



BSU GHP District Heating and Cooling System (Phase I)

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Schedule:

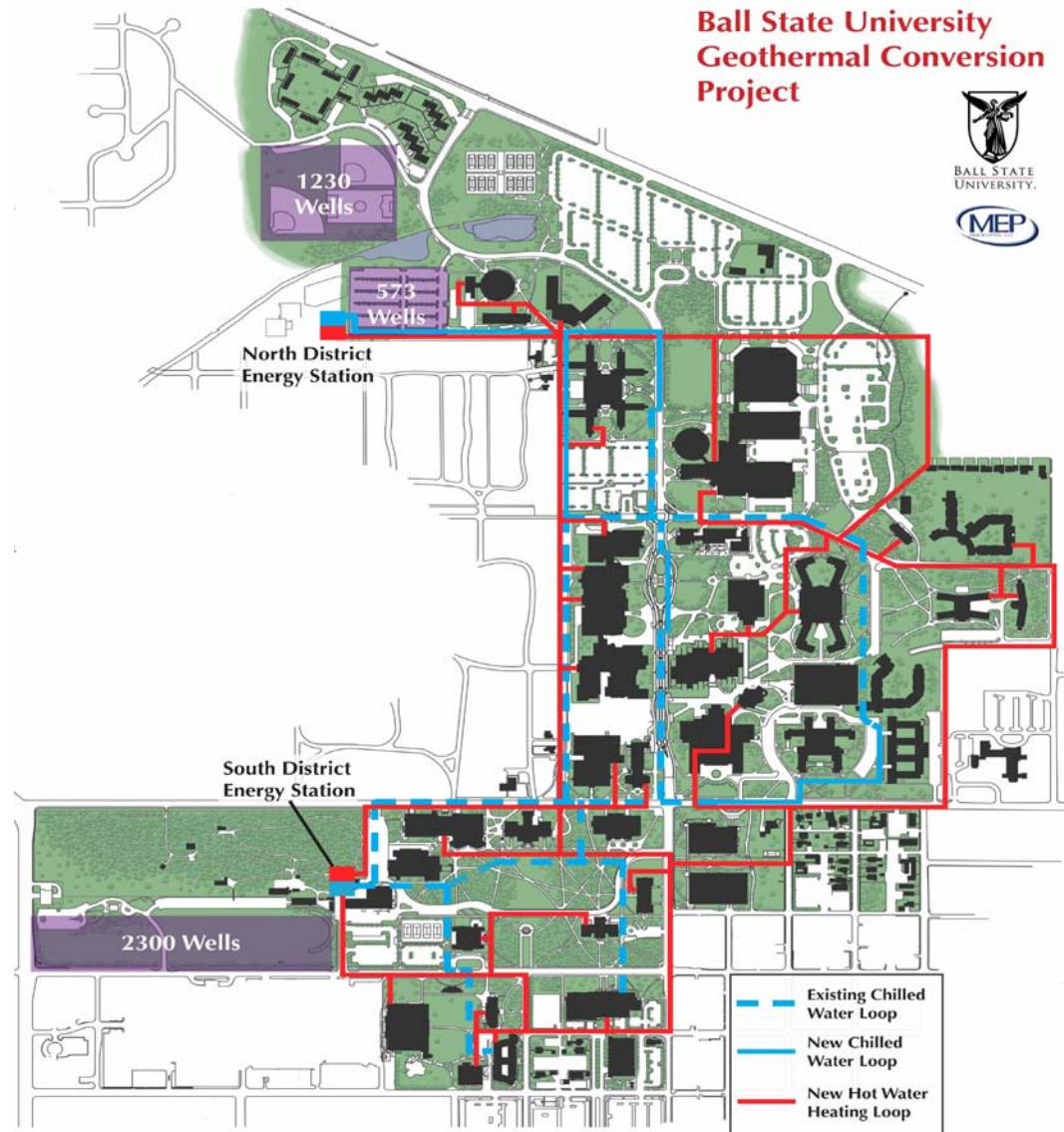
- Project start date Phase I - Summer, 2009
- Project end date Phase I - Fall, 2011
- Percent bid, ordered and underway - over 65%

Budget:

- Total project funding required for Phase I - \$50,900,000
- US DOE grant amount - \$ 5,000,000
- Awardee grant share - \$15,000,000
- Grant funding received to-date - \$0



- Campus loads were accumulated and analyzed
- Test wells and 2D resistivity tests conducted to assist with borehole field design
- “Proof of Concept” completed
- Borehole field designed using “Thermal Dynamics” software
- Heat Pump Chiller requirements determined
- Surveys conducted throughout campus to determine available corridors for piping
- Buildings were surveyed for connection requirements
- Construction packages were created and are based upon like work and logistical considerations



Multiple projects issued:

- Borehole field

- District Energy Station

- Purchase of Heat Pump Chiller

- Distribution Piping

- Building Modifications

Construction work will occur non-stop throughout the Phase I schedule:

- Create a campus geothermal heating and cooling system
- Validate the cost savings associated with a geothermal system
- Reduce emissions of CO₂, CO, PM, SO₂, NO_x
- Provide energy and operational data
- Demonstrate that geothermal ground source heating and cooling is reliable and energy efficient on a large scale

- Provide real time energy flow information
- Create a web access to the operational information
- Accumulate energy data and operational information for National Geothermal Data System and other interested parties
- Validate original calculations and determine differences if present
- Provide educational opportunities through demonstration of system and energy data

- Phase I operational Fall 2011
- Ball State will share the steps taken to convert to a geothermal system and lessons learned
- Energy use and operation data will be accumulated and shared
- The new system will provide the heating and cooling needs of the campus and an immersive learning opportunity for students