



# Energy Capital Conference: Silica Or Silicon?

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Barry Zhang, founder and CEO of Quantico Energy Solutions, speaks at the Energy Capital Conference hosted by Oil and Gas Investor on May 7. (Source: *Dallas Event Photo, Hart Energy*)

DALLAS—No one doubts the colossal impact silica—as in sand—has had on the oil and gas industry in the last decade. But looking ahead, there could be just as big a payoff from silicon—as in computer chips—in the next decade.

That was the message of Barry Zhang, founder and CEO of Quantico Energy Solutions, at the annual Energy Capital Conference hosted by *Oil and Gas Investor* on May 7.

“I hope I can shed some light on AI [artificial intelligence],” Zhang said. The oil and gas industry has employed significant computing power in certain disciplines, such as seismic interpretation, but it has not tapped the large financial returns possible via data analytics in multiple other disciplines, he noted.

A fundamental question is: can AI drive a return on investment (ROI) for producers and capital providers? The answer is yes it can, Zhang said, adding “it may be hard to get your arms around the jargon” of data analysis at first. But the prospects of process improvement and cost efficiency are there so it’s worth the effort to learn what may seem like a new language.

He cited a McKinsey & Associates study that projected the potential pre-tax cash flow potential by 2025 in such disciplines as exploration, reservoir management, and drilling and completion. The ROI improvements vary widely. One of the biggest areas for improvement is in production operations where the ROI could be in the 25% to 28% range, McKinsey concluded.

Zhang gave several examples of where the data are that can be analyzed. One was in drilling. He said rig control systems can record around 7,000 measurements per second. Analyzing that vast amount of data to pinpoint flaws and irregularities can reduce expensive operational snags and create. Proper real-time analysis of that data also could replace such costly functions as wireline logs or drillbit trips.

“Service providers must bring data to the table within a digital framework to leverage measurements from one basin to another,” he said. Acquiring and analyzing that data can be made a part of the contracts between service providers and producers, Zhang added. “They have rich data to mine.”

Zhang discussed at length one the biggest targets for AI: subsurface geology and the interaction of fracking and drilling with the rock reservoirs. He said there is a potential 20% cost savings in improving the predictability of drilling and completing wells.

The importance of well data analysis will become greater as well spacing decreases, creating more instances of inter-well communication. Thorough analysis of the hydraulic fracturing process—which has improved greatly—offers the potential for still greater efficiency.

Data interpretation can improve reservoir drainage and well spacing techniques, creating greater potential production at lower costs, he said.

The savings are there for private equity and other investors—not just operators, Zhang said. “Data analytics can create a shorter A&D cycle and meet the very specific needs of an investment team.” Also, small players and use data, “You don’t have to be a Shell or a Statoil,” he added.

Zhang noted there are more than 1 million logs on wells drilled in the U.S. and improved AI can use that data to improve model accuracy and lower the standard deviation of predictions.

Data gathering and analysis already provide the industry savings but there is far more to come. The next big step—the one offering the biggest payoff—is a “Digital 2.0” era for the business, Zhang said. “The question is, how can we operationalize this data?” A problem in reaching that goal is that oil and gas “is a silo industry,” he noted. “How can we get the same data to different organizations?”

“It’s important that the C-suite create an atmosphere of risk tolerance” that will allow producers and service providers to experiment to find the best ways to employ the data they have.

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