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## Building an Oil Company, How Hard Can It Be?

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### ABSTRACT

The geoscience and engineering challenges that the oil industry has overcome in the last 100 years are immense, yet in many areas the industry remains extremely conservative. Significant volumes of research that are undertaken by universities or even within the research labs of the major companies never sees the light of day, while technologies that are developed, tested and proven in certain geographic areas are often ignored in other parts of the world.

In 2004 two academics with the backing of venture capitalists set out to test the question posed in the talk title. The goal was to exploit technological expertise in two distinct but complimentary areas, onshore production using reservoir management techniques typically used offshore and exploration lead by the newly emerging technology of Controlled Source Electro Magnetic (CSEM) surveying.

Fifteen years ago a team of 10 people would have labored for a year with a super-computer to build a reservoir simulation model. The work commitment required meant that this technology was only applied to the largest fields and to support the most expensive decisions. Now one person with a laptop can build multiple models in a matter of weeks, making advanced reservoir management technology suitable for virtually any oil or gas field. Much of the industry has yet to catch on.

There are over 7000 fields onshore Texas and the majority are operated by small companies working to tight margins in a very conservative manner. In 2005 Rocksource took over operatorship of a 50-year-old Wilcox field in SE Texas. A phase of data collection and model building followed and production was increased from 60 BOEPD to 2500. Much of this increase came from a seismically mapped, tidal incised valley complex that had been previously missed.

In the last five years CSEM surveying has emerged into the oil exploration arena. Originally pioneered by Statoil's research lab and then commercialized as EMGS, the technology has been heralded by some as game changing and a silver bullet to solve all exploration problems, rapidly followed by conservative resistance, scepticism and in many cases dismissal.

Rocksource set out to systematically understand the technology, its application and its limitations. New algorithms and code were developed for processing and inversion of the data, while systematic studies were undertaken to understand the reliability of the method in any particular setting. CSEM does not provide the final answer but, if utilized correctly, it provides additional data that can significantly impact the risk and return within a portfolio of prospects. Successfully utilizing CSEM involves significant integration between the geoscientist and the physicist, the subsurface and the business side of the company. In addition to developing algorithms for processing the CSEM data, Rocksource has also developed unique models for using CSEM in business. The company has looked at over 70 CSEM surveys and utilized the technology to identify 260 million bbls of risked reserves.

The talk will present a candid view of the ups and downs of starting an oil company. Case studies from both of the technical arms will be presented concluding with a look to the future.