Forrest County Geothermal Energy Project

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Principal Investigator
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Ground Source Heat Pumps
Demonstration Projects

Project Overview

Timeline

- The project started in December 2009
- Project is scheduled be complete in Summer 2011

Budget:

- Total Project Cost: $3,142,054
- DOE Funding: $1,571,027
- Awardee Cost Share: $1,571,027

Barriers

- Environmental
  - Wetlands
- Existing Construction Schedule

Project Overview

Partners:

- Mississippi Technology Alliance
- City of Hattiesburg
- Electric Power Associations of Mississippi
- Mississippi Power Company
- Area Development Partnership
- Forrest County
- University of Southern Mississippi
- Forrest County Soil and Water Conservation District
- Southeast Mississippi Resource Conservation and Development Council, Inc.
- Forrest County Multi Purpose Center
- City of Petal
- Eco-Systems, Inc.
- Shows, Dearman and Waits, Inc.

Relevance / Impact of Research

Project Objectives

- Retrofit two county facilities with high efficiency geothermal equipment (The two projects combined comprise over 200,000 square feet)
- Design and Construct a demonstration Facility where the public can see the technology and associated savings
- Work with established partnerships to further spread the application of geothermal energy in the region
- Reduce the Forrest's Counties energy costs
- Increase the number of jobs in the county
- Track and report to prove performance

Technical Approach

- Use Powersmiths Windows on the World™ (WOW) or similar software to provide energy management and interactive education
- Use Trane Series R Rotary Liquid Chillers (Multi-Purpose)
- Change the new Detention Center from roof top gas packaged equipment to high efficiency geothermal packaged equipment
- Update the controls in the Multi-Purpose Center and tie both systems together for online monitoring
- Tie the two loop fields together for redundancy
- Use highly conductive bore hole grout
- Utilize variable speed pumping on chilled water and condenser water (loop field)
- Utilize vaults for isolation, control and maintenance

Expected Outcomes

- Completed the redesign of new Detention Center equipment
- Completed pricing documents for Multi-Purpose
- Designed initial well field for both Buildings (based on recent test wells in local area)
- Let contract for test wells
- Currently working with contractors for project pricing and scheduling impacts
- Plan to have all work under contract by July 2010

Project Management / Coordination

- Mississippi Technology Alliance (MTA) will be reporting and distributing the system performance through the National Geothermal Data System and other avenues for a period of three years
- MTA is a non-profit organization with the mission to drive innovation and technology-based economic development for the State of Mississippi.
- MTA will have remote access to the site energy management and monitoring system for up to moment reporting
- Dean and Dean Architects, Inc. will be providing project oversight and coordination

Future Directions

By Fall of 2011:

- Have both county facilities operational and online with new high efficiency geothermal solutions
- Work with established partnerships to further spread the application of geothermal energy
- Reduce the Forrest's Counties energy costs
- Have fostered the geothermal technology to the point of job creation in the field of geothermal installation and maintenance in and around Forrest County
- Have the tracking and reporting infrastructure online to prove performance

Mandatory Summary Slide

- Lead by example – Forrest County believes the only way the public will ever adopt the energy efficient trends now needed by our country, is if they, in concert with their partners, lead the way.
- The teaming between Forrest County, the US Department of Energy, the design team and Mississippi Technical Alliance will allow Forrest County to accomplish this task.