

## **Geothermal Direct Use Technology & Marketplace**

Hilton Garden Inn Pittsburgh/Southpointe

1000 Corporate Dr, Canonsburg, PA 15317 (724) 743-5000

### **Workshop Agenda – Monday August 17, 2015**

**Purpose:** *The purpose of this workshop is to ask for your input regarding the potential for geothermal direct use applications in the Eastern United States. While the entire Eastern U.S. will be discussed, the Appalachian Basin including NY, WV, and PA will feature prominently. Direct use geothermal energy applications in this region could diversify energy supplies and contribute to net-zero energy goals. This workshop will provide a forum to exchange information on low temperature geothermal applications. To that end, participants will be asked to provide recommendations and information based on personal experience, individual advice, information, or facts regarding this topic. The objective of the workshop is not to obtain any group position or consensus; rather, the DOE is seeking as many recommendations as possible from all individuals at this meeting.*

**Intended Audience:** Regional energy stakeholders including: developers, drillers, investors, academic researchers, facility energy managers, policymakers, and interested public.

**Background Information:** Case studies and information on geothermal direct use are discussed at <http://energy.gov/eere/geothermal/downloads/energy-department-explores-deep-direct-use>. A similar workshop covering the Western United States was held in March 2015, Golden, Colorado. Presentations from that prior workshop, “Matching Low-Temperature Geothermal Resources to End-Use Demand” will be useful background for participants in this meeting, and are suggested for reading below. Click the links below to find these earlier presentations.

### **8:00 a.m. - Check-in for all Registrants**

### **9:00 a.m. - Introduction and Background**

### **9:15 a.m. - Geothermal Resources (in the Eastern U.S.)**

#### **Discussion Lead- Brian Anderson, WVU**

- Where are the geothermal hot spots and how are these discoverable?
- At what temperatures can various geothermal technologies operate?
- Which innovative hybrid technologies can utilize local energy sources?
- Geologic variability in the sub-surface and issues pertaining to flow rate.

#### **Background Materials Relevant to This Discussion May Be Found by [clicking below:](#)**

- [Direct Uses in the U.S. \(Toni Boyd\)](#)
- [Geothermaldata.org Maps \(Arlene Anderson\)](#)
- [The importance of shifting exploration models \(Jerry Smith\)](#)

## **10:15- 10:45 a.m. - BREAK**

## **10:45 a.m. - Geothermal Deep Direct Use Technology**

**Discussion Lead - Jefferson Tester, Cornell University**

- What is geothermal direct use technology?
- What is geothermal deep direct use technology?
- How has direct use been practiced?
- How does direct use differ from geothermal ground-source heating and cooling?

**Background Materials Relevant to This Discussion May Be Found by [clicking below](#):**

- [Ground Source Heat Pumps and Direct \(Terry Proffer\)](#)
- [Thermal Load Demand \(K. Beckers\)](#)
- [Geothermal Desalination \(C. Turchi\)](#)
- [Cascading Uses and Coupling of Technologies \(Paul Brophy\)](#)

## **11:45 a.m. - Sustainability Initiatives in Pittsburgh**

**Presenter- Grant Ervin, Chief Resilience Officer, Office of Mayor William Peduto**

## **12:00-1:30 p.m. - Luncheon and Presentation on Geothermal Experience in Iceland**

**Presenter- Thorleikur Johannesson, Verkis**

## **1:30 p.m. - Geothermal Marketplace (in the Eastern U.S.)**

**Discussion Lead - Jay Egg, Egg Geothermal**

- What are GSHP Payback and Market Space?
- What are the economics behind hybrid energy systems?
- How do Federal, State and Local Incentives Work to Lower Costs?
- Which states include GSHP and Direct Use in Renewable Portfolio Standards?

**Background Materials Relevant to This Discussion May Be Found by [clicking below](#):**

- [Profitability of Direct Use \(K. Beckers\)](#)
- [Policy and Regulations \(P. Bony\)](#)
- [District Heating \(J. Lund\)](#)
- [Industrial Uses Geothermal \(J. Lund\)](#)

**2:30-3:00 p.m. - BREAK**

**3:00-4:30 p.m. - Discussion of Geothermal Opportunities in the Region**

*High Impact:* Is this a high-impact problem (>1% Impact on local goals if successful)?

*Additionally:* Will work in this area make a large difference relative to what the private sector (and other funding entities) is already doing?

*Enduring Economic Benefit:* How will geothermal direct use result in enduring economic benefit to the U.S.?

**Optional Presentation – Regional Geothermal Data, presented by Arlene Anderson**