The Basin & Range Investigations for Developing Geothermal Energy (BRIDGE) Project

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ABSTRACT

The BRIDGE project aims to reduce the cost and risk of identifying hidden, power-capable geothermal resources. It is developing an exploration methodology that integrates geoscientific data acquisition, processing, and interpretation with the iterative building of resource conceptual models. It will also verify the methodology through exploration drilling and testing. Funded by the US Department of Energy's Geothermal Technologies Office, the BRIDGE project is a collaborative effort between Sandia National Laboratories, Geologica Geothermal Group, the Navy Geothermal Programs Office, Australis Geoscience, and Cumming Geoscience. The project consists of four technical activities. Activity One, Project Reconnaissance, collates existing data and acquires HeliTEM surveys from 16 areas of interest (AOI) identified by the Nevada Basin and Range Play Fairway Analysis (Faulds et al., 2016*). Activity Two, Prospect Exploration, utilizes surface field data, LiDAR maps, geologic mapping, geochemical sampling, 2-meter temperature probe, gravity, and MT surveys, and drilling and logging of shallow (~150 m) temperature gradient holes (TGH) to create initial conceptual models of the highest ranked AOI's. Activity Three, Prospect Characterization, includes drilling and logging deep (~450 m) TGH's, continued geologic mapping, detailed MT and gravity surveys, and 3D joint inversion of the HeliTEM, MT, and gravity data. This joint inversion is a unique element of this study that is anticipated to refine the conceptual models and facilitate prospect ranking based on probability

of success and power capacity estimates. Finally, Activity Four, Reservoir Testing and Conceptual Model Completion, will verify the conceptual models by drilling, logging, testing, and fluid sampling of slimhole wells at a select number of prospects. The objective of Activity Four is to field verify the methods and conclusions of the first three Activities and to identify the importance of each step of the methodology. The project is scheduled to run for three years beginning late summer of 2021. The poster details the project objectives, overall approach, work schedule, and the status of activities to date.