Scientists partner with Razor Energy for
geothermal pilot project in Swan Hills,
Alberta

Plans underway for hybrid geothermal power facility with Razor Energy.

By Katie Willis on July 22, 2019

Final engineering is underway for the construction of a pilot project that combines the power of geothermal energy with existing oil and gas infrastructure in Alberta. The project is a collaboration between researchers in the University of Alberta’s Department of Earth and Atmospheric Sciences and Alberta-based company Razor Energy.

“We are moving forward with the construction of a hybrid geothermal power plant,” explained Jonathan Banks, research associate and project lead at UAlberta. “The idea is to retrofit geothermal energy technology onto an existing oil and gas battery. We’ll use the geothermal energy stores in co-produced fluid to improve power plant efficiency by up to 20 per cent.”

Located in Swan Hills, Alberta, the project is designed to generate power from two sources that combine to 21 megawatts of power. There are five to seven megawatts of renewable energy from heat to power generation, from a combination of hot water heat and heat recovered from all sources at the battery site. There are an additional 15 megawatts of natural gas-fired generation. In addition to being environmentally friendly, the technology will also reduce the costs and infrastructure required to bring electricity into the Alberta electric system grid.

“We can address our highest field operating cost—power—with renewable generation, which will improve the life, and economics, of a legacy oil producing operation,” said Doug Bailey, president and CEO of Razor Energy. “From a strategy perspective, we can also leverage a new form of energy revenue by capturing a waste product, in this case heat, and turning it into a productive revenue source, which is power sales.”

Over the summer months, Banks and his team will be involved in the installation of heat exchange infrastructure in the field for testing. “Over the next one-two years, we’ll scale up to have five megawatts of power being generated from these hot water reservoirs,” he explained. “And, we will gather real field data to refine our theoretical models to actual outcomes.”

The sweet spot

Industry collaborations such as this are critical for transforming research into reality. “Industry collaborations are critical to allow our research to move out into the world in a commercial setting,” said Banks. “We’ve been looking into the modelling and engineering of these tools for years, and this is how we translate our findings to reality.”

This project has been made possible with new funding from Climate Change Innovation And Technology Framework through Alberta Innovates, Natural Resources Canada’s Clean Growth Program, and through the University of AlbertaFuture Energy Systems project.

Source: Faculty of Science