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# Recovery Act Success Stories

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ANNAPOLIS

## Residential tax credits boost Maryland geothermal business

As more budget-savvy Americans turn to renewable energy to power their homes and cut expenses, business is booming for small companies such as Earth River Geothermal, Inc.

Mark Schultz, owner of the Annapolis, Md.,-based geothermal heat pump installation company, has worked on 30 geothermal projects in the past two years. Schultz says “the word is getting out” about geothermal systems, which use the stable temperature located just beneath the Earth’s surface to heat and cool homes.

A 30 percent renewable energy tax credit – extended by the American Recovery and Reinvestment Act – has slashed the average price of installing residential systems from \$25,000 to \$17,500. Grants from the Maryland Energy Administration and County property tax credits typically lower the price an additional \$4,500, making geothermal an attractive energy option. “Financial incentives really help,” Schultz says.

Unlike traditional HVAC systems that heat or cool outside air, geothermal systems regulate a home’s temperature using the Earth. The systems consist of underground pipes filled with a special fluid. During heating mode in winter, the fluid circulates through underground piping where heat energy is transferred from the ground (the heat source) to the fluid and then to the geothermal heat pump located in the home. To provide air conditioning, the process reverses. Heat is removed from the home and transferred to the loop fluid. As the warm fluid travels through the pipe in the earth, it is cooled. In the cooling mode, the earth serves as a “heat sink,” a place to deposit the heat removed from the home.

Because of this process, geothermal systems are energy efficient and can save homeowners 30 to 60 percent on heating and cooling costs, according to Energy Savers. The systems provide efficient hot water and are quiet since outdoor fans aren’t required to run them. Other benefits include low maintenance costs, increased home resale value and safety. “Unlike natural gas or coal, there’s no fire hazard,” says Schultz.

Schultz says he realized the value of geothermal energy a few years ago when he worked as a hydrogeologic consultant. He read about the positives of the renewable energy source in an industry publication and decided to install his own geothermal system. “Once you start to understand them, it makes complete sense and it’s a superior way to heat and cool homes,” Schultz says. “How can you beat low operating cost and increased comfort?”

After his consulting work began to slow down, he followed his passion for renewables and formed Earth River Geothermal. Owning a

geothermal business is a challenge, Schultz says, but “it’s a lot of fun.”

Schultz says when small geothermal companies succeed, so do other businesses such as parts suppliers, HVAC contractors, and well drillers. “The trickle down is huge,” says Schultz. “Money is being spent locally on equipment that is manufactured in the U.S.,” he adds.

Geothermal is shaping America’s clean energy economy, Schultz says. “All the money being spent on geothermal systems is in lieu of importing oil.”

DERWOOD

## Geothermal system saves dollars, makes sense for Maryland family

Chris Gearon’s 24-year old oil furnace was tired. What happened if the furnace died during the winter? The air conditioning system was also aging and inefficient. Chris saw buying a new heating system as a major investment, and it wasn’t a decision he wanted to make on the fly.

Rather than wait for the ailing systems to break, Chris began researching heating and cooling options for his 4,400-square foot home in Derwood, Md. The family knew they wanted to explore alternative energy, and in the end, they chose to invest in a geothermal system to heat and cool the house.

“It really came down to the dollars and cents. Geothermal just made the most sense,” Chris says.

Geothermal systems tap into the temperature of the Earth a few feet below the surface, which in Derwood is about 55 degrees. The system transfers heat from the Earth to warm the house. To cool the house, the process reverses.

Chris contracted out the project, and by October, he chose a team. After some challenging moments throughout October and November– rerouting pipes, a 36-foot-tall drilling rig in his yard and landscaping concerns – the project was completed and in-use



A 36-foot-tall drill was needed to install the geothermal system at the Gearon’s house in Derwood, Md.

### Energy tax credits

Residents who install solar energy, wind, geothermal, fuel cell or microturbine systems can receive a 30% tax credit with no cap for systems placed in service before December 31, 2016. For more on the tax breaks, visit the DOE’s website.