Tiers 3 & 4, a dollar-for-dollar match is required (client co-funding). Energy incentives and rebates can be used to meet co-funding requirement.
- **Contingency Costs:** Change orders that exceed the maximum funding level for each Program Tier are not allowed. Contractors should build into their SOW 10% of estimated project costs to address contingencies. The program will never pay project costs above the maximum funding level for each Program Tier.
    - Tier 1 max = $50,000
    - Tier 2 max = $30,000
    - Tier 3, 4, 5 max = $15,000

Project & Quality Assurance (QA) Process

For each project, a program-assigned Energy Specialist (ES) and, in some cases, a Client Navigator (CN), will partner with the contractor to help guide the project through the eligibility and Quality Assurance process. It is crucial to include the Energy Specialist early in the project's design and development.
The Energy Specialist will introduce the contractor to the assigned QA Provider, who will be responsible for evaluating and approving the scope of work and final installation.

Step	Responsible Party	Purpose
BPI Home Energy Assessment	Contractor	For each project site, a Building Performance Institute (BPI) Building Analyst Professional from the participating contractor will conduct a test-in and test-out BPI home energy assessments (including combustion safety, blower door, duct air leakage and other required tests), developing the scope of work (SOW), and creating a Snugg Pro model. • Contractors should work with your Energy Specialist (ES) as a partner

		to complete and submit Snugg Pro models on a minimum of three projects. • Costs up to a maximum of $1,000 associated with conducting the home energy assessment and building the Snugg Pro model can be built into the 70% EE measure costs in the SOW. • Once a contractor is assigned to the project, the participating contractor must initiate scheduling for the home energy assessment within **three (3) business days.** • The contractor must inform all parties on the project when the assessment has been scheduled, including: the Client Navigator (CN), the Energy Specialist (ES), and the Project Coordinator (PC). • When a Client Navigator (CN) is attached to the project, the CN should be invited to attend the home energy assessment.
Scope of Work (SOW) Development	Contractor	The participating contractor will develop and submit a Scope of Work (SOW) **within 10 business days.** It must demonstrate how the proposed project will meet PCEF requirements by entering the audit findings into Snugg Pro and creating a proposal. (*See* Snugg Pro Guide). The SOW should prioritize measures that deliver the highest utility bill and energy savings as modeled in Snugg Pro and aim to meet the following energy use reduction targets as modeled in Snugg Pro. • Tier 1 – 30% • Tier 2 – 20% • Tier 3 – 20% • Tier 4 – 20% • Tier 5 – 15% The SOW will include at minimum: • Results from blower door testing, duct leakage testing, air handler flow, external static pressure test, exhaust fan flow measurement, and combustion safety testing if required. See Blank Data Sheet. • Proposed energy efficiency upgrades and costs by measure, prioritizing the highest-savings measures, and additional documentation as requested. • HVAC equipment specifications including manufacturer, model numbers, size (capacity, in BTU/hr) and relevant efficiency ratings (e.g., SEER2, AFUE, UEF) and AHRI number for heat pumps. • A heating and sensible cooling sizing calculation shall be provided for new heating/cooling systems using approved methods. (See PCEF checklists for guidance, including sizing temperatures.) • Description of critical repair measures, costs, and whether these will be funded by PCEF or through other resources. Critical repair measures should support or enable energy upgrades where applicable. • Details of any co-funding for energy savings and critical repair measures including Energy Trust of Oregon incentives.

		• Additional documentation as requested. A list of suggested photos is found in the Appendix. • SOW must meet all other measure and cost requirements and include a recommended 10% to address contingencies. • If there are life, health or safety repairs that cannot be included in the project, the contractor may submit a Notice of Critical Repair. This must be signed by the client and provided to the QA Provider for approval.
Scope of Work Approval – QA Provider	QA Provider	The participating contractor will submit the SOW in Snugg Pro, where the QA Provider will review and provide feedback within **five to seven (5-7) business** days. The QA Provider will work closely with the participating contractor to ensure the scope meets PCEF requirements prior to installation and will request scope adjustments, if needed. Contractors should not install energy measures prior to written approval of the SOW by the QA Provider.
Scope of Work Approval - Client	Contractor	The participating contractor will review the SOW with the client and receive approval. • Contractors are responsible for delivering CCB and related Consumer Protection Notices (i.e., Right to Lien, lead safe practices, etc.) • Client and contractor need to sign the notices when the Client approves the SOW.
Down Payment	Project Coordinator	Once the project has both the QA Provider and Client approval, the program's Project Coordinator will process and deliver an approved down payment for materials to the contractor. • The down payment will be 50% of the pre-approved SOW or 50% of the pre-approval max for the project tier, whichever is lower.
Installation and Changes to SOW	Contractor	The participating contractor will manage the installation and complete all work within **45 days** of the SOW approval and will notify the QA Provider that the project is ready for QA inspection. Delays should be communicated early with the Energy Specialist. • All installations must follow the guidelines outlined in the Eligible Measures and Installation Checklists. • The participating contractor's BPI certified professional is responsible for the BPI program and scope of work compliance of all installers, including subcontractors, and for ensuring that project costs do not exceed program maximums. • Change orders that exceed the maximum funding level for each Program Tier are not allowed. Contractors should build into their SOW 10% of estimated project costs to address contingencies. The program will never pay project costs above the maximum funding level for each Program Tier. • The contractor will develop a final invoice (see Invoice Requirements) and provide it to the QA Provider when requesting the QA inspection.

		• Contractor will submit the following additional documents to QA Provider:
		  ○ Final work order
		  ○ Appropriate measure Installation Checklists
		  ○ Permit documentation (or indication when permits should be closed out)
		  ○ Radon test results (or indication when results will be available)
		  ○ Site photos (labeled)

QA Inspection & Issue Resolution	QA Provider Contractor	The QA provider will conduct an inspection to ensure the installation meets all PCEF requirements and request corrections, if needed. QA Provider will respond to QA inspection requests **within 5 business days.** The participating contractor shall complete any corrections requested by QA Provider within **30 days** of notification. If corrections are requested, QA Provider can arrange to re-inspect if corrections are major. For minor corrections, QA Provider can accept labeled photos that show the corrections were made.
Final Invoice & Quality Assurance Report	QA Provider Contractor	Once all QA concerns are resolved, the QA provider will provide the final QA report to the contractor, Energy Specialist, and the Project Coordinator. The participating contractor will then submit the final invoice to the Project Coordinator.
Final Payment	Project Coordinator	The Project Coordinator will issue a completion payment for the remainder of the cost of the installation. • The completion payment will be minus any down payment and any co-funding, incentives or other programs' funding. • Payments are issued within 30 days of QA Approval and once all other eligibility requirements are satisfied. • Final payment will never exceed the total cost of the project minus all other incentives and co-funding. • Contractors should submit all relevant documentation to Energy Trust of Oregon to process incentives.

Eligible Energy Efficiency Measures

Following are eligible measures for PCEF funding through the Energy Friendly Homes Program. PCEF will consider additional measures not included on this list. Please contact your Energy Specialist to discuss.

Weatherization

All available opportunities for weatherization upgrades should be evaluated and pursued prior to proposing HVAC upgrades to ensure proper HVAC equipment sizing and prior to proposing any windows or appliances.

Air Sealing

- Provide whole home air sealing on all projects.
- Follow PCEF Air Sealing Installation Checklist.
- Perform pre- and post- blower door tests.
- Conduct combustion safety testing, as required by BPI.
- Air seal all significant and accessible air leaks between conditioned and unconditioned space of all areas of the home. Blower door guided air sealing is recommended.
- Conduct radon testing at end of project. Test during initial home energy assessment, when possible.

Included in 70% EE/RE Cost	Included in 30% Non-Energy Costs (Not Exhaustive)
• Carpentry required for air leakage reduction (e.g., building stem walls between attic/ crawl, access doors or drop-down stair covers). • Radon test.	• Asbestos mitigation. • Radon mitigation system when radon level equals 4 pCi/L or more.

Floor / Crawlspace Insulation

- Follow PCEF Crawlspace Installation Checklist for vented OR unvented crawlspaces.
- Install R-30 or greater OR fill the cavity.
- Air seal all gaps, cracks, seams, and penetrations between conditioned and unconditioned space.

Included in 70% EE/RE Cost	Included in 30% Non-Energy Costs (Not Exhaustive)
• Floor register sealing to conditioned spaces. • Stem wall carpentry, including human contact, ignition or wind wash prevention barrier material. • Floor by-pass cavity (e.g., above pony walls) blocking and sealing. • Foundation vent installation. • Insulation removal. • Dryer or exhaust fan venting (including permit fees). • Radon test at end of project. • 6 mil vapor barriers.	• Water mitigation for wet crawlspace. • Pest mitigation. • Radon mitigation system when radon level equals 4 pCi/L or more.

Flat Attic Insulation

- Follow PCEF Attic Installation Checklist for vented OR unvented attics.
- Install R-49 or greater OR fill the cavity.
- Air seal all gaps, cracks, seams, and penetrations between conditioned and unconditioned space.
- Seal and insulate exhaust ducting.
- Perform minimum NFA calculation for roof venting. If high and low venting is present, a 1:300 ratio shall be used. If only high venting is present, a 1:150 ratio shall be used. If existing venting is not adequate, install vents to meet minimum ratios.

Included in 70% EE/RE Cost	Included in 30% Non-Energy Costs (Not Exhaustive)
• Insulation removal when required for installation of attic insulation. • Carpentry required for air leakage reduction • Access door rebuilding, drop-down stair cover, access hatch dams, soffit or non-IC rated fixture baffles. • Attic ventilation • Exhaust fan venting	• Roof replacement. • Sealing roof leaks as needed to address attic water intrusion • Storage platform (raised to accommodate insulation installed to code R-value). • Asbestos mitigation. • Knob and tube wiring decommissioning as required for installation of attic insulation.

Wall Insulation

- Follow PCEF Wall Installation Checklist for framed, masonry or basement walls.
- For Exterior Wall: R-13 or fill cavity. All heated exterior walls must be insulated
- For Knee Wall: R-15 for 2x4 cavities R-21 for 2x6 cavities
- For Rim Joist: Minimum R-15
- Air seal all gaps, cracks, seams, and penetrations between conditioned and unconditioned space.

Included in 70% EE/RE Cost	Included in 30% Non-Energy Costs (Not Exhaustive)
• Lead safe practices as required for EPA RRP compliance. • Siding removal and re-installation, including replacement of sections broken in the process. Leave primed & paint ready. • Drywall hole patching. • Carpentry needed for hatch door air sealing. • Batt insulation removal. • House wrap or other permeable material to prevent wind washing of knee wall or pony wall batt insulation. • Floor by-pass cavity (e.g., under knee walls) blocking and sealing. • Ignition barriers over foam insulation or other measures needed to meet code (e.g., at rim joists).	• Mitigating water leaks or intrusion. • Dry rot repair. • Knob and tube decommissioning • Siding replacement.

Heating, Ventilation and Air Conditioning (HVAC)

Duct Sealing, Repair, and Insulation

- For all projects with HVAC updates, and whenever possible, prioritize sealing for ducts in unconditioned areas.
- Follow PCEF Duct Sealing Checklist.
- Provide pre – and post- duct sealing test measurements.

Included in 70% EE/RE Cost	Included in 30% Non-Energy Costs (Not Exhaustive)
• Replacing panned returns in unconditioned crawlspaces or attics to modern ducting. • Sealing & insulating ducts in unconditioned spaces. • Removal of old insulation.	• Asbestos tape mitigation on ductwork as required for duct sealing.

Heat Pump Minimum Requirements

- Follow PCEF Heat Pump Installation Checklist for ducted heat pumps or ductless heat pumps.
- Duct sealing must be included in all proposed HVAC upgrades, when ducts are in unconditioned spaces.
- Minimum 10-year equipment warranty.
- Complete a load calculation that reflects post-weatherization building characteristics of the home (required).
- Prioritize inverter-driven, variable-speed heat pumps, sized to match the load calculation.
- Complete Static Pressure and Tru Flo tests for all ducted heat pump installations.
- Program pre-approval is required for the unique situations when the following might be allowed to:
  - Change from a ducted to a non-ducted heating system.
  - Add a heat pump coil to an existing gas furnace.
  - Add a ductless heat pump to serve a portion of the home when the existing primary heating system is left in place.

Included in 70% EE/RE Cost	Included in 30% Non-Energy Costs (Not Exhaustive)
• Electrical, including Panel/Service upgrades as required for installation of system selected when fuel switching. • HVAC Sizing Tool: Login (betterbuiltnw.com) • Up to 5-year pre-paid maintenance plans including 4 filters per year.	• Oil tank decommissioning. • Asbestos removal as required for HVAC replacement (for example, material that is attached to components being replaced)

Exhaust Fan

- Follow PCEF Ventilation Installation Checklist for bathroom or kitchen exhaust fans.
- New exhaust fans must be Energy Star rated.
- Insulate ducting to a minimum of R-8.
- Automated controls such as timers and humidistats shall be installed with the fan.
- Fans shall be programmed per ASHRAE 62/2-2016 guidelines

Included in 70% EE/RE Cost	Included in 30% Non-Energy Costs (Not Exhaustive)
• Electrical to the exhaust fan. • Radon test at end of project. • Mechanical permit fee (required for new fans). • Timers, humidistats and other controls	• N/A

ERV/HRV Minimum Requirements

- Pre-approval required and must replace a less efficient ventilation system.
- Follow PCEF ERV/HRV Installation Checklist.
- Commissioning required.

Included in 70% EE/RE Cost	Included in 30% Non-Energy Costs (Not Exhaustive)
• Electrical to ERV/HRV	• N/A

HVAC Controls or Smart Thermostat

- When installing a new heat pump, use the manufacturer's proprietary control system for optimal operation.
- Must be compatible with installed equipment and not impact functionality or reduce efficiency.

Included in 70% EE/RE Cost	Included in 30% Non-Energy Costs (Not Exhaustive)
• Smart thermostats, including Nest & Ecobee.	• N/A

Water Heating and Appliances

Heat Pump Water Heater

- Follow PCEF HPWH Installation checklist.
- Must align with NEEA Advanced Water Heater specifications v8.1.
- Model must appear on the current Residential HPWH Qualified Product List.

Included in 70% EE/RE Cost	Included in 30% Non-Energy Costs (Not Exhaustive)
• Electrical outlets or circuits, as needed for water heater installation. • Cold exhaust ducting in conditioned space. • Venting for make-up air. • Condensate pump.	• Electrical Panel/Service replacement.

Low Flow Fixtures

- Replace/install hot water fixtures (e.g., faucets, showerheads) that meet WaterSense standards.

Included in 70% EE/RE Cost	Included in 30% Non-Energy Costs (Not Exhaustive)
• Cost of fixtures. • Labor to install fixtures.	• N/A

Refrigerators, Dishwashers, Clothes Washers and Dryers, and Induction Cooktops

- Must be ENERGY STAR rated and installed with other energy-saving upgrades

Included in 70% EE/RE Cost	Included in 30% Non-Energy Costs (Not Exhaustive)
	• Electrical upgrades required for installation

Windows and Doors

Windows and Doors

- Follow PCEF Window Replacement checklist.
- Replacement windows and doors must be Northern Climate Energy Star 0.26 U value or better.
- Prior to proposing windows, evaluate and pursue all available opportunities for weatherization upgrades.
- Windows and doors cannot be installed as stand-alone measures.
- Prioritize windows and doors with the highest energy and utility saving benefits.
- Windows and doors will require program pre-approval to ensure the entire scope prioritizes measures that will produce the greatest utility bill and energy savings.

Included in 70% EE/RE Cost	Included in 30% Non-Energy Costs (Not Exhaustive)
• Windows, Doors, and Skylights Climate Zone Finder | ENERGY STAR • Dry rot repair as required for door or window replacement. • Energy Star low-e storm windows (includes Indow Windows or equivalent interior storm windows)	• Installing new windows or doors larger than the original size. • Installing new less efficient doors (e.g., replacing solid door with a full-lite door).

Other Eligible Measures

Electric Vehicle Chargers

Level II Electric Vehicle Battery Charger

- New charger must be on one of the following lists:
  - ENERGY STAR Electric Vehicle Service Equipment (EVSE) Version 1.2 or newer.
  - Portland General Electric qualified products list (residential)
  - Pacific Power vetted products list (residential)
- PCEF encourages but does not require charger to be equipped with networking capabilities.
- PCEF encourages projects to incorporate ADA accessibility considerations for at least a portion of installed EVSEs.
- Charger must be 240V designed for electric vehicle charging and include a retractable cord.
- For EVSE in publicly accessible locations, PCEF encourages grantees to consider the following security measures: retractable cords, lights, cameras, fencing.
- EVSE must be fully installed and operational.

Critical Repair

Asbestos

- Asbestos shall be handled and mitigated according to Oregon DEQ asbestos rules.
- Asbestos testing shall be conducted by qualified third-party as required by Oregon statute.

Included in 70% EE/RE Cost	Included in 30% Non-Energy Costs (Not Exhaustive)
• N/A	• Asbestos mitigation as required to perform EE measures.

Radon

- Radon testing required in projects including air sealing or exhaust ventilation.

Included in 70% EE/RE Cost	Included in 30% Non-Energy Costs (Not Exhaustive)
• Radon testing	• Mitigation when 'end of project' test results are 4 pCi/L (picocuries per liter) or more.

Mold Mitigation

Included in 70% EE/RE Cost	Included in 30% Non-Energy Costs (Not Exhaustive)
• N/A	• Mold mitigation as required to perform EE measures.

Pest Mitigation

Included in 70% EE/RE Cost	Included in 30% Non-Energy Costs (Not Exhaustive)
• One-time extermination and mitigation when insulation has evidence of vermin intrusion.	• Pest mitigation (year contract).

Smoke & Carbon Monoxide Detectors

- Smoke and carbon monoxide detectors shall be installed according to code.

Included in 70% EE/RE Cost	Included in 30% Non-Energy Costs (Not Exhaustive)
• Smoke and carbon monoxide detectors and installation.	• N/A