

## 2015 Conference Summary

Success! *Power Plays*: Geothermal Energy in Oil and Gas Fields

The SMU Geothermal Laboratory conference ***Power Plays*: Geothermal Energy in Oil and Gas Fields** concluded with - worth the effort! During May 19-20 attendees discussed projects covering eastern and western hemispheres and ideas blending together experience from various aspects of the energy industry. As in previous years, the conference included discussion on generating geothermal energy from oil and gas fields, but this year encompassed discussion on topics such as flare gas, desalination, and induced seismicity.

James Wicklund of Credit Suisse discussed the economics of the oil and gas industry, which had to expound on the expectations associated with the decline in oil and gas prices. Wicklund highlighted the geothermal industry's opportunity right now to connect with the energy industry by helping them find increased revenue in the fluids/surface field operations. There is also an opening in the financial markets for geothermal to acquire additional project financing as portfolio advisors are looking for opportunities to generate returns in a down market.

It was emphasized by Wicklund that the geothermal industry is so small, it is hardly even a blip on the radar for both the energy market and even now the subset renewable energy market. In the 1980s many oil companies included a geothermal division because of the overlapping skill sets and technologies.

fluids with a Combined Heat and Power closed loop design for buildings. Bodo von Düring and his son Cedric demonstrated how much the U.S. has still to learn related to using all aspects of the fluid stream, including heat (100°C) and CO<sub>2</sub>, through their example project operations for both district heating and electricity production. Cedric's movie of the full project development plan not only livened up the afternoon crowd but also gave an example of how the young professionals of today are able to promote geothermal energy, making what is difficult to grasp, accessible.

High temperatures are an obvious focus for geothermal development, but what became apparent in the talk by Wade Williams of Joule was how many of the wells drilled by the oil and gas industry are in temperatures over 150°C and the need for equipment components for these HOT environments ~300°C! The industry 'detectives' at Blade Energy Partners are researching why wells fail in these high temperature – high pressure environments. Initial explanations for why they fail are often not the actual reason. These are the most expensive wells drilled by any industry and when they fail, the financial loss can destroy the company involved, especially if early on in the exploration process. The TGS correction techniques presented by Ian Deighton improve the use of well log header data for reservoir temperatures, thereby improving exploration for both geothermal and oil/gas industries.

There was little doubt that development of geothermal energy in the oil and gas fields is possible, probable, and happening today in China as discussed by Kewen Li of Stanford. Kevin Shaw of Mayer Brown LLP gave the audience a list of items that must be completed before an oil well can legally be converted to geothermal well. Every state has rulings as to who owns the geothermal lease. As John Furlow highlighted so succinctly, Texas seems to be still in a quandary because 98% of Texas land is privately owned and for much of it the surface and mineral rights have been severed. There is no doubt lack of legal certainty in Texas creates business and investment risk. For Bernie Karl of Chena Hot Springs, risk is what drives him forward and he's currently working to get .3(C10.5)JJ-01.5(h)5.6)1.7(o)-3.jenkl

Students and young professionals who attended provided one of this year's conference highlights. The poster session spotlighted the Mexican contingency from iiDEA Group, National Autonomous University of Mexico and their engineering talent working on desalination, improved efficiency microturbines, and locations for direct use such as greenhouses. New regulations in Mexico are opening up geothermal development opportunities, as well as their energy demand expanding rapidly. There is an update of the geothermal heat flow in Mexico currently underway as part of a large group effort by the Mexican Center for Innovation in Geothermal Energy (CeMIE-Geo). The ability to cross international borders and to 182.9(h)ilita21