

Ground Source Heat Pump Rebate Policy

Water and Light's Geothermal or Ground Source Heat Pump (GSHP) rebate program falls under the same city ordinance and departmental policy as the current air conditioner/heat pump rebate program. The intent of the program is to expand and encourage the installation of high efficiency equipment based on the electric utility cost benefit analysis.

Geothermal heat pump systems purchased and installed prior to April 1, 2017 will not qualify for a rebate. CW&L reserves the right to amend or discontinue this program without notice.

A \$300 per ton rebate is available to CW&L residential and commercial customers retrofitting an existing system and/or to residential and commercial new construction. Both retrofits and new construction must meet building energy efficiency requirements – listed below.

Residential GSHP systems are limited to a maximum of 10 tons; Commercial GSHP systems must be less than 50 tons.

All GSHP units must meet ENERGY STAR qualifications. Only systems tested and rated by the Air Conditioning, Heating and Refrigeration Institute (AHRI) as Energy Star units will qualify. For more information go to www.ceedirectory.org

Rebate amount will be based on system size and the Energy Efficiency Ratio (EER) as determined by the AHRI/ISO 13256 testing. A minimum EER of 19.1 is required to receive a rebate.

NOTE: CW&L is not responsible for the geothermal heat pump systems performance or energy savings, and does not provide any warranties or guarantees, expressed or implied. Rebates are offered on a first come, first serve basis as funding is available each fiscal year.

A Columbia Water & Light electric customer can download the rebate application on the city's website <http://columbiapowerpartners.com/> or call the Administration office at 573-874-7325 to have one mailed.

Residential Ground Source Heat Pump Requirements for new and existing homes and duplexes:

First and foremost you should consider the energy efficiency of your home before determining your heating and cooling system. CW&L requires all participants of the GSHP program meet the efficiency requirements established within the Home Performance with Energy Star program. The participation details for that program can be found on the Columbia Power Partners website: <http://columbiapowerpartners.com/home-performance-with-energy-star/>

The following energy efficiency measures are established in the HPwES program and must be met to achieve maximum incentive of the HPwES program and to participate in the GSHP rebate program:

- Attic insulation must be R-50 minimum.
- Floor insulation must be R-19 minimum.
- Drive under garage ceilings must be insulated to R-19 minimum.

- Wall insulation must be R-10 minimum.
- Duct insulation must be R-13 minimum.
- Rim joist insulation must be R-13 minimum. If foam is used R-10 is acceptable. Rim joists should be air sealed prior to installing insulation.
- Envelope air sealing must achieve 9 ACH50 or 0.5 ACHn
- Windows and doors must be 0.30 U-value and low E for windows.

These policies are subject to change without notice. Any part of the Home Performance program that is not covered in this document or in the City of Columbia ordinances is subject to review and/or policy change by Columbia Water & Light. The rebate and loan program with the City of Columbia is offered on a first-come, first-served basis as funding is available each year.

In addition to the energy efficiency requirement of the home the following contractor and mechanical requirements must be met:

- GSHP Contractor/vendor must be in good standing and remain registered with the Missouri Department of Natural Resources as required by laws.
- CW&L requires a Manual J (or industry equivalent) load calculation be performed to ensure proper sizing of the new equipment. Design conditions that should be used include 80 degree delta T or -10 degree F outside temperature, and a 45 degree F entering water temperature. Contractor must submit a copy of the load calculation summary report from to CW&L and to their customer.
- All systems must be a minimum of 19.1 EER rating. The dealer must verify the system, the EER and supply the AHRI reference number on the rebate form.
- Dual or multistage stage compressors are recommended to better match off peak load and control humidity.
- Closed loop well fields shall be designed to provide 45 degree entering water temperature and should have a minimum 150 ft/ton with a minimum 15 feet on center bore hole spacing.
- Assure duct work provides 400 CFM/Ton capacity on **new construction only**.
- A copy of the final mechanical permit from the Building Site and Development Department of the City of Columbia, Missouri is required.
- A copy of the paid receipt that lists the model numbers for the system is required

*In order to reduce the size of the GSHP system and its associated cost, it is recommended that new homes meet or exceed the Energy Star for New Home requirements.

Commercial Ground Source Heat Pump Requirements for new and existing commercial buildings:

Contractors shall be responsible for providing the following information and/or work.

- New construction and renovation of existing buildings shall be designed to exceed the 2015 International Energy Conservation Code or the ASHRAE Standard 90.1 2013 Energy Standard for buildings Except Low-Rise Residential Buildings or latest version. The designing engineer of record shall provide supporting documentation showing that this is met.
- GSHP Contractor/vendor must be in good standing and remain registered with the Missouri Department of Natural Resources as required by laws
- Building load calculation and well field sizing calculation must be provided.
- AHRI (Air Conditioning Heating and Refrigeration Institute) Certificate of Certified Product Performance.
- The heat pump and well field must be installed to meet manufacturer and industry requirements and standards.
- Contractor shall meet all State of Missouri Regulations as required by the Missouri Department of Natural Resources, Water Protection Program and found in the Missouri Code of State Regulations 10 CSR 20-6.070 and 10 CSR 20-6.080.
- Contractor must identify all underground utility services; i.e. electric, water, telephone, cable, etc.
- A copy of the **final** mechanical permit from Building Site and Development Department of the City of Columbia, Missouri is required.
- A copy of the paid receipt that lists the model numbers for the system is required.

The rebate application form and receipts must be submitted to Columbia Water and Light within six months of the GSHP installation. Incomplete or incorrect applications will have thirty days to provide the correct information or risk losing their place in the rebate funding process.