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### ***“Engineered Geothermal Systems (EGS) – Can They Become a Major Supplier of Primary Energy in the US?”***

Recent national focus on the value of increasing our supply of indigenous, renewable energy underscores the need for re-evaluating all alternatives, particularly those that are large and well-distributed nationally. To transition from our current hydrocarbon-based energy system, we will need to expand and diversify the portfolio of options we currently have. One such option that is often ignored in national assessments is geothermal energy from both conventional hydrothermal and enhanced or engineered geothermal systems (EGS).

A comprehensive assessment of enhanced or engineered geothermal systems (EGS) was carried out by an MIT-led, 18-member panel assembled to evaluate the potential of geothermal to become a major primary energy supply for the US. Although geothermal energy is currently used for both electric and non-electric applications worldwide from conventional hydrothermal resources, this study focused on the potential for EGS to provide 100,000 MWe of base-load electric generating capacity in the US by 2050. The presentation will summarize analysis results in the three areas important to EGS deployment on a large scale, namely:

1. **Resource** – estimating the magnitude and distribution of the US EGS resource
2. **Technology** – establishing requirements for extracting and utilizing energy from EGS reservoirs including drilling, reservoir design and stimulation and thermal energy conversion to electricity
3. **Economics** – projecting costs for EGS-supplied electricity as a function of invested R&D and deployment in evolving US energy markets

In addition, current progress in field testing of EGS in the US, Europe, and Australia will be reviewed to outline what remains to be done for large-scale deployment of EGS. Examples will be presented of how drilling and reservoir characterization research could accelerate deployment of geothermal energy by lowering risks and costs.