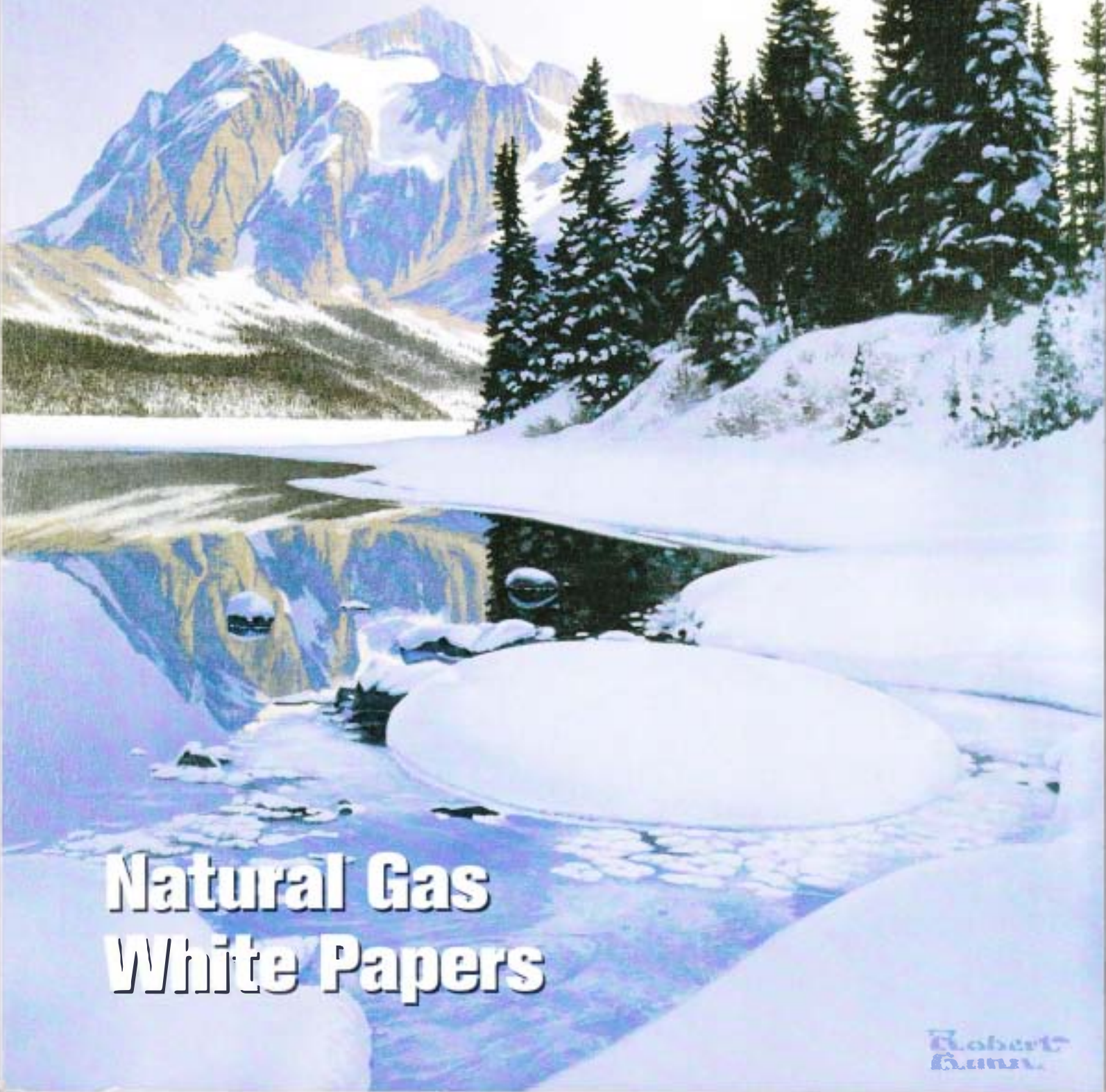




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Natural Gas White Papers

Robert
Gunn



PBPA President Taylor Mayne presents an honorary membership in the association to Texas Railroad Commissioner Elizabeth Ames Jones during the association's annual meeting, Oct. 16 in Midland, Tx.

declared. "I am sick at heart and mad as hell that American capitalism is being laughed at across the world, thanks to social engineering masquerading as good public policy."

Referring to HR 1424, the financial rescue legislation passed by Congress and signed by President Bush on Oct. 3, Jones acknowledged that "something probably had to be done, whether we liked it or not. But there is a feeling I certainly share that this was possibly the very wrong approach."

In her opinion, Jones offered. "We ought to sunset the Community Reinvestment Act, and dismantle Fannie Mae and Freddie Mac. We need to go back to the basics."

"The reality is that much of this crisis could have been avoided had the federal government not committed us to a weak dollar policy that created a commodity bubble, allowed the devastating loosening of lending practices, and done little to keep an asleep-at-the-wheel Securities Exchange Commission in check," Jones insisted.

Craddick commented that Texas' economy appeared to be in better shape than many other states. "A lot of people say we are an island, but that didn't just happen. That island was created six years ago when we made some drastic decisions to consolidate agencies, stop spending in a lot of areas, and just make things work," he declared.

Craddick cited actions such as combining 13 health and human service agencies into five in order to save \$1.5 billion in annual administrative costs, and passing tort reform. To that list, Jones, who was a state representative from San Antonio in 2003, added imposing tough guidelines

on home-equity borrowing and zero-based budgeting for state agencies.

The fruits of those efforts today, Craddick claimed, include 11,000 new doctors and 32 companies writing medical malpractice insurance instead of only two. In a broader context, he said, companies moving to Texas cite tort reform as the number one reason.

"We have more businesses coming to Texas than any other state," he declared. "We have created more jobs than any other state in the country—200,000 last year."

Jones added. "Texas has more Fortune 500 companies than any other state. We are weathering this crisis so well because of the fiscal principles we applied."

Texas Concerns

However, Texas is not trouble free.

EOR Could Benefit From Right Carbon Sequestration Regime

MIDLAND, TX.—The enhanced oil recovery business could see some benefits from the push to sequester carbon dioxide as a way to limit global warming, but only if it comes about under the right regulatory structure. Unfortunately, suggested L. Stephen Melzer at the Permian Basin Petroleum Association's annual meeting, draft regulatory proposals cast CO₂ as a waste product to be controlled rather than as a commodity with commercial value.

Melzer, who owns Melzer Consulting in Midland, discussed the regulatory framework being developed for carbon capture and geologic sequestration (CCGS) during the PBPA technical session Oct.

"We are not going to be immune to this downturn indefinitely," Jones allowed. "As our state budget writers go back to the capitol in January, they are going to face exorbitant costs from programs such as Medicaid and other state-funded health-care, hurricane recovery and the like."

Craddick listed transportation, school financing and healthcare as the top issues for the 2009 Texas Legislature.

On transportation, he alluded to \$1 billion that the Texas Department of Transportation was unable to account for and noted that the agency was due for sunset review. "I don't think you will know TexDOT when you see it after the next session," he vowed.

But Craddick also acknowledged. "The gasoline tax is not bringing in enough revenue to build the infrastructure we need in the state. I am not for tolling existing highways . . . but the legislature to look at options (for funding) transportation needs."

On school finance, Craddick cited estimates that 70 percent of local property taxes went to public schools. "I think we have to find another way to fund public education," he concluded. "We need to shift that burden away from property taxes. We are seeing a lot of people who can no longer afford their homes."

But in addition to the revenue source, Craddick also questioned allocation, saying the 1960 school finance formulas needed to be changed. "We have to restructure the education system and the formulas (by which) we fund it," he said.

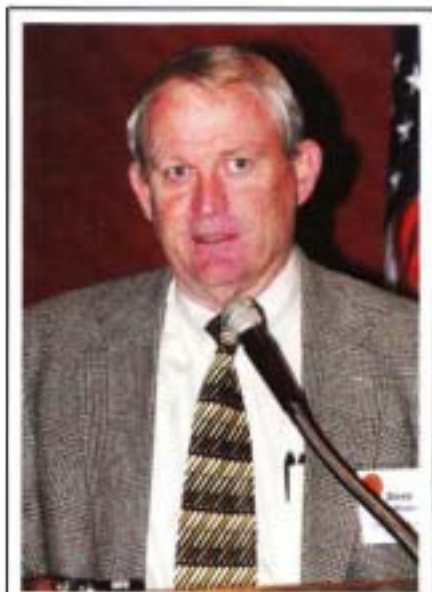
On healthcare, Craddick called for legislation to allow small businesses to band together to negotiate better insurance rates. □

16 at the Midland Petroleum Club. Also during that session:

- Larry S. Richards, president of Midland-based Hy-Bon Engineering, examined the technology and motivation for capturing fugitive emissions from oil and gas production facilities.

- Midland independent Jim Henry, chief executive officer of Henry Resources LLC (formerly Henry Petroleum), gave a brief overview of the emerging Wolfberry unconventional oil play.

- Author James R. Norman advanced his theory that it is U.S. national security interests, more than market forces, that have driven oil prices the past couple decades.



Draft regulations for the geologic sequestration of carbon dioxide treat CO₂ as a waste product needing to be controlled rather than a commodity with commercial value, consultant L. Stephen Melzer advises a PBPA technical session.

Regulating CO₂ Injection

Saying he was working in cooperation with "a loose-knit group of folks who have a vision" for developing CO₂ sequestration strategies that address the nation's energy needs as well as environmental issues, Melzer highlighted three documents that dealt with CCGS regulations.

He said the Interstate Oil & Gas Compact Commission had issued a report focused primarily on injecting CO₂ with the aim of ensuring states retained regulatory primacy. The U.S. Environmental Protection Agency has a draft document out for comments under the auspices of the Safe Drinking Water Act. And the World Resources Institute was expected to release a document later in October that Melzer described as "the most thorough treatment of the subject to date."

The EPA document focuses solely on protecting underground sources of drinking water, Melzer observed. Even though EPA's rules treat CO₂ as a waste, Melzer said the agency agreed not to require Class I hazardous waste injection, and instead created a new Class VI. "But when you look at the rules, (EPA) just changed the packaging," he complained. "Everyone comes to the same conclusion: the Class VI rules are more onerous than Class I."

Among the weaknesses and omissions of EPA's draft regulations, Melzer outlined, is their failure to rank subsurface risk. "The (enhanced oil recovery) industry

knows it can put CO₂ in certain places and feel very comfortable it is going to stay there," he reflected. "And we know there are certain places we can't. EPA doesn't prioritize the lower-risk sites."

Neither do the rules address injectant composition. Because there is nothing to constrain what can be put into the ground, Melzer pointed out, the rules are very restrictive on how it must be injected and monitored.

Third, he said, the rules do not recognize early commercial action. "EOR projects do store CO₂," he noted. "There is no credit for that. We ought to encourage the things going on today to opt into the geologic storage world."

Contending, "If we can make CO₂ a commodity, we have a good shot at doing a lot of storage," Melzer outlined what he termed a crossover strategy to certify commercial CO₂ injection such as EOR for geologic sequestration. "Obviously we are going to need to protect the public's health and safety, and underground sources of drinking water," he acknowledged.

But if the states retain primacy, he added, "It demands an economic factor be weighed into the public health and safety, and USDW rules."

Such an approach needs "opt-in strategies," Melzer continued, so that those injecting CO₂ to enhance oil production will want to participate in sequestration. He said that might take the form of emission-offset credits or some sort of "green oil" incentive that would advantage a barrel of oil that stored CO₂ during production. "That is an interesting strategy when you start thinking about advantaging domestic barrels versus imported barrels, for example," he mused.

At present, Melzer concluded, EPA's rules envision separate paths for geologic CO₂ storage and commercial activity. "I like to call that the wall between sequestration and commercial injection," he said. "We have to break down that wall."

Fugitive Emissions

Saying there had been major technological advances in the areas of identifying fugitive emissions, quantifying low-pressure gas streams, and rectifying them, Hy-Bon's Richards posed, "Venting commercial-quantity gas streams when they are near low-pressure pipeline systems is bad business."

Richards introduced PBPA to the FLIR Gas Finder, which he said was an infrared camera coupled with software that enabled it to detect any hydrocarbon-based gas

stream.

He said Hy-Bon had used the camera in 15 countries. "No matter where we go, we have found 90 percent of the gas comes from 10 percent of the emission sources," Richards detailed. "Domestically, almost every time we see commercial quantities of gas, it is either casinghead gas being vented close to the wellhead, it is off old storage tanks, or it is compressor stations."

He noted that the EPA considered stock tanks to be the number one source of vent gas from production facilities. "The typical tank facility in Texas vents anywhere from \$15,000 to \$50,000 of natural gas a month at \$7.00 an Mcf," Richards announced. "So it makes sense to capture this gas."

However, Richards said Hy-Bon had learned that potential profits weren't the primary driving force behind identifying fugitive emissions. "Our customers are using (the videos) for safety training," he revealed.

Showing footage of gas pouring out of an open tank hatch and of a gas cloud containing 4.5 percent hydrogen sulfide floating onto nearby workers, Richards commented, "It is one thing to tell people to stand to the side when they open a tank or to do certain things. It is another when you can show them what this gas actually looks like."

But there is another, perhaps even more compelling, reason, Richards continued.



Venting commercial quantities of fugitive gas streams may not only be bad business, it could lead to unwanted regulation, warns Larry S. Richards, president of Hy-Bon Engineering.

He reported the Texas Commission on Environmental Quality had 18-20 infrared cameras, with which it had been surveying production sites for a year. "I know Colorado, Wyoming and California have bought them," he added.

Even more concerning, he suggested, is that environmental organizations and trial lawyers are known to have purchased the cameras. "I think this can be one of the best tools for the oil and gas industry since 3-D seismic," Richards posited. "It is fantastic for improving the environment, employee safety and the bottom line. But like any other tool, it also can be used in a negative manner.

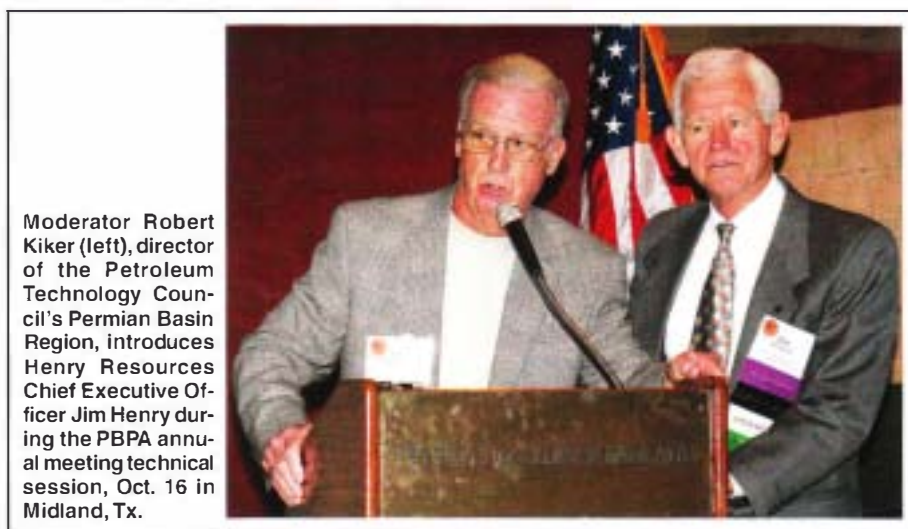
"Sometimes the regulatory pendulum swings too far," he worried. "It won't make commercial sense if they try to make us put 2 Mcf a day into a 200-pound line. If we don't focus on capturing the commercial quantities of vent gas that we have the technology to identify, accurately quantify and put into the pipeline, we are going to invite some regulation that may not have ever come if we had taken a progressive stance."

Wolfberry Play

Jim Henry told PBPA that the Wolfberry was a nickname for an area in the Permian Basin where the Spraberry formation overlaid the Wolfcamp formation at about 10,000 feet.



The U.S. government forced worldwide crude oil prices down in the 1980s to deprive the Soviet Union of hard currency earnings and pushed them back up in the 2000s to slow Chinese expansion, contends author James R. Norman.



Moderator Robert Kiker (left), director of the Petroleum Technology Council's Permian Basin Region, introduces Henry Resources Chief Executive Officer Jim Henry during the PBPA annual meeting technical session, Oct. 16 in Midland, Tx.

"We estimate the Wolfberry ultimately will recover more than 1 billion barrels of oil," he enthused. "We are drilling in areas people never thought would be drilled."

Despite that optimistic prognosis, Henry admitted that the Wolfberry was not an easy trend to work. He recalled that in 1996, Atlantic Richfield Co. took some Spraberry wells to the Wolfcamp and put large fracture treatments on them. "Those wells turned out surprisingly good, but nobody noticed," he said.

Eight years later, he continued, Henry Petroleum drilled 14 wells on a farm-out near where ARCO had been drilling. Even though his technical team later determined the better rocks were farther west, Henry reported, "We decided to frac the Wolfcamp, and were very surprised by the results."

Eventually, he said, Henry Petroleum leased 270,000 acres, but for several years had the play pretty much to itself. One reason, he speculated, is that the typical Wolfberry well may come in at 120 barrels a day, but then drop to 60 bbl/d within the first year. "If you extrapolate that initial steep decline, you don't get very many reserves," Henry reasoned.

Finding good Spraberry wells also is difficult, he revealed. Henry displayed a graphic of nine projects encompassing 54 wells and 170,000 acres that his company found uneconomic. "Not only is it not easy to determine if you are in the correct places, you don't determine it very quickly, either," Henry added, showing widely varying production plots on three wells. "We have 100 days of production and we still don't know which wells are going to be economical."

Henry said he began drilling Wolfberry wells on 160-acre spacing, then went

down to 80 acres and eventually to 40 acres. "I imagine at some point we will get down to 20," he speculated. "But 40 appears to be economical in most areas."

Price Manipulation

In his book, *The Oil Card: Global Economic Warfare in the 21st Century*, James Norman, a contributor to and former senior writer for *Platts Oilgram News*, contends that global oil pricing cannot be understood without a deep appreciation for U.S. national security policy. "Conventional supply- and demand-based price analysis just doesn't work," he advised PBPA.

Norman cited *Victory: The Reagan Administration's Secret Strategy that Hastened the Collapse of the Soviet Union*, in which former National Security Council adviser Peter Schweizer told how President Ronald Reagan leaned on Saudi Arabia to flood the crude oil market as part of his war on communism.

"A year after the book came out, a series of national security documents were declassified that confirmed a lot of elements in the book. It is pretty well documented that we and the Saudis drove down oil prices in the 1980s and held them down long enough to bankrupt the Soviet Union," Norman said.

In the decade that followed 1998, Norman said he began to wonder whether this time the U.S. government was orchestrating higher oil prices as an economic weapon against the Chinese. He mused, "Whereas the Soviet Union depended on selling crude oil for its hard currency reserves, the Chinese desperately need imported oil. They import roughly half their needs, but spend twice as much of their gross domestic product on imports