



# GEOGULF2021

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## Gulf Coast Geopressured Geothermal Zone— A Multi-Faceted Opportunity for Decarbonization of Industries

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### ABSTRACT

The Gulf Coast geopressured geothermal zone was first delineated in the late 1970s but was forgotten in the high oil prices of the early 1980s. In the current environment of a push towards energy transformation, it is worth reviewing this style opportunity in the context of the latest technology, user requirements, and government support. Beyond the baseload nature of geothermal energy, one unique aspect is its multiple facets of related opportunities that do not exist for other renewable sources: direct heating and cooling; methane burning; carbon capture and storage; desalination; brine mining; and greenhouse/aquaculture. These opportunities come with site-specific interdependent costs, risks, and benefits; this makes geothermal projects hard to compare. This presentation will use techno-economic modeling to separate and estimate the cost/benefits/risk of various opportunities for a sample project in the heart of the Gulf Coast geopressure geothermal zone. Initial conclusions are: (1) reuse of existing oil & gas infrastructure and knowledge considerably lower the risk and cost of this style of opportunity; (2) having a customer for direct heat/cooling is always more profitable than selling electricity to the grid; (3) burning methane derived from the brine stream can double the energy output of the plant; (4) dissolving the CO<sub>2</sub> produced by burning the methane not only reduces the environmental impact and enables access to the 45Q and related tax credits, turning a marginally profitable project into a valuable one; (5) desalination, greenhouses, and aquaculture are not particularly profitable but may make a project much more palatable to a local community; (6) given the very large volume of waters moving thru the system, if any valuable minerals are present, brine mining is worth considering and is potentially very profitable.

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