



McNUTT
Service Group

Renewable Technologies
How Going Green Can Benefit You
Introduction

Introduction:

- **Welcome everyone to McNutt Service Group's Renewable Energy Seminar
"How Going Green Can Benefit You"**
- **Housekeeping – Cell phones & Restrooms**

History:

- **Reed and Bobbie McNutt and founded McNutt Service Group, in January 1979 on Asheville Hwy., right here in Hendersonville.**
- **Started Selling & Installing Bat Cave wood stoves & sweeping chimney**
- **Expanded in the Early 80's**
 - **Pre- fab fireplaces where we worked directly with home builders**
 - **Turfpatrol, a lawn care company**
 - **The Outsiders, a sliding & Replacement Window Co.**
 - **Expanded into the Heating and Air Conditioning Business**
- **By 1985 we were operating 5 small businesses**
- **Mid 90's we expanded into Plumbing & Electrical**

Customers

At McNutt Service Group we are very proud of the fact that we have many customers who have had us working for them 20 to 30 years. They bought woodstoves or sliding or prefab fireplaces in the early and late 80's and are still using us for their heating and air conditioning, electrical, and plumbing needs, after all these years



The Expansion of McNutt Service Group

This year, 2009:

Opened a Branch in Hilton Head, S.C.

Acquired Service Unlimited, in Sevierville Tennessee, a Heating and Air Conditioning Company.

Opened a branch in Greenville, S.C. serving the Upstate South Carolina

Renewable Energy

- At McNutt Service Group we believe that being a provider of renewable Energy equipment & Service goes hand in hand with our core business.
- There are many options available to consumers for Going Green. We can help that's why we call this program "How Going Green Can Benefit You!"

We currently offer:

- ✓ Solar Thermal water and space heating
- ✓ Solar PV to generate electricity
- ✓ Wind mill to generate electricity
- ✓ Geothermal heating and cooling systems.

(DSIRE) Database of State Incentives for Renewables & Efficiency

The screenshot shows the DSIRE website interface. At the top, there is a navigation bar with links for "NC Solar Center", "IREC", "Contacts", "About Us", and "NCSU". Below this is the DSIRE logo and the text "Database of State Incentives for Renewables & Efficiency". A description states: "DSIRE is a comprehensive source of information on state, local, utility, and federal incentives that promote renewable energy and energy efficiency. Choose one or both databases to search:". Below the description are two checked checkboxes: "Renewable Energy" and "Energy Efficiency". A map of the United States is displayed, with most states shaded in purple. A small inset map shows "Federal Incentives" (FED) and another inset shows "US Territory Incentives" (T). On the left side, there is a vertical navigation menu with links for "FAQs", "Summary Maps", "Summary Tables", "Search By", "Glossary", "Links", "Library", and "New / Updated Incentives". At the bottom left, it says "Last Updated: 04/10/08". At the bottom center, there is a footer with "© 2007 NC State University, NC Solar Center" and a navigation bar with links for "FAQs", "Summary Maps", "Summary Tables", "Search By", "Glossary", and "Links".

There are many state, federal and local incentives available to help pay for the cost of installing renewable energy systems.

The DSIRE website includes both Federal and State Incentives available for Business and Residential Builders, and Consumers

<http://www.dsireusa.org/>

THE BAILOUT BILL AND STIMULUS BILL: OPPORTUNITIES FOR RENEWABLE ENERGY AND ENERGY EFFICIENCY

- The Energy Improvement and Extension Act of 2008
(The Bailout Bill)
- The American Recovery and Reinvestment Act of 2009
(The Stimulus Bill)

The Bailout Bill



The Bailout Bill provided significant tax incentives and extensions for tax credits for the following projects: renewable energy, energy efficient and conservation.

The Stimulus Bill



The Economic Stimulus Bill signed into law on February 17th, 2009 has resulted in several important new incentives and measures to stimulate energy efficiency and solar, wind and other renewable energy development, manufacturing, installation and operation in the United States.

What's Next???



“But to truly transform our economy, protect our security, and save our planet from the ravages of climate change, we need to ultimately make clean, renewable energy the profitable kind of energy. So I ask this Congress to send me legislation that places a **market-based cap on carbon pollution** and drives the production of more renewable energy in America. And to support that innovation, we will invest **fifteen billion dollars a year** to develop technologies like wind power and solar power; advanced biofuels, clean coal, and more fuel-efficient cars and trucks built right here in America.”

--- President Obama, 2/24/09

Overview:

Renewable Energy Basics



What is Solar Photovoltaic (PV)

Solar Photovoltaic or (Solar PV) renewable energy comes either directly or indirectly from the sun. Sunlight, or solar energy, can be used directly for generating electricity for a variety of residential, commercial, and industrial uses.

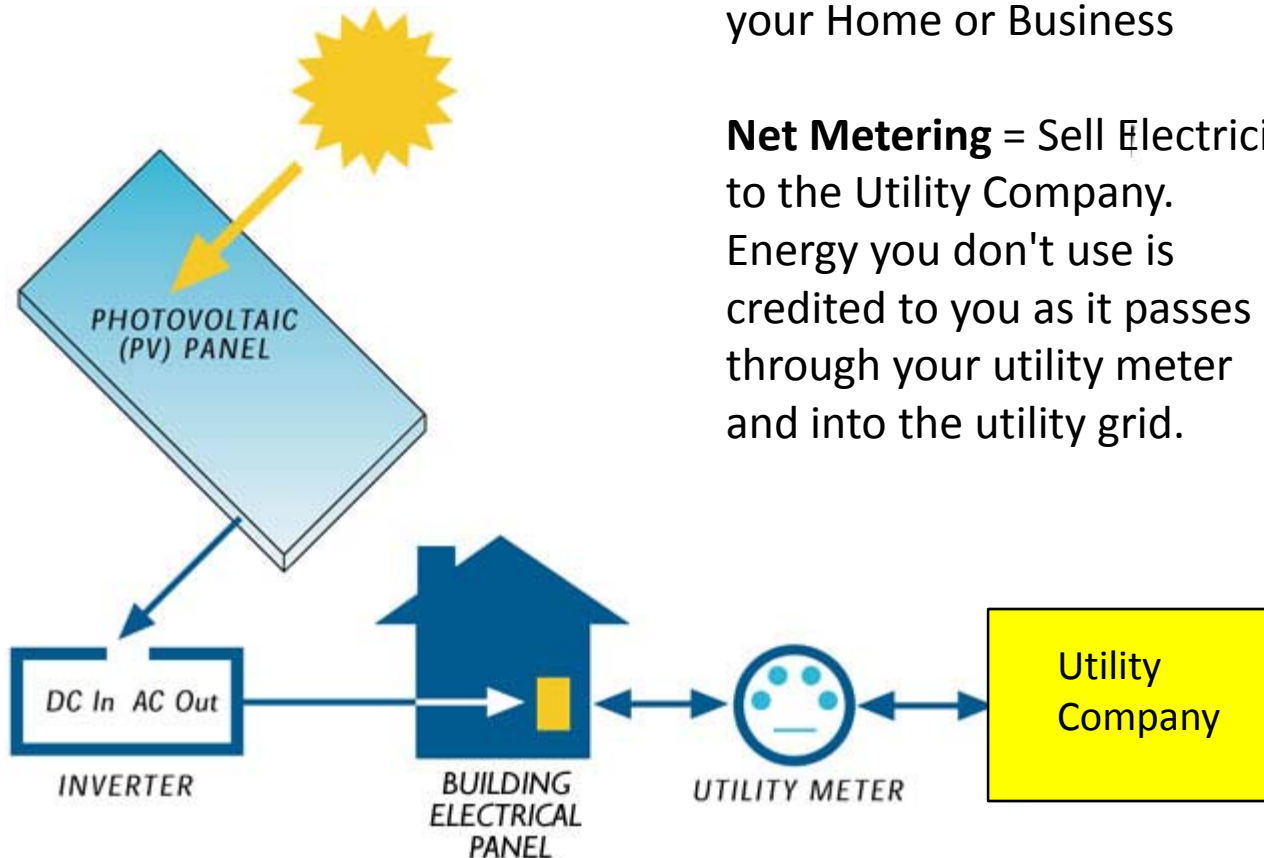


How does it work?

Solar Photovoltaic (PV)

Energy from the sun is converted into electricity for your Home or Business

Net Metering = Sell Electricity to the Utility Company. Energy you don't use is credited to you as it passes through your utility meter and into the utility grid.



What is Solar Thermal?

Essentially, a solar water heating collector is a black box enclosing copper piping that sits on your roof and collects heat from the sun, and transfers it to the water that runs through the piping. This feeds to your storage tank, and acts as a pre-heater to your existing water heater.

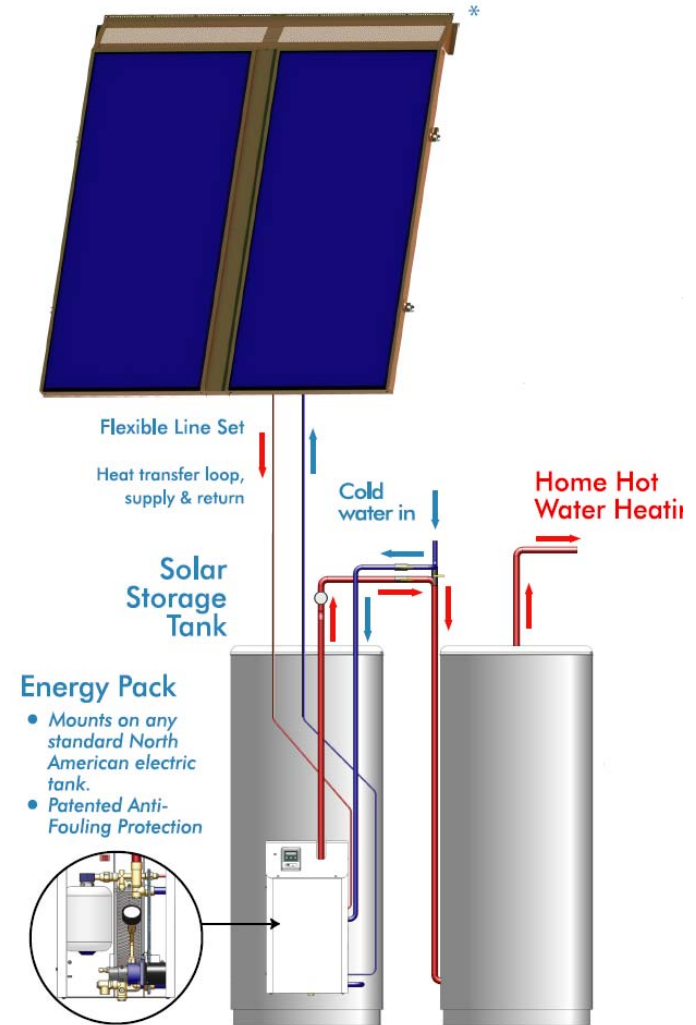
Active systems – Contain pumps and controls to regulate the flow and hot water production.



How does it work?

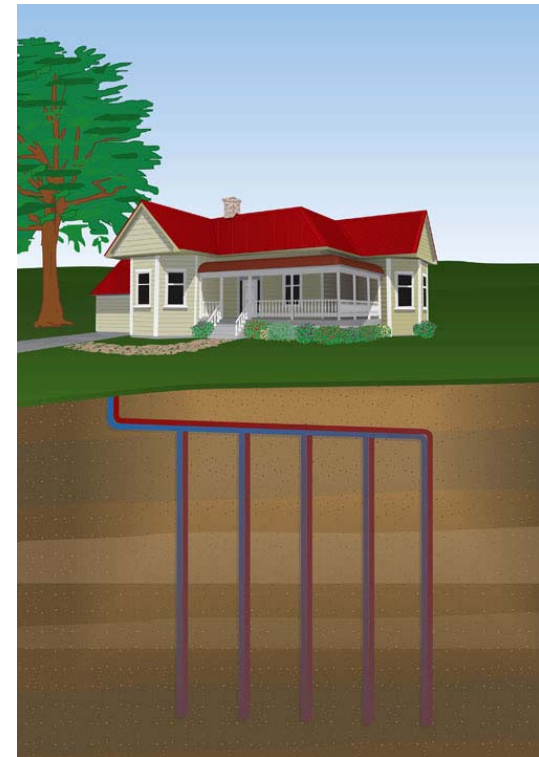
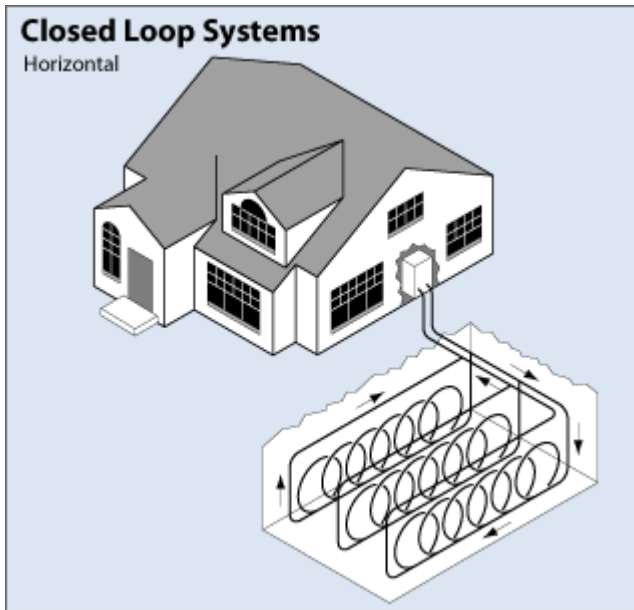
Solar Thermal

- ◆ Glycol is pumped in from the storage tank to the Solar Thermal Panel
- ◆ The Glycol is heated by the sun in the panel, then produces warm Glycol Solution out.
- ◆ A controller tells Panel when to come on and transfer Glycol solution.
- ◆ When the Panel solution is warmer than the storage water, the system is activated.
- ◆ When the Glycol solution reaches the storage container then passes through the Heat Exchanger where it heats the water in the storage container, which thereafter goes into your hot water heater to heat your home
- ◆ The Glycol continues in a closed loop from the storage tank to the Solar Thermal Panel



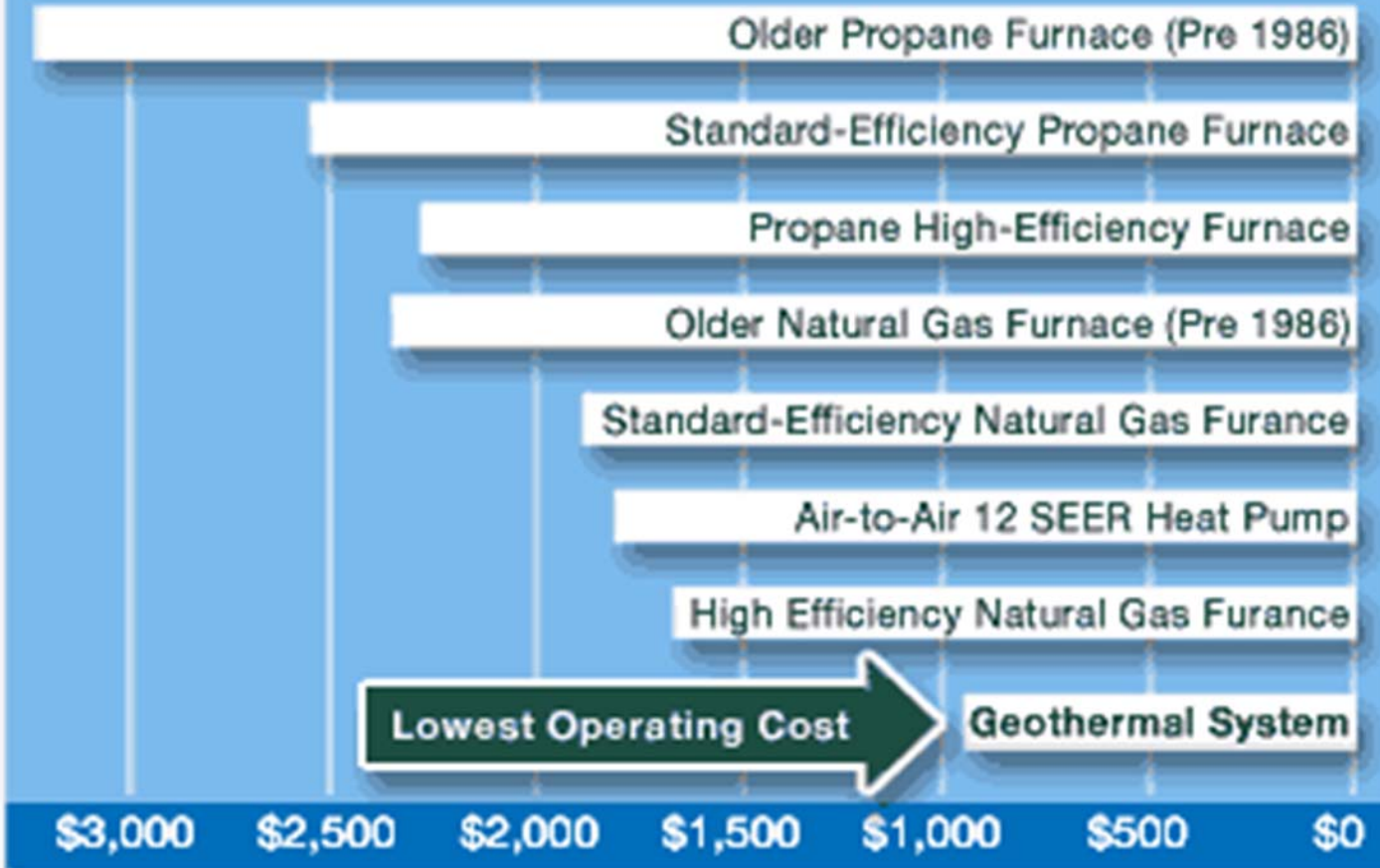
What is Geothermal?

Geothermal is an electrically-powered device that uses the natural heat storage ability of the earth and/or the earth's ground water to heat and cool your home or business. The Ground Stays at 55 degrees.





Typical Geothermal Operating Cost Comparisons

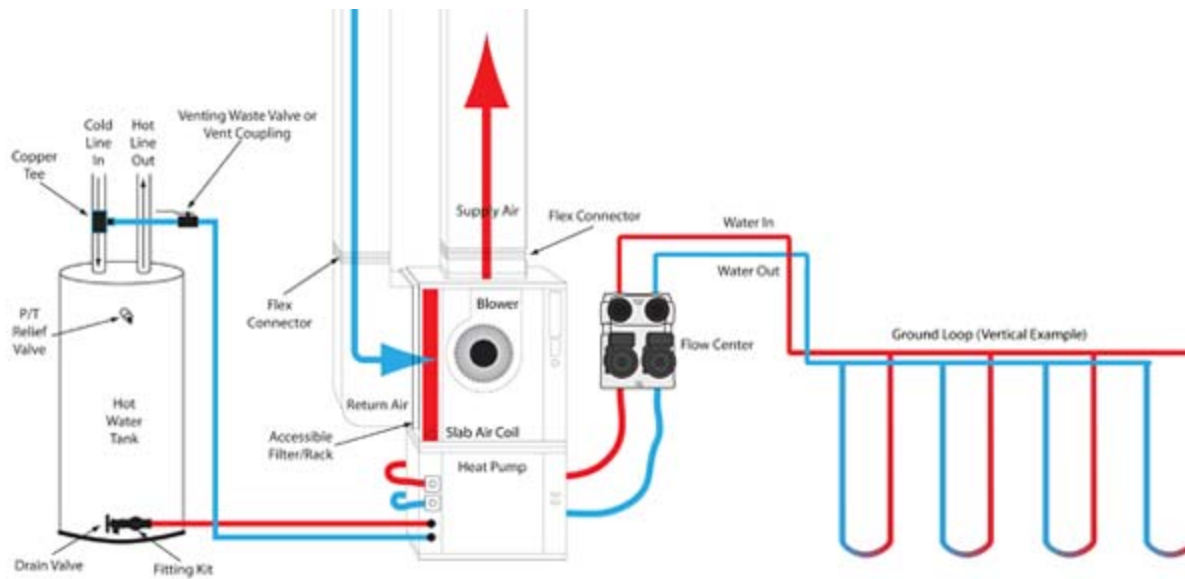


How does it work?

Geothermal - Heating

Heating Cycle

During the heating cycle, the fluid circulates through the loop extracting heat from the ground. The heat energy is transferred to the geothermal unit. The unit compresses the extracted heat to a high temperature and delivers it to your home through a normal duct system or radiant heat system



What is Wind Energy?

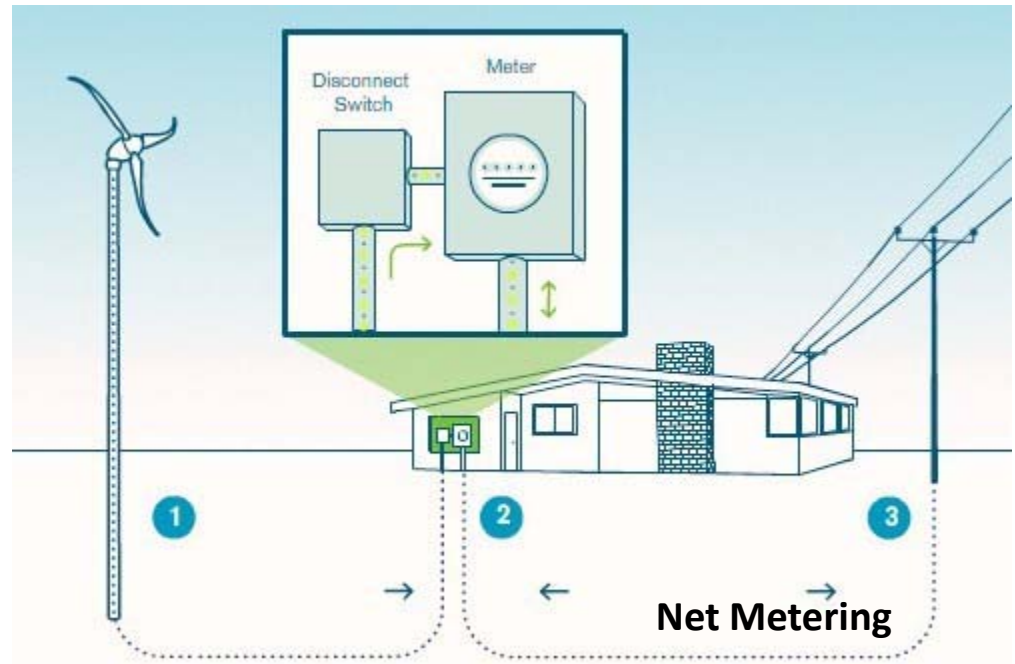
Wind Turbines are electric generators that use wind energy to produce clean, emissions-free power for individual homes, farms, and businesses.

Wind Turbines work in tandem with your electric utility to power your home or business. When the wind isn't blowing, the utility supplies your electricity. But when it's windy out, your turbine pivots to catch the best wind and provides clean, quiet electricity. When it generates more electricity than you need, *your meter can actually spin backwards—which means you're essentially selling electricity back to the utility. (*This process is known as Net Metering)



How does it work?

Wind Energy



A Wind turbine works the opposite of a fan. Instead of using electricity to make wind, like a fan, wind turbines use wind to make electricity. The wind turns the blades, which spin a shaft, which connects to a generator and makes electricity

High Efficiency HVAC Equipment



How it Works

(Draws Energy from the sun)

During Peak daylight hours, the HVAC System gets help from a solar panel to heat and cool your home. It uses renewable solar energy to power the outdoor fan motor, reducing the utility-provided electricity needed for operation. The solar assist increases the system efficiency, reducing the power consumed as much as 59%

High Efficiency HVAC Equipment

Taking the step to conserve energy with a High Efficiency HVAC system can save you hundreds of dollars on your utility bills every year.

A High Efficiency HVAC System makes use of all available solar energy to reduce electric consumption—full sun is not a requirement. On days with limited sun exposure, the system continues to operate efficiently using metered electricity provided by your power company.



The Solution - RENEWABLE TECHNOLOGIES

- Add comfort, security and value to your home, or business
- Renewable energy poses significantly lower environmental, and health costs than conventional energy technologies.
- No carbon emissions
- Unlimited supply and available to all
- Government Incentives, Tax breaks, Grants, and Loans
- Produce your own clean, quiet electricity.
- Guard against rising energy costs.
- Rising Energy Cost is Inevitable
- Reduce dependence on your local utility and foreign oil
- Protect the environment.

Renewable Technologies are one of the answers to energy independence...

So Don't get left out in the Dark....

Your New Choice for Renewable, Alternative Energy



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