



# GRC Workshops

**FRIDAY & SATURDAY, SEPTEMBER 29 & 30**

## **Geothermal Resource Decision Workshop 2**

Salt Palace Convention Center - Room TBD 8am - 5pm  
 Cost: \$550 (Member), \$600 (Non-Member), \$175 (Student)  
**Led by:** *William Cumming, Nick Hinz, and Pete Stelling*

The 2017 GRC Geothermal Resource Decision Workshop 2 extends the successful 2016 GRC workshop on building realistic geothermal resource conceptual models to support decision risk assessments of well targeting and resource capacity, but focuses on both preliminary evaluation and the use of more detailed geoscience and engineering data available from wells to support field operations decisions. The experience of the 2016 workshop will be summarized to provide context for the integration of rock cuttings analysis, fluid geochemistry and well test results to support decisions on well design, real-time well completion and success/failure assessment at the appraisal stage following an exploration success in a >240°C volcano-hosted resource. Lectures on preliminary geoscience evaluation of <180°C fault-hosted prospects will support an exercise that will simulate a geothermal lease auction.

Like the 2016 workshop, this workshop will consist of about 50% lectures directed at the decision issues and 50% team exercises in making decisions using real data and testing them against outcomes. The teams will be assisted by coaches experienced in geothermal resource decision making. This workshop is directed at geoscientists, engineers and managers who wish to better appreciate how geothermal resource data sets and their uncertainty are used to support resource decisions.

Interspersed with the lectures are exercises where participants will:

- Evaluate geology, geochemistry and geophysics data to build resource conceptual models
- Use conceptual models to complete a resource capacity and well target risk assessment
- Design an initial exploration well and criteria for setting well casing based on cuttings
- Make real-time production casing decisions based on cuttings and well tests

- Make appraisal well targeting decisions based on updated conceptual models from well tests, production geochemistry and geology
- Make development capacity decisions based on well interference tests, production geochemistry and geology
- Rank a suite of <180°C deep circulation geothermal prospects based on geological and structural constraints. Decide data priorities for resource assessment. Build a bidding strategy, including work programs.
- Bid for <180°C deep circulation geothermal prospects in an auction competing with other teams and assess outcomes relative to known results.

Although participants will be encouraged to group themselves with others who have complementary skills to support the exercises, sufficient expert coaches will be available to guarantee effective progress regardless of participants' backgrounds. This workshop will be supported by a team of veteran geothermal geoscientists and engineers, each with worldwide experience in geothermal exploration and development and providing training and coaching in related skills.

At the completion of this workshop, participants should expect to understand the basic components and construction of a geothermal resource conceptual model, the rationale for its use in prospect evaluation, well targeting and capacity assessment, and the process of making basic resource decisions based on more detailed geoscience and engineering data sets obtained from wells.

### **Tentative list of speakers and coaches:**

- William Cumming**, Cumming Geoscience
- Richard Gunderson**, Consultant
- Nick Hinz**, Nevada Bureau of Mines and Geology
- John Murphy**, Geothermal Science
- Sabodh Garg**, Leidos
- Jill Haizlip**, Geologica
- Elisabeth Easley**, Thermochem
- Pete Stelling**, Western Washington University
- Dave Boden**, Truckee Meadow Community College
- Joe Moore**, Energy & Geoscience Institute
- Dick Benoit**, Sustainable Solutions
- Max Wilmarth**, Geologica
- Glenn Melosh**, Consultant

## SUNDAY, OCTOBER 1

### GRC Ambassador Program Workshop

1-5pm

Salt Palace Convention Center - Location TBD

Cost: \$150

The use of renewable energy is growing, with states continuing to increase their renewable portfolio standard requirements. Though solar and wind are nationally recognized as renewable resources, geothermal lags behind in social awareness and acceptance.

#### **The GRC is starting an Ambassador Program to:**

- Expand awareness of geothermal energy as a significant player in the global race for clean energy
- Accelerate development and deployment of geothermal as clean, domestic, power and heat by increasing interest and boosting investor and purchaser confidence.

Geothermal Ambassadors will be a team of technically knowledgeable people, skilled in presenting, who will deliver the same, consistent message. The first year of the program is focused on communicating with power purchasers, power industry regulators, and local, county and state governments in the United States.

We are looking for industry professionals and researchers who are good public speakers and communicators. **The 1-year commitment includes:**

- Attending the Ambassador Training,
- Presenting at a minimum of 3 meetings/events throughout the year, and
- Recording data on attended events in the Ambassador Event log.

#### **Benefits to Ambassadors include:**

- Access to high-quality geothermal presentation materials (use of these materials will only be authorized for trained ambassadors).
- Access to the latest industry data and analyses on geothermal power
- Opportunity to present at industry events.
- Recognition within GRC and industry as an ambassador

Applicants for the program are being accepted on a first-come basis. If you are interested in being an ambassador, sign up for the training workshop on the GRC Annual Meeting website. A corresponding application form will be emailed to you.

**For questions on the Ambassador Program, please contact Elaine Sison-Lebrilla, [elainesl@sbcglobal.net](mailto:elainesl@sbcglobal.net).**