**Community that Works Together, Wins Together**



*Pictured: Ponca City Mayor Homer Nicholson, who also serves on the OMPA Board of Directors, Ponca City General Manager of Electric Utilities Phillip Johnston, Ponca City City Manager Craig Stephenson, Ponca City Development Authority Director of Business Expansion and Retention Laurence Beliel, Ponca City Development Authority Board of Trustees Vice Chair Jeffrey Meyers, OMPA Energy Services Engineer Tom Willis, who is the coordinator of DEEP, and OMPA Member Services Media Specialist Jennifer Rogers attended the presentation.*

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**COMMUNITY THAT WORKS TOGETHER, WINS TOGETHER**

We believe that one of the main differences between a city and a business is that a city is not necessarily seeking profitability, but accountability and service. It is our City’s goal to provide the utmost quality services and meet the needs of the citizens with the funds available each fiscal year. This philosophy has helped us to weather the storms successfully through long-term planning and preparation rather than knee jerk reactions.

Ponca City is a “jewel” not only because of that achieved by leaders of the past, but by those in our community today. Not only do our City departments work together, but our community is known for working together as one. This “can do” attitude promotes communication, generates creativity and reduces duplication. When the national economy took a turn for worst, the city, schools, hospital, chamber, tourism and economic development immediately came together and hosted an event called “Here is…What’s Right with Ponca City” to educate and encourage our citizens and businesses.

Ponca City continues to work together and positively support each other’s efforts; as each sector of our community has a direct impact upon the others. We have celebrated the past, now we must press forward, encourage ingenuity and celebrate today as well. So it was no surprise when the positive working relationship between Ponca City Energy (the City of Ponca City’s electric department), the Ponca City Development Authority (the community’s economic development arm) and the Oklahoma Municipal Power Authority (a state governmental agency created by the legislature to serve cities and towns that own and operate their electrical distribution systems and is governed by the members*)* resulted in a big win for local industry.

In December of 2009, PCDA created a renewable energy initiative called Sustainable Alternative Green Energy (SAGE). The purpose of the SAGE initiative is to explore, understand and accelerate the opportunities for renewable energy in north central Oklahoma. Three primary elements are at the core of the effort, one being growing the potential of the renewable energy resources in North Central Oklahoma. The second, the creation of new jobs in the renewable energy industry, with a focus on component manufacturing and the third to look for opportunities for SAGE to allow our local industry to be more cost competitive, from an energy cost perspective.

SAGE or renewable energy is energy that comes from natural resources such as sunlight, wind, hydro, tides, biomass, geothermal and GHSP (Ground Source Heat Pumps), which are renewable (naturally replenished). In 2008, about 19% of the global energy consumption came from renewable energy. A rapidly growing segment of renewable energy is GSHP. A GSHP system is very similar to a conventional Heating Ventilation and Air Conditioning (HVAC) system other than it uses the earth as a heat source (in the winter) or heat sink (in the summer).

A key component of GSHP is the ground loop. The ground loop is a continuous loop of HDPE (high-density polyethylene) pipe placed in vertical wells ranging from a couple hundred feet to as much as 500 feet in depth. GSHP systems take advantage of the moderate temperatures in the ground to boost efficiency. For our region in north central Oklahoma, the constant sub surface temperature where GSHP loop systems are installed is approximately 63**o** Fahrenheit.

These systems use a pump to circulate the fluid in the loop to transfer heat from a warm place (the earth) to a cool space when in heating mode or can move warm air out and cool air in when in a cooling mode. Another key component of the heat pump system is the loop of refrigerant pumped through a vapor-compression refrigeration cycle that moves heat, either into or out of the area being conditioned. This component adds additional warm or cool air to the fluid from the ground loop to give the room the desired temperature.

GSHP systems are second to none when it comes to energy efficiency. First, they eliminated the need for natural gas for heating. Second, they use variable speed DC motors which use less electricity. Third, the systems get a large portion of the heated or cooled air from the ground loop making them very energy efficient. For comparison, the new government SEER (Seasonal Energy Efficiency Rating) requirement is 13 SEER; the previous SEER rating requirement was 10 SEER. GSHP systems have a rating of 23 SEER, nearly twice that of the latest government requirement.

In July of this year, Smith Bits was evaluating their aging HVAC system. Coincidently, the PCDA was growing their SAGE initiative. Thomas Edison once said, “Good fortune is what happens when opportunity meets with planning”. As fortune would have it, the PCDA was told about Smith’s plans to upgrade their HVAC systems. A meeting was scheduled with the PCDA SAGE team and Dennis Ward, Dennis Bond and Butch Bucher of Smith Bits to discuss GSHP systems. In the meeting the discussion included the “how they work,” federal tax credits, Ponca City Energy and Oklahoma Municipal Power Authority (OMPA) rebate program and the Oklahoma Comfort Rebate program which is funded by the Environmental Protection Program (EPA).

The federal tax credit for GSHP is currently equal to 30%. The Ponca City Energy/OMPA rebate program offers $800 per ton for GSHP systems. The Oklahoma Comfort program offers a $1,000 per ton rebate for GSHP systems. The standard rebate programs offer the rebates for up to five and one half tons of installation. For installations over five and a half tons, special applications must be submitted for approval to receive the rebates. To understand the economics of the Smith Bit project, PCDA ran a discounted flow analysis on GSHP and conventional HVAC systems. Even though the initial cost of installing GSHP was higher, the tax credit and cash back rebates offered a payback period of less than a year and a half on the difference between the cost of conventional HVAC and GSHP systems.

On the surface, it may appear unreasonable to spend more money on a GSHP system when you can install a conventional HVAC system for about half the cost. This would be true if it wasn’t for the fact that GHSP systems will cut your heating and cooling energy cost, in some cases, more that 50% for the first year and every year after that. That is the real beauty of GSHP systems. In many large manufacturing companies, millions of dollars a year are spent on energy to operate their plants. Of the energy consumed, a large portion is used to heat and cool the facility. Imagine if you will, what it would mean to industry to reduce their energy cost by half. The savings could be used to reinvest in the facility, in equipment, in technology and provided skills training for employees. It’s really no different for homeowners; the less you spend on utilities, the more you have for other things like home improvement, electronics, and education for your family.

After several meetings with the PCDA, Smith Bits and their HVAC contractor, the decision was made to go with GSHP for the new HVAC installation. The plan for Smith will be to do a three phase installation of GSHP systems beginning with 75 tons in the south office area. Other phases of installation will be performed in the next few years as older equipment reaches the end of its service life. When all phases of installation are done, the Smith Bit plant will have nearly 1,000 tons of installed GSHP systems.

The plan for SAGE will be to continue to promote green renewable energy and to be involved with our local industry partners to find way to keep them and Ponca City strong. “With the tax credits and the rebates available for this type of project, the ground source heat pump only cost $9,000 more than a traditional HVAC system.  We could not have done it without the rebates, but the additional $9,000 will be recouped in less than a year" said Dennis Bond, Maintenance & Facilities Manager at Smith Bits. On May 17, rebate checks totaling over $127,000 were presented to Smith Bits.

“This project demonstrates the leadership role in energy conservation undertaken by the management of Smith Bits with the support of the City of Ponca City and Ponca City Energy.  Ponca City was the first OMPA member city to receive a DEEP rebate check and remains committed to reducing their energy demand,” said Cindy Holman, OMPA General Manager. GHP systems help OMPA member cities lower their electricity peaks in the summer and add winter load (when electric energy is at its cheapest).  Both of these factors improve the load factors of the member cities and lower the cities’ bills from OMPA, as well as lowering the Authority’s operational costs, which mitigate future rate increases. “DEEP can have the effect of helping customers continue to stay and grow in the community.  Both small and large businesses can benefit from participating in this program,” added Tom Willis, OMPA DEEP Coordinator.

*“Smith Bits is a global leader in the design, manufacture and marketing of drill bits used in oil and gas exploration.  Winner of numerous awards, Smith Bits continues to garner industry recognition as the world drilling record bit performance leader for nine consecutive years and recently achieved the prestigious Hart Publishing E&P Special Meritorious Award for Engineering Innovation for the proprietary IDEAS® technology,” according to information from Smith Bits. Smith Bits was purchased by the Schlumberger Company in 2010.  “Schlumberger is the world’s leading supplier of technology, integrated* [*project management*](http://www.slb.com/news/press_releases/2011/2011_0421_q111_dividend.aspx) *and information solutions to customers working in the oil and gas industry worldwide. Employing approximately 108,000 people representing over 140 nationalities and working in approximately 80 countries, Schlumberger provides the industry’s widest range of products and services from exploration through production,” according to the Schlumberger website,* [*www.slb.com*](http://www.slb.com/)*.*