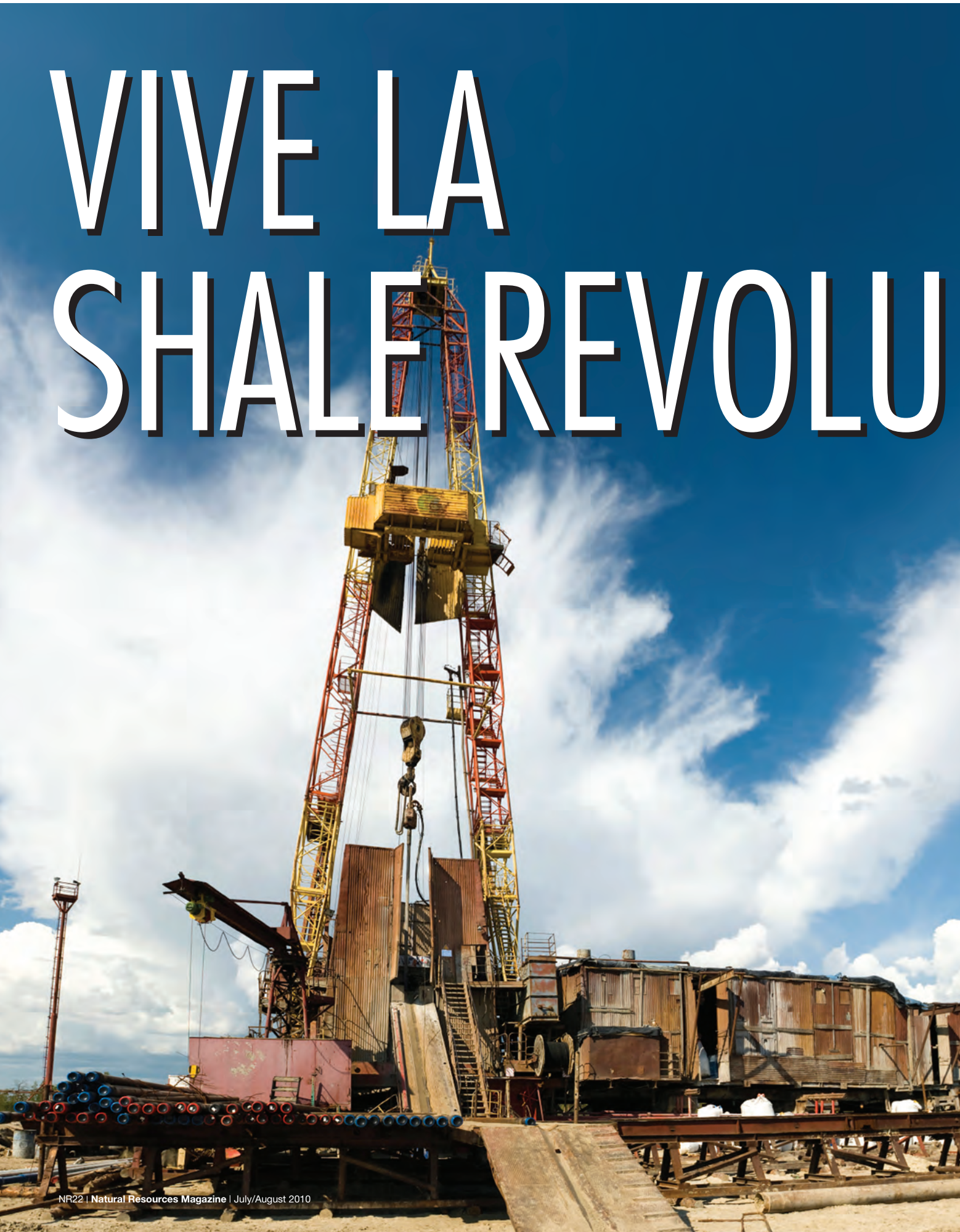
VIVE LA SHALE REVOLU



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A TECHNOLOGY-DRIVEN BOOM IN SHALE GAS PRODUCTION HAS ROCKED THE INDUSTRY, REDUCING THE NEED FOR IMPORTS AND DRIVING DOWN PRICES

BY STEVE PROCTOR

Norm Miller thought he had a winner.

When the CEO of Corridor Resources ordered an exploration drill started near Elgin, N.B. in 1999, everything he'd studied about the local geology told him he was going to tap into a huge reservoir of natural gas. But his confidence in the Will DeMille well waned as the drill chewed though rock, rock and more rock. There were some pockets of shale gas to be sure, but at the time, the technology didn't exist to tap into that source of natural gas.

"We considered the well a failure and plugged it," Miller told a group of Nova Scotia oil and gas players who gathered this spring to toast him on his pending retirement from the business. "We flared some gas from the shale, but the shale was not considered to be a reservoir that was producible at that time."

That was before the shale revolution which has quietly been turning the world energy scene on its head.

Up until two to three years ago, the conventional wisdom was that the U.S. was running out of natural gas. People talked animatedly about another energy crisis, and investors began developing plans to build multi-million-dollar terminals to import the liquefied form from abroad.

All that has changed. With advances in horizontal drilling, 3-D seismic imaging, and hydraulic fracturing (smashing) of rock, companies like Corridor can now tap into previously inaccessible gas. It seems North America is awash in natural gas.

In June 2009, the Potential Gas Committee, a semi-official body, revised its estimate of the U.S. gas inventory, raising it 39 per cent above its assessment of just three years earlier. The biggest part of that boost came from higher estimates of shale gas, which, according to the Committee, now account for two-thirds of the U.S.'s technically recoverable reserves - enough to supply the country for 90 years.

Ken Chernin, an analyst with Jennings Capital in Halifax, has watched the shale gas market unfold in Atlantic Canada, and across North America. He said there is little doubt the shift to shale gas is a "game changer" for the industry. "I recently heard someone suggest shale gas will impact the gas industry with the same force the Internet has impacted communication. I agree with that assessment. I think it is going to be that big."

Pioneered by small, independent U.S. producers such as Mitchell Energy (acquired in 2002 by Devon Energy for $3.5-billion), the shale gas industry has been bolstered and legitimized now that the big players with deep pockets are elbowing their way into the sector, says Chernin.

In December 2009, ExxonMobil bought out XTO Energy Inc. in a $31-billion all-stock deal. France's Total SA, the world's fifth-largest oil and gas company, acquired a 25 per cent interest in Chesapeake's Barnett shale assets in north Texas for $800-million cash and a promise to spend an additional $2.25-billion to gain new access to deep fields. Most recently, Royal Dutch Shell stepped up its interest in gas shale properties in May with a $4.7-billion purchase of East Resources, a privately held company with 650,000 acres under licence in the northeastern U.S.

"These are big companies paying out big money. These are the kinds of deals starting to make believers out of doubters," says Chernin.

Talisman Energy Inc. is one of Canada's biggest shale gas players, with projects in B.C., a million acres in Quebec, and a billion-dollar investment in Pennsylvania. But it has eyes for projects beyond North America, too. It says it believes Europe represents an attractive market

for natural gas, and shale plays in Hungary, Germany, and Ukraine are already attracting some big energy names.

Chernin believes there is significant opportunity for the shale revolution to make an impact in Atlantic Canada as well. He points to Corridor's success and two independent inventory reports. The first report indicates there are 1.9-trillion cubic metres of natural gas trapped in a 300-metre-thick shale formation that begins two kilometres beneath the surface in the Sussex-Elgin area of New Brunswick. The second study indicates there is a similar size amount of gas trapped in rocks in an area hugging the Bay of Fundy in Nova Scotia known as the Windsor Block. That volume dwarfs the output of any Canadian offshore oil project.

"The whole of eastern Canada's potential is very exciting," said Les Fyffe, director of the geological surveys branch of New Brunswick's Department of Natural Resources. "But the shale gas potential is the exciting part to New Brunswick."

It has been exciting too for Miller. But only after he watched shale gas technology evolve south of the border did he decide it was time to take another look at old Willie. When he did, he found the largest concentration of shale gas in North America.

To bring this shale gas to commercial production, Corridor partnered last year with Apache Canada Ltd., a subsidiary of Apache Corp. of Houston. Apache has committed to spend $25-million by June 2011 on land owned by Corridor in southern New Brunswick. If the project is successful, it could mean at least 5,000 wells over several decades, said Miller. No results expected until 2011.

Other companies have tried to get into the local shale gas scene with less success. Triangle Petroleum of Calgary spent $32-million to drill several wells near Kennetcook, 70 kilometres north of Halifax, but failed to find anything of commercial value. It spent months looking unsuccessfully for a partner, and recently switched its focus to a project in North Dakota.

Still, others remain undeterred. Southwest Energy Company of Texas paid $50-million

Shale Gas Not New

While only attracting significant attention over the past few years, natural gas has been produced from shale formations in the Appalachian Mountains of the United States since the late 1800s. The initial oil discovery at Norman Wells in Canada's Northwest Territories in 1920 involved oil flowing from fractured shale deposits that were later found to be connected to the underlying conventional oil pool. In southeast Alberta and southwest Saskatchewan, gas has been produced from the Second White Speckled Shale for decades. Another example: the Antrim Shale in the Michigan Basin, which has produced shale gas since the late 1940s. In all of these earlier cases, there was sufficient natural fracturing of the shale to allow economical recovery typically through shallow vertical wells producing at low rates over a long time.

Nation Energy Board Primer on Shale Gas, May 2009

to the Government of New Brunswick in late March for exclusive licences to search and conduct an exploration program covering over 2.5-million acres). Forent Energy of Calgary said recently it is ready to launch a $4-million assault on lands adjacent to the Triangle property in Nova Scotia, and PetroWorth Resources Inc. announced this spring it was selling off its interests in several Alberta natural gas wells to focus on its eastern Canadian properties in Nova Scotia, New Brunswick and Prince Edward Island.

Why has shale gas become so hot so quickly?

It is abundant in supply, it burns more cleanly than coal and with new drilling technologies allowing extraction from more types of rocks, it is cheaper than offshore oil. Boosters suggest it will not only reverse North Americans' dependence on foreign oil imports, it could reduce the political muscle of energy-producing nations like Russia and Venezuela.

Extraction and processing could create thousands of jobs and its composition might make it easier for electricity generators to switch from coal to gas. Plants that burn coal produce about twice as much carbon dioxide as generators using gas.

"It's low-carbon, it's low-cost, and it's abundant. It is the perfect bridge to a future of alternative fuels," said Chernin.

Not everyone views shale so optimistically. Shale gas is messy. Millions of gallons of water mixed with sand, hydrochloric acid and a stew of other toxic chemicals are blasted at the shale. Public fears about threats to water sources has prompted the State of New York to impose a moratorium on drilling at the immense multi-million Marcellus shale gas deposit until it ensures the project won't threaten water sources.

A U.S. congressional committee is investigating several drilling firms, including two Canadian ones, over worries the methods being used to find shale gas are contaminating water supplies and the U.S. Environmental Protection Agency has launched a two-year, $1.9-million study that will shine a spotlight on possible dangers.

Energy consultant, Benjamin Schlesinger, president of Benjamin Schlesinger and Associates, of Bethesda, Md., doubts the U.S. probes will hinder development of new shale gas plays in Atlantic Canada. He told the audience at a recent oil and gas conference in Halifax that the problems with water contamination are highly localized and in areas where fracturing is being done in shallow locations. To date, the shale gas formations in Atlantic Canada that have been explored are much deeper than those in the United States, he said.

Some also worry shale gas might actually slow the transition to renewable energy. It may be harder to convince people to adopt more expensive green technologies when shale gas is cheap and plentiful and cleaner than coal.

Even the low price can present as a double-edged sword. While it means growing demand for natural gas from homeowners and businessmen, the return for the supplier and distributor is lower, making cash-intensive exploration and commercialization more difficult, too.

Nothing is certain, but a 2009 National Energy Board report hints that while Canadian shale gas production is currently in the experimental or early developmental stages, the possibilities for the future are bright. "Shale gas may be a key component of supply that will allow Canada to sustain its own domestic requirements for natural gas far into the 21st century... It is even possible that shale gas could allow Canada to become a net exporter of LNG." | NRM