

BUTLER RURAL ELECTRIC COOPERATIVE
GEOHERMAL PROGRAM

Qualifications:

1. The geothermal system must be an all electric system and be the only source of heat in the home (Any other types of heat must be removed.) This does not include fireplaces or wood stoves.
2. The geothermal system must be installed by a contractor on our Geothermal Dealer List. On March 1, 2012, this list will be rereleased and only include those contractors that are International Ground Source Heat Pump Association (IGSHPA) certified.
3. The loop must be closed and only plastic pipe (such as polyethylene or polybutylene) may be used for the loop installation. Direct expansion and open well systems do not qualify.
4. The geothermal system installed must have a minimum EER of 17.1 and a minimum COP of 3.6.
5. The member must sign a member agreement that explains the requirements on the geothermal program.

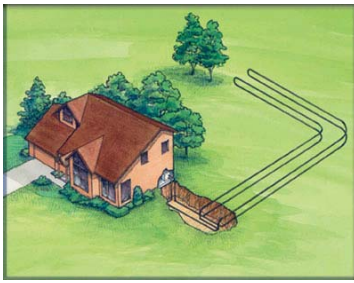
Program Incentives*:

1. \$1000 Rebate- The Cooperative will pay a rebate of \$1000 on new geothermal installations to the member upon completion of the geothermal system. \$500 rebates are also available for geothermal system replacements.
2. Loans- The interest rate for a geothermal installation is 3%. The loan covers 100% of the cost of the geothermal project up to \$25,000.
3. Reduced kilowatt-hour rate
The member will receive a geothermal discount of a \$.02 credit per kilowatt hour used between 1001 and 2501 kilowatt hours each month from September through May.

*Incentives can change and are not guaranteed. Call the office to confirm current program incentives prior to geothermal installation.

For more information, please contact:
Butler Rural Electric Cooperative, Inc. 867-4400 or 1-800-255-2732

Updated 11/2011



GEOHERMAL

With the constant rise and fall of gas prices, the Geothermal Heat Pump is an energy-efficient and economical heating and cooling system alternative. A Geothermal Heat Pump uses the earth to heat and cool your home so it is also environmentally friendly.

Benefits:

- ❖ **Total energy and dollar savings-** A geothermal system uses the fairly constant temperature of the earth to heat and cool your home, so it operates at maximum efficiency. Where a natural gas or propane furnace may be 60%-95% efficient, a geothermal system is 300% efficient! This super high efficiency equals energy savings of up to 70% for heating and 50% for cooling and making hot water.
- ❖ **Free hot water-** Unlike any other heating and cooling system, a geothermal heat pump can provide free hot water. A device called a “desuperheater” transfers excess heat from the pump to the water heater. In the summer, hot water is provided free; in the winter, water heating costs are cut roughly in half.
- ❖ **Year round comfort-** Geothermal systems heat and cool your home in an even fashion. They are clean, safe, and quiet. The geothermal systems are all-electric so there are no flames, flues, or fumes.
- ❖ **Versatility-** Any home with a central duct system is a candidate for a geothermal system. There are a variety of ways to install an earth loop, even on small lots.
- ❖ **Low maintenance-** The piping is underground or underwater, so there is little maintenance required. Occasional cleaning of the heat exchanger coils and changing the air filters are about all that’s necessary to keep the system in good running order.

Butler Rural Incentives*:

- **\$1000 rebate on new installations, \$500 rebate on replacements**
- **Reduced electric rate of \$.02 per kilowatt hour used between 1001-2501 kilowatt hours during the months of September through May**
- **Low 3% interest rate loans available**

*Incentives can change and are not guaranteed. Call the office to confirm current program incentives prior to geothermal installation.

Updated 11/2011

Questions to Ask HVAC Contractors When Researching

Geothermal Heating and Cooling Systems

1. What is the total cost to have geothermal installed?
2. What can I expect my annual heating and cooling cost to be with geothermal? Can you calculate an estimated heating and cooling cost for a home of my size?
3. What size heating and cooling system do I need? Did you perform a Manual J calculation to determine the size of my system?
4. At what outdoor temperature will my electric back-up heat (also known as auxillary or emergency heat) come on? Butler recommends between 0-15 degrees and I understand it is more expensive to run when the back-up heat comes on. This question is important because kWh usage will increase significantly when the back-up is used.
5. How long have you been installing geothermal systems and how many geothermal systems have you installed in the past five years? What percentage are new construction homes versus existing homes?
6. Do you have any unresolved complaints or issues with the Better Business Bureau (BBB)? (You can check with the BBB by calling 513-421-3015 or going to their Web site at <http://cincinnati.bbb.org>.)
7. Are your installers certified by the manufacturer?
8. What are all the manufacturer warranties available? What is your warranty as a contractor?
9. How will my yard be left when the job is complete?
10. How often do I need to have my geothermal system serviced? (Butler recommends having the system serviced yearly to check for loop pressure, clean the coils, etc.)
11. How often do I change or clean my air filter? (Butler recommends changing or cleaning monthly) Will you show me how to clean the air filter? What happens if I don't clean my air filter?
12. Do you have any references I can contact that have geothermal?
13. When will my geothermal installation be complete? Will I be running on emergency back-up heat during the installation?
14. Do you provide an option for vertical or horizontal loop installations? What are the advantages and costs of each?

3/12/09

Butler Rural Electric Cooperative 2008 Geothermal Survey Results

December 31, 2008

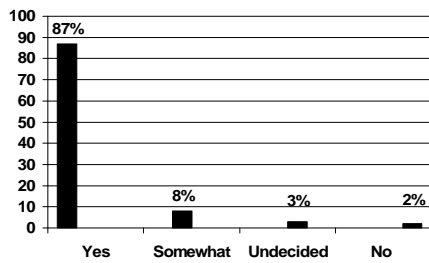
521 Geothermal Members

521 geothermal surveys mailed December 1st

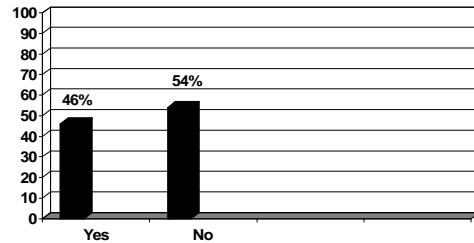
290 surveys returned by December 23rd

56% return rate

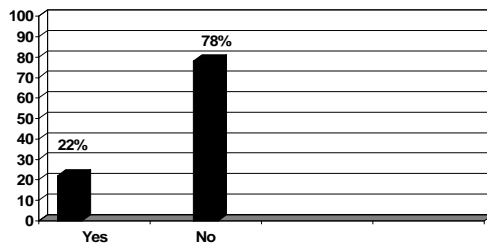
Overall, are you satisfied with your geothermal system?



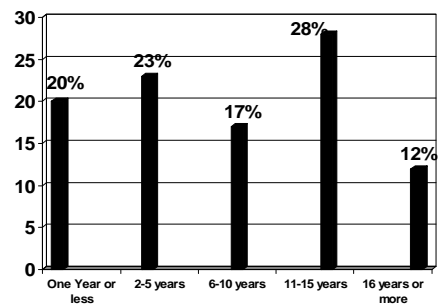
Have you had any maintenance problems on your geothermal system in the past few years?



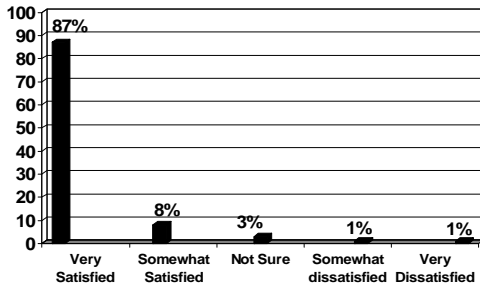
If yes, did you have any problems getting a geothermal dealer to fix the problem?



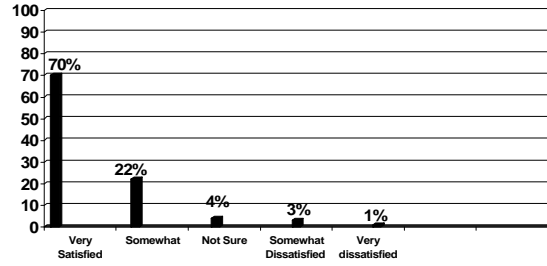
How old is your geothermal system?



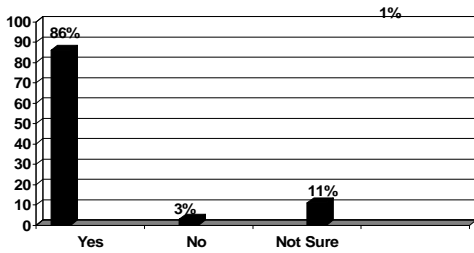
How satisfied are you with the cooling performance of your geothermal system?



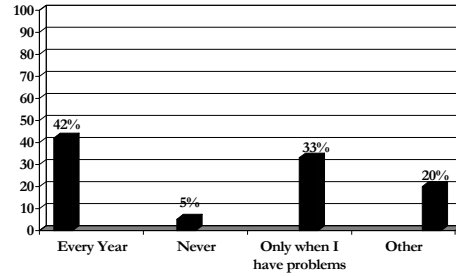
How satisfied are you with the heating performance of your geothermal system?



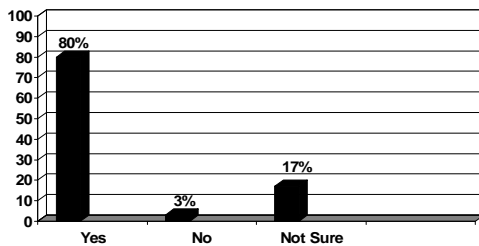
If you had to choose today, would you install geothermal in your home?



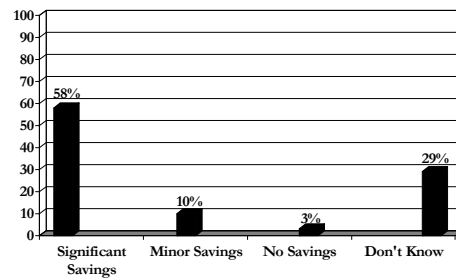
How often do you have your geothermal system maintained?



Are the benefits of the geothermal system worth the initial investment?



Compared to your previous heating and cooling system, how much of a savings has geothermal saved you?



**BUTLER RURAL ELECTRIC COOPERATIVE, INC.
GEOTHERMAL REFERENCE LIST**

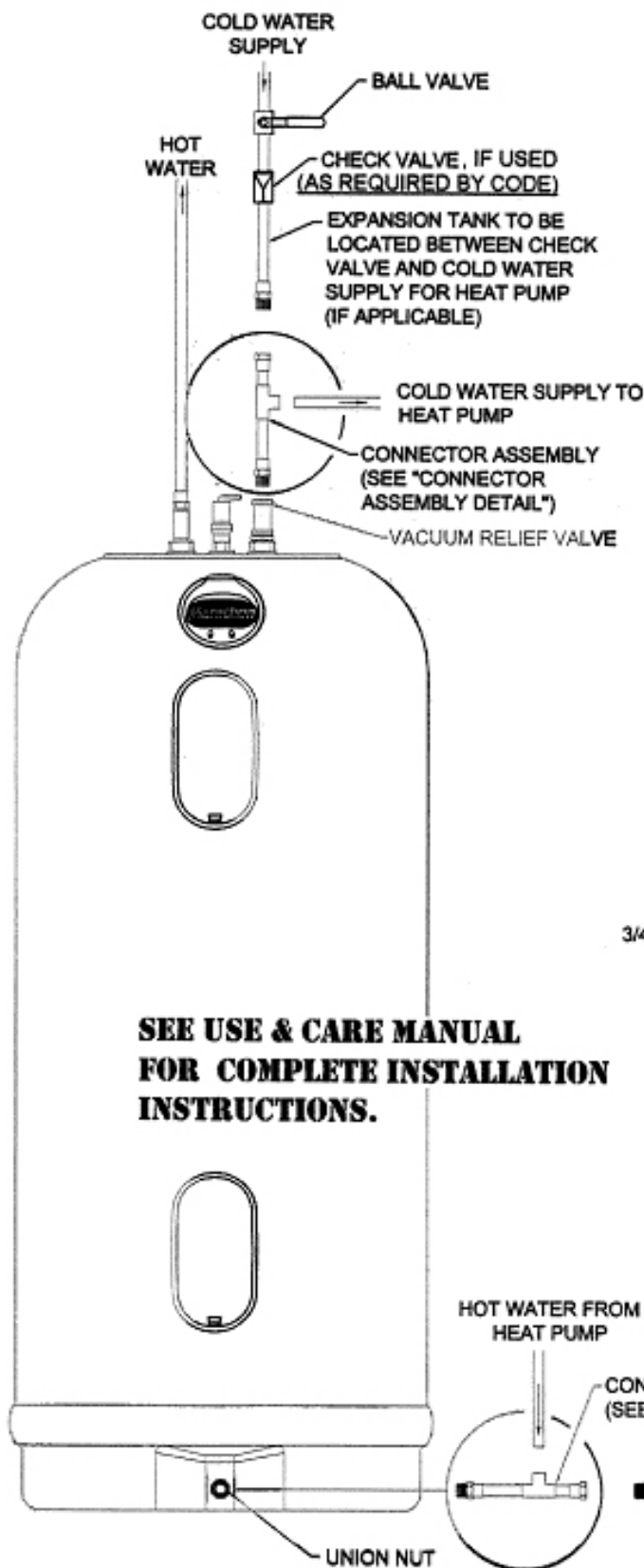
NEW CONSTRUCTION GEOTHERMAL SYSTEM INSTALLATIONS:

Teri Winkler	513-726-5330	Hamilton, OH	Installed: 1990
Geoffrey Robbins	513-738-0306	Okeana, OH	Installed: 1991
Joe Klamo	513-868-6573	Hamilton, OH	Installed: 1991
Robert Schaefer	513-523-0011	Somerville, OH	Installed: 1994
Laura Jewett	513-524-0905	Hamilton, OH	Installed: 1994
Norbert Lerch	513-524-4604	Hamilton, OH	Installed: 1995
Cecilia Berg	513-523-8787	Oxford, OH	Installed: 1997
Wayne Staton	513-796-4544	College Corner, OH	Installed: 1999
Eric Mortimer	513-523-6695	Oxford, OH	Installed: 2002
Bill Ange	513-738-3762	Okeana, OH	Installed: 2002
Leo Taske	513-738-7004	Okeana, OH	Installed: 2004
Cliffton Powell	513-757-4321	Oxford, OH	Installed: 2005
Andrew Greene	513-461-6778	Oxford, OH	Installed: 2006
Mike McIntosh	513-260-4755	Middletown, OH	Installed: 2006
Allen Boyle	513-717-4093	Hamilton, OH	Installed: 2007
Robert Noyes	513-845-4607	Harrison, OH	Installed: 2008
Harold Sykes	513-756-0241	Oxford, OH	Installed: 2008

REPLACED EXISTING HEATING SYSTEM WITH A GEOTHERMAL SYSTEM:

Robert McConnell	513-738-3927	Okeana, OH	Installed: 1988
Mick McDonough	513-798-3832	College Corner, OH	Installed: 1988
Tim Maltry	513-245-9919	Cincinnati, OH	Installed: 1990
Kathleen Hart	513-868-3665	Hamilton, OH	Installed: 1991
Matthew Shoemaker	937-452-7325	Camden, OH	Installed: 1992
Don Meiner	513-896-6782	Hamilton, OH	Installed: 1993
Robert Young	513-738-1966	Hamilton, OH	Installed: 1994
Dave Kirschner	513-367-1329	Okeana, OH	Installed: 1996
Peter Lynch	513-756-9560	Okeana, OH	Installed: 1997
Herschel Estridge	513-523-8836	Oxford, OH	Installed: 1997
Diana Dipaolo	513-524-3874	Oxford, OH	Installed: 1999
Carol Ballinger	513-524-4077	Oxford, OH	Installed: 1999
David Brogden	513-367-9683	Harrison, OH	Installed: 2000
Brian Joyce	513-523-2867	Oxford, OH	Installed: 2000
Jeff Hudepohl	513-523-0323	College Corner, OH	Installed: 2002
John McNally	513-367-5580	Okeana, OH	Installed: 2003
Phyllis Maynard	513-756-9049	Oxford, OH	Installed: 2003
Doug Stevens	513-757-4432	Hamilton, OH	Installed: 2006
Keith Cooper	513-887-1015	Hamilton, OH	Installed: 2006
Peggy Hauer	513-523-0647	Hamilton, OH	Installed: 2008
Theresa Decker	513-738-4587	Harrison, OH	Installed: 2008
Diane Detmer	513-367-4391	Harrison, OH	Installed: 2008
Gerald Schul	513-424-6895	Middletown, OH	Installed: 2008
Timothy Rork	513-726-5202	Hamilton, OH	Installed: 2008
Joanna Sester	513-726-0152	Hamilton, OH	Installed: 2008
Tonda Tinney	513-738-4595	Harrison, OH	Installed: 2008
Kim Rybolt	513-702-5275	Oxford, OH	Installed: 2009
Stephen Larkin	513-738-0009	Okeana, OH	Installed: 2009

Connection of *Marathon* to Heat Pump



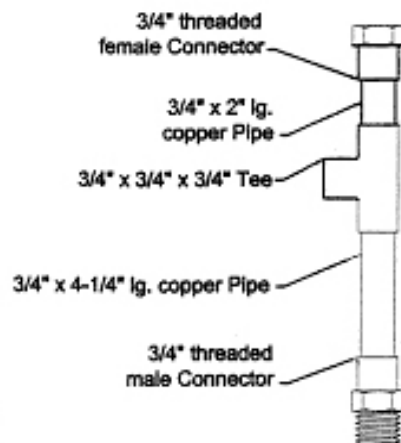
**SEE USE & CARE MANUAL
FOR COMPLETE INSTALLATION
INSTRUCTIONS.**

BASIC INSTRUCTIONS

Because of Marathon's unique molded construction, the drain connection is made through a tube which exits at a union nut at the bottom of the water heater. This prevents the use of the common tube-within-a-tube when connecting the Marathon heater to a heat pump.

For the fastest connection and the best results, we recommend the procedure as shown in the illustration on the left. The connector assemblies can be easily prebuilt in the shop, saving time and labor in the home.

The connection we recommend has the water to be heated by the heat pump, pulled from a "tee" on the cold inlet at the top of the tank. Water that has been heated by the heat pump is then returned via a "tee" connected at the drain valve union nut.



Connector Assembly Detail

(Soldered Assy)

Connector Materials	
QTY	ITEM
1	3/4" threaded male Connector
1	3/4" threaded female Connector
1	3/4" x 3/4" x 3/4" Tee
1	3/4" x 4-1/4" lg. copper Pipe
1	3/4" x 2" lg. copper Pipe

Water Heater Innovations, Inc.
3107 Sibley Memorial Highway
Eagan, MN 55121 PART # 030680 REV A



GeoExchange Heating and Cooling Systems: Fascinating Facts

- The U.S Environmental Protection Agency has identified geothermal heat pumps as a technology that significantly reduces greenhouse gas and other air emissions associated with heating, cooling and water heating residential buildings, while saving consumer money, compared to conventional technologies.¹ For every 100,000 units of typically sized residential geothermal heat pumps installed, more than 37.5 trillion Btu's of energy used for space conditioning and water heating can be saved, corresponding to an emissions reduction of about 2.18 million metric tons of carbon equivalents, and cost savings to consumers of about \$750 million over the 20-year-life of the equipment.
- Geothermal heat pump systems, also known as “geoexchange,” are the most energy-efficient, environmentally clean, and cost-effective space conditioning systems available, according to the Environmental Protection Agency¹
- Geothermal heat pumps strengthen U.S. energy security. Every 100,000 homes with geothermal heat pump systems reduce foreign oil consumption by 2.15 million barrels annually and reduce electricity consumption by 799 million kilowatt hours annually.
- Geothermal heat pumps are efficient. The use of geoexchange lowers electricity demand by approximately 1 kW per ton of capacity.
- Geothermal heat pumps are environmental. They generate no on site emissions and have the lowest emissions among all heating and cooling technologies¹.
- Geothermal heat pumps save money. Schools now using geothermal heat pump systems save more than \$25 million in energy costs – meaning more money for books, equipment and teachers. Homeowners can save 25 to 50 percent on home electric bills compared to conventional heating and cooling systems.
- Geoexchange systems represent a savings to homeowners of 30 to 70% in the heating mode and 20 to 50% in the cooling mode, compared to conventional systems.
- EPA found that geoexchange heating and cooling systems can reduce energy consumption – and corresponding emissions – by more than 40% compared to air source heat pumps and by over 70% compared to electric resistance heating with standard air-conditioning equipment.
- Geoexchange systems use the Earth's energy storage capability to heat and cool buildings, and to provide hot water. The earth is a huge energy storage device that absorbs 47% of the sun's energy – more than 500 times more energy than mankind needs every year – in the form of clean, renewable energy. Geoexchange systems take this heat during the heating season at an efficiency approaching or exceeding 400%, and return it during the cooling season.

- EPA found that, even on a source of fuel basis – accounting for ALL losses in the fuel cycle including electricity generation at power plants – geexchange systems are much more efficient than competing fuel technologies. They are an average of 48% more efficient than the best gas furnaces on a source fuel basis, and over 75% more efficient than oil furnaces. In fact, today’s best geexchange systems outperform the best gas technology, gas heat pumps, by an average of 36% in heating mode and 43% in cooling mode!
- The U.S. General Account Office estimates that if geexchange systems were installed nationwide, they could save several billion dollars annually in energy costs and substantially reduce pollution².
- Surveys by utilities indicate a higher level of consumer satisfaction for geexchange systems than for conventional systems. Polls consistently show that more than 95% of all geexchange customers would recommend geexchange to a family member or friend.
- Today there are now more than 1,000,000 geexchange installations in the United States. The current use of geothermal heat pump technology has resulted in the following emissions reductions:
 - Elimination of more than 5.8 million metric tons of CO2 annually
 - Elimination of more than 1.6 million metric tons of carbon equivalent annually
- Elimination of more than 1.6 million metric tons of carbon equivalent annually
 - Annual savings of nearly 8 billion kWh
 - Annual savings of nearly 40 trillion Btu’s of fossil fuels
 - Reduced electricity demand by more than 2.6 million kW
- The monumental impact of the current use of geexchange is equivalent to:
 - Taking close to 1,295,000 cars off the road
 - Planting more than 385 million trees
 - Reducing U.S. reliance on imported fuels by 21.5 million barrels of crude oil per year.

Geothermal Heat Pump Consortium, Inc.




Phone: 202-558-7175 Fax: 202-558-6759 Toll Free: 1-888-ALL-4-GEO
 Internet: www.geoexchange.org E-Mail: info@ghpc.org GHPC #GB-003

¹ Environmental Protection Agency, Space Conditioning: The Next Frontier, Office of Air and Radiation, 430-R-93-004 (4/93)

² General Accounting Office, Geothermal Energy, Outlook Limited for Some Uses but Promising for Geothermal, (6/94)

Loan Program

ENERGY EFFICIENCY, ELECTRICAL UPGRADE, AND HVAC LOANS AVAILABLE

-  Energy Efficiency: insulation, weatherstripping, caulking, wall, ceiling, floor, duct, pipe, electronic thermostats, clock thermostats, storm & thermal windows, storm & thermal doors
-  Electrical Upgrade: upgrading of service, meter pole changes, rewiring projects, power quality equipment, back-up generators & disconnects
-  HVAC: geothermal system & loop, high-efficiency heat pump, central air conditioning unit



*We can help make your home
improvement dreams become a reality.*

Details of the Loan Program

TO APPLY

To apply for a low-interest loan, the member, who must also be the owner of the property, must complete a loan application. If appropriate, a co-applicant may be required. The member can apply in-person or by phone, fax, or mail. There is a \$15 application fee.

ENERGY AUDIT

An energy audit of the home may be required prior to approval of the loan. Energy Audits are completed by the cooperative.

INTEREST RATE

Interest is a fixed 3%. Rates are subject to change without notice at any time. Call the office today for information on current rates.

DURATION

The minimum term on any loan is 12 months. The maximum term is dependent upon the total loan amount. See chart at right.

<u>Amount</u>	<u>Duration</u>
\$ 500 to \$2,499	18 months maximum
\$ 2,500 to \$4,999	48 months maximum
\$ 5,000 to \$9,999	60 months maximum
\$10,000 to \$25,000	120 months maximum

Note: Minimum duration of 12 months for all loans

PROCESSING

If pre-approved, we will need:

- Last year's W-2 or tax return to verify income
- Copy of the recorded deed to check for liens and to file a mortgage (if the loan is greater than \$2,000)
- Copy of the bid or estimate to verify the loan amount.

PROOF OF INSURANCE

Members with loans need to be insured so that in the event of a fire or other damage, the cooperative will be reimbursed for the equipment if the loan is outstanding. Upon approval for a loan, members must show proof of insurance.

CLOSING COSTS

The closing cost payment will be required at the time the loan papers are signed. These costs include a \$15 application fee, a \$12 UCC filing fee, and a \$56 Mortgage filing fee if a second mortgage is required (if the loan amount is greater than \$2,000). Additional fees may apply.

PAYMENTS

All loans follow a normal amortization schedule. The loan payment is billed to the member on the monthly electric bill. The due date and payment amount will be detailed on each month's bill. In addition, the bill will itemize the principle amount and interest amount owed for the current month.

PRE-PAYMENT PENALTY

There is no pre-payment penalty. The loan can be paid off in full at any point in time without penalty.

INTEREST

Please consult your tax advisor as to whether the interest on the loan is tax deductible.

*For more information, visit us on the web at www.ButlerRural.coop
or call (513) 867-4400 or (800) 255-2732.*

Federal Tax Credits & Cooperative Programs & Incentives

FEDERAL TAX CREDITS*

For existing homes and new construction -
principal residence and second homes

GEOTHERMAL HEAT PUMPS

- Must meet minimum rating standards
- Closed Loop: EER \geq 17.1, COP \geq 3.6
- Tax credit includes installation costs

Credit: 30% of cost with no upper limit

SMALL WIND TURBINES (RESIDENTIAL)

- Must have a nameplate capacity of no more than 100 kilowatts
- Tax credit includes installation costs

Credit: 30% of cost with no upper limit

SOLAR PANELS (PHOTOVOLTAIC SYSTEMS)

- Must provide electricity for the residence and meet applicable fire and electrical code requirement

Credit: 30% of cost with no upper limit

Form 5695
Department of the Treasury
Internal Revenue Service
Name may appear on return

Residential Energy Credits
▶ See instructions.
▶ Attach to Form 1040 or Form 1040NR.

OMB No. 1545-0074
10
Abatement
Penalty No. 158
Your social security number

Part I Nonbusiness Energy Property Credit (See instructions before completing this part.)
▶ See instructions.
▶ Attach to Form 1040 or Form 1040NR.

1 Were the qualified energy efficiency improvements or residential energy property costs for your main home located in the United States? (see instructions)
Do not complete Part I. Yes No

Caution: If you checked the "No" box, you cannot claim the nonbusiness energy property credit.

2 Qualified energy efficiency improvements (see instructions).
a Insulation material or system specifically and primarily designed to reduce the heat loss or gain of your home
b Exterior windows (including certain storm windows) and skylights
c Exterior doors (including certain storm doors)
d Metal roof with appropriate pigmented coatings or asphalt roof with appropriate cooling granules that are specifically and primarily designed to reduce the heat gain of your home, and the roof meets or exceeds the Energy Star program requirements in effect at the time of purchase or installation

3 Residential energy property costs (see instructions).
a Energy-efficient building property
b Qualified natural gas, propane, or oil furnace or hot water boiler
c Advanced main air circulating fan used in a natural gas, propane, or oil furnace

4 Add lines 2a through 3c

5 Multiply line 4 by 30% (30)

6 Maximum credit amount. (If you jointly occupied the home, see instructions)

7 Enter the amount, if any, from your 2009 Form 5695, line 11. Otherwise enter -0-

8 Subtract line 7 from line 6

9 Enter the smaller of line 5 or line 8

10 Limitation based on tax liability. Enter the amount from the Credit Limit Worksheet (see instructions)

11 **Nonbusiness energy property credit.** Enter the smaller of line 9 or line 10. Also include this amount on Form 1040, line 52, or Form 1040NR, line 49.
For Paperwork Reduction Act Notice, see your tax return instructions.

	1	2	3	4	5	6	7	8	9	10	11
2a											
2b											
2c											
2d											
3a											
3b											
3c											
4											
5											
6										\$1,500	
7											
8											
9											
10											

Visit www.EnergyStar.gov for details and updated information on federal tax credits.

EFFECTIVE

For products "placed in service" through December 31, 2016

SAVE PAPERWORK

Save receipts and the Manufacturer's Certification Statement for your records.

TAX ADVISOR

Please consult your tax advisor with any questions related to tax credits. This information is meant to be informative in nature and may not provide all necessary information to qualify for tax credits.

TAX FORM

The form filed for credits is IRS Form 5695

COOPERATIVE PROGRAMS & INCENTIVES*



GEOTHERMAL HEATING & COOLING SYSTEMS

- New homes and replacement of existing system
- \$1000 rebate on new installations, \$500 rebate on replacements
- \$.02 kilowatt hour credit for any usage from 1,001 to 2,501 kWh September thru May

DUAL FUEL HEATING SYSTEMS

Add-on air source heat pump to a fossil fuel furnace

- Home must be at least 6 years old
- \$200 rebate on new installations & replacements
- \$.02 kilowatt hour credit for any heat pump usage from September thru May

ELECTRIC WATER HEATER

Buy a Rheem Marathon™ Water Heater

- Lifetime “tank” warranty
- Six years parts & labor warranty
- Energy efficient with R-25 insulation
- Rebates available for new homes and fossil fuel conversions

Lease a Rheem Marathon™ Water Heater

- \$12.50 per month
- No up-front cost, no installation fee
- All service is performed free of charge

LOAN PROGRAM

- Interest rates at 3%
- Three types available:
 - Energy Conservation
 - HVAC Systems
 - Electrical Improvements

ENERGY AUDITS

- Discover where you are losing energy in your home
- Testing completed on air leakage, insulation and appliances
- Blower door test and infrared camera used throughout home

*Restrictions may apply and incentives are not guaranteed

RADIO CONTROLLED SWITCH (RCS) PROGRAM

- Radio controlled switch placed on electric water heater
- Defers element on water heater during peak demand times
- \$4 monthly bill credit

COOL RETURNS

- Radio controlled switch placed on air conditioning unit (central air, heat pump or geothermal)
- Cycles unit off for 8 to 12 minutes every half hour during peak demand times
- \$100 upfront bill credit with two year commitment
- \$2 monthly bill credit

SURGE SUPPRESSION

- Meter-based and panel-based surge suppression available
- Protects your white appliances and/or your electronics

SECURITY LIGHTS

- Dusk to dawn outdoor security light
- \$10 per month on the electric bill with a 36 month agreement
- Covers installation, maintenance and kWh usage of light



Visit our website at
www.butlerrural.coop or
call (513) 867-4400
for more information

