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EDITORIAL DIRECTOR: DAVID HAMPTON, (601) 961-7240

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Energy

U.S. has gas bonanza

■ Political class seems oblivious to game-changing global development

By Ashby Foote

Clarion-Ledger Contributing Columnist

Lost among the calamities in the Middle East, North Africa and Japan is some of the best news in decades for the energy sector. America, like Jed Clampett of old, finds itself sitting on a new found bonanza of natural gas and oil reserves.

These reserves not only hold the promise of energy independence for the U.S., but also pose a grave new threat to already reeling energy rich despots across the planet.

With little fanfare the U.S. Energy Information Administration in its "Annual Energy Outlook 2011" doubled its projected U.S. reserves of shale gas to 827 trillion cubic feet and predicted natural gas prices would stay below \$5 per thousand cubic feet (mcf) through 2022. This near 100-year supply could turn the U.S. from an importer to a net exporter of this key resource.

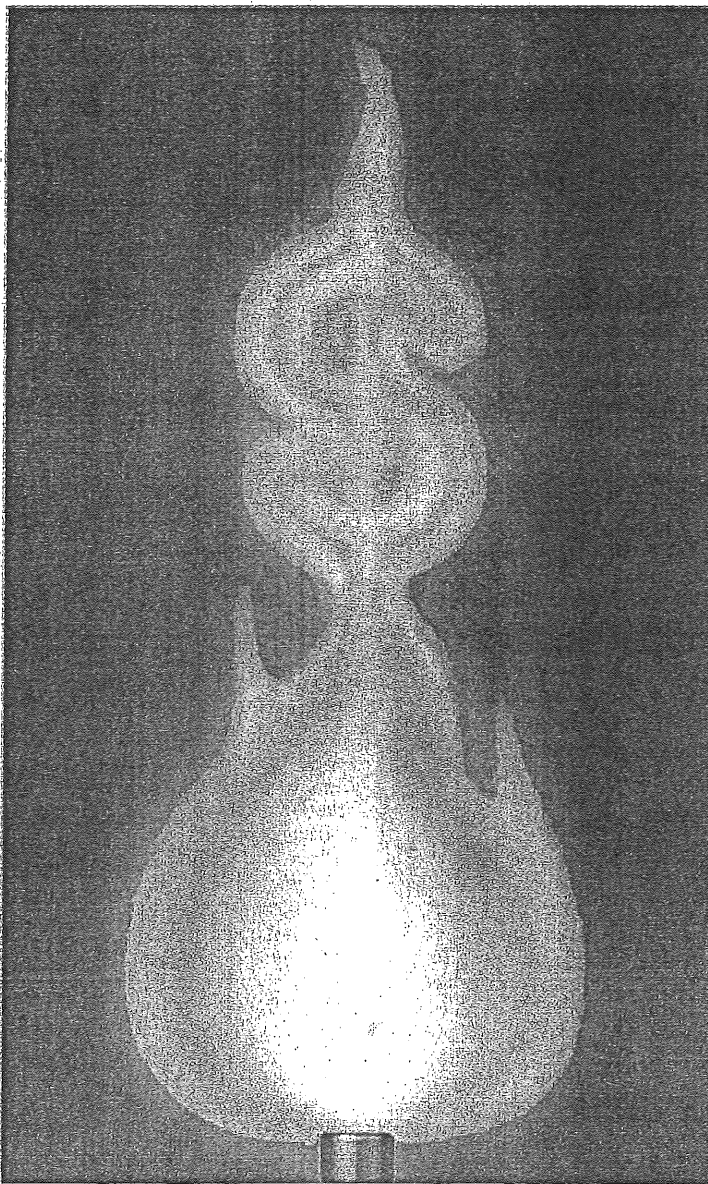


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This is a triumph of American ingenuity and we can thank wildcatters for the breakthrough. Through dint of experience, hard work and technology they have succeeded in tapping natural gas from shale thousands of feet underground.

It has been known for some time that oil and natural gas were locked up in these massive shale beds but until now they were considered inaccessible. Some context: Of the sedimentary rock beneath America's soil, 79 percent is shale and 13 percent is sandstone — until now, all onshore oil and gas production came from just the 13 percent sandstone. No longer. The 79 percent shale is now being uncorked.

This is the big news! Progress on tapping oil from shale is not as far along but some estimate U.S. shale oil reserves at 1.5 trillion barrels, five



Illustration/Gannett

times the oil reserves of Saudi Arabia.

Horizontal drilling and hydraulic fracturing — "fracking" — are the specific techniques combined to unlock these oceans of new reserves.

The work has been under way for a decade but it is just in the past few

years that efforts have begun paying off in a paradigm-shifting way.

The signal of its success is the price collapse in natural gas as vast new streams of supply overwhelmed normal demand. Commodity prices have boomed the past two years, but not

natural gas. It has fallen 9 percent as oil, which historically correlates closely with natural gas, gained 128 percent. This dramatic divergence is unlike anything witnessed in the energy arena during the past three decades and is a sure sign something big is afoot.

The political class seems oblivious to these decisive game-changing developments. Energy initiatives, whether expensive incentives or onerous mandates still focus on non-hydro renewables like wind, solar, ethanol and biomass. Political programs die hard — especially in times of carbon angst.

But the policy wonks are not alone in missing the upside surprise of shale drilling — it also ambushed some of the craftiest energy and finance moguls.

T. Boone Pickens, who made billions in oil and gas, invested two billion of his fortune to build the world's largest windfarm in the Texas panhandle based on an expectation that natural gas prices would be \$9 per mcf or higher. Natural gas at \$4 per mcf left T. Boone's farm busted — even with federal windmill subsidies of \$6.44 per million BTU. Even worse is the death spiral of TXU, the Texas utility taken private in 2007 for \$45 billion in the largest leveraged buyout in history. TXU needs natural gas at \$7.50 per mcf or higher to cover its secured loans and that prospect is bleak. Warren Buffett has already written off \$1 billion of the \$2 billion he holds in TXU bonds.

A BTU (British Thermal Unit) is the metric used to compare the energy content of different fuels. A barrel of oil equals 5.8 million BTUs, 1 million cubic feet of natural gas equals 1.027 million BTUs, a ton of anthracite coal equals 28 million BTUs, a pound of biomass equals 5,300 BTUs, etc.



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Natural gas and oil have historically traded at similar prices in terms of BTU energy content, but not now. Brent North Sea crude costs \$18.20 per million BTUs, while natural gas costs \$4.09 per million BTUs. This is the kind of spread entrepreneurs dream of. Find a place to substitute cheap BTUs for expensive ones and book the difference as profit — the free market rarely lets such lucrative windows stay open for long.

Conspicuous in this window today are the electric utilities which use 30 percent of America's natural gas to generate 23 percent of the electricity we consume. Coal produces 45 percent and nuclear 20 percent. With new nuke concerns, the fuel option debate today is more dynamic than ever. How electric utilities and their regulators respond to this new shale gas abundance will impact electricity rates and shape the economic prospects and competitiveness of their regions and ratepayers for decades.

Peter Drucker, the preeminent management and business consultant of the 20th century was famous for advising, "Don't Solve Problems, Pursue Opportunities." George Gilder added, "When you solve problems, you end up subsidizing your weaknesses, starving your strengths, and achieving expensive mediocrity." This wisdom is an excellent framework with which to evaluate the numerous fuel options utilities and their regulators confront today. The key task is defining the fuel options as problems or opportunities.

Problems: Fuel types low in BTUs, difficult to scale or in need of expensive government subsidies or onerous

mandates to encourage use are serious problems and should be designated as such. Wind, solar, biomass and even low-BTU coal, such as lignite are examples. These problems are best solved in research labs funded by R&D budgets, not by ratepayers. Economies that stayed too long with the original "horse" power, fueled by renewable but low-BTU hay, were left in the dust, literally.

Opportunities: Fuel types dense in BTUs, abundant in supply, cheap in price, with capital investment already in place are opportunities to pursue. Satisfying all four of these criteria is natural gas. It is the obvious big opportunity today, thanks in large part to the shale drilling revolution.

Mississippi is well positioned to participate on the winning side of this new paradigm for three reasons: 1) The state sits at the heart of the largest natural gas pipeline corridor in the country with interconnects to three major electric transmission grids; 2) the state has in place over 13,000 megawatts of natural gas fired capacity representing 75 percent of the state's total MW capacity; 3) the latest utilization for the state's most efficient combined cycle plants was only 33 percent, which means there is plenty of upside with minimal need for new capital investment.

Abundant shale gas and the cheap reliable electricity it generates will be an economic tailwind for those who pursue it. Are Mississippi's utilities and policymakers listening?

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Ashby M. Foote II is president of Vector Money Management in Jackson. Contact him at ashby@vectormm.com.