Rosebud, Alta., residents like Jessica Ernst worry that the two legs of the local economy—tourism and farming—will be crippled by drilling for coal bed methane

LIFE INSIDE A science project

AS CANADA STARTS TO RUN OUT OF NATURAL GAS, THE ENERGY INDUSTRY IS FORCED TO DRILL WELLS THAT YIELD LESS BUT DISRUPT MORE. ONE NEW SOURCE, COAL BED METHANE, MAY BECOME OUR SALVATION—OR JUST REFLECT OUR DESPERATION by Andrew Nikiforuk

photographs by Clay Stang

in the scenic

badlands of Alberta, an hour's drive northeast of Calgary, Jessica Ernst loved to savour the quiet of a prairie evening on her back porch. Then EnCana Inc. planted a new compressor station 870 metres away. The olive-green facility—what Ernst calls "an ugly piece-of-shit noise-maker"—is an inseparable companion to the energy industry's next big thing: coal bed methane (CBM). Unlike conventional natural gas, CBM—pools of gas trapped in coal seams—won't flow without some added suction. So whenever Ernst, a 47-year-old oil patch consultant, stands outside her farmhouse these days, all she hears is a racket. Like a growing number of Albertans who have seen and heard what the energy industry calls "the oil sands of natural gas," Ernst is not impressed.

The drone of the compressor isn't the only aspect of this new energy source troubling people like Ernst in the hamlet of Rosebud. Last year, the artsy haven of 100 residents learned, to its surprise, that it's the beachhead of the CBM revolution: Rosebud sits in the middle of Canada's first commercial CBM project. Neither EnCana nor government regulators divulged the plan in advance.

BILLION, TRILLION...HOW MUCH GAS *IS* THAT?

1
cubic foot fills a basketball

1,000
cubic feet heats a home for two days

1 million
cubic feet heats five homes for a year

1 billion
cubic feet heats all homes in a town for a year

1 trillion
cubic feet heats all gas-heated homes in Canada for one year

Dozens of companies, including such big players as Nexen, Apache and Shell, are chasing CBM. Leading the charge is EnCana, the largest Canadian-owned gas producer, which counts CBM as a big part of its future. A report by CIBC World Markets calls CBM "the fastest-growing segment of natural gas production in Western Canada." The National Energy Board, the federal government's eyes on the oil patch, goes further, identifying CBM as the future of Canada's gas supply.

Plainly put, the low-hanging fruit in the energy business has already been plucked. With unconventional sources like CBM, the economic returns decline but environmental costs increase (not least of these is the burning of fossil fuels in order to find more of the same). In Alberta, where landowners and the energy industry are already at loggerheads, the intense "industrialization" of drilling required by CBM is one more ingredient in a recipe for conflict.

Many people around Rosebud wonder if the two legs of the local economy—tourism and agriculture—will be crippled by the industrialization coming their way. By some estimates, communities throughout central Alberta will soon see 1,500 compressor stations planted in their backyards. "Can't they leave 10 square miles around Rosebud alone?" asks Alana Bowker, who owns a local guest house. "Will natural gas be the only industry left in Alberta?"

Having worked in the oil patch for 22 years, Ernst understands the business case for CBM. It could be "a fabulous answer to declining conventional gas reserves if they do it slowly and do it honestly," says Ernst. But that's not what Ernst sees in Rosebud. "There is no plan here."

Rosebud may be tiny,

but the reason for its trepidation is as big as the continent: the natural gas crisis. With demand outstripping supply, the continent is running out of gas. Two years ago, the U.S. National Petroleum Council declared the shortfall critical: "North America is moving to a period in which it will no longer be self-reliant in meeting its growing natural gas needs; production from traditional U.S. and Canadian basins has plateaued." It advocated a reduction in regulation, increased access to gas reserves—including on the continental shelf—and quick action on a pipeline from Alaska.

Conventional natural gas production peaked in the United States in the 1970s. It avoided a crisis only by importing lots of cheap Canadian gas. By 2000, the U.S. was importing three trillion cubic feet a year—half of our production. Thanks in particular to Americans' ravenous appetite for gas-fired electrical generation, Canada, which has only 1% of the world's reserves, is the globe's third-largest producer of natural gas.

Since Canada now has less than eight years' worth of proven supplies left, no one thinks we will hold that rank for long. Indeed, our natural gas production reached an unheralded apex in 2002 and declined 3.6% the following year. Exports to the United States, which in 2004 generated about $27 billion in revenue, peaked in 2002.

Many economists believe, in accordance with the National Petroleum Council, that new technologies, streamlined regulations and greater access to wilderness areas for drilling will solve the crisis. Geologists have their doubts. Given existing consumption trends, Dave Hughes, a Calgary-based coal specialist with Natural Resources Canada, optimistically calculates that North America could be short as much as 15 trillion cubic feet of gas a year by 2025. That's one big gap: the equivalent of turning off the furnaces in Canadian homes for 15 years.

And it's not as if Canada can just shut off the pipeline—under NAFTA, we're obliged to treat the U.S. on equal terms. If there's not enough gas to go around, the treaty says we still have to keep pumping southward.

Even today, the only thing preventing shortages and dramatic price hikes is the industry's unprecedented level of drilling—what Calgary-based gas analyst Rob Woronuk of GasEnergy Strategies calls "brute force." A decade ago, Alberta's gas industry easily met its share of North American demand by drilling 4,000 wells a year; today it can barely keep production flat with 15,000 new wells a year.

EnCana's Stacy Knull (left) and Mark Taylor (seen here at one of the company's compressor stations near Rosebud) say the company is eager to act on local feedback

"In a sense, we are approaching a panic mode," explains Woronuk. "We only have *x* reserves in the ground. Drilling more wells doesn't add to the reserves. It just depletes more gas, and it is an accelerating process."

But for now, natural gas keeps our economy smiling. It fuels about a third of Canada's energy needs and powers up to half of our industry. About half of Canadian homes heat with gas. Ontario aims to ease its electricity-supply crunch with new gas-fired generators. Large helpings of natural gas are also used in production from the oil sands, the source of much of our gasoline. Without natural gas, production would simply stop.

Neither industry nor government has spoken much about the crisis. It may be 10 minutes to midnight for our gas supply, but for the business and royalty-collecting governments, the party's still roaring. Gas companies and trusts have all scored record profits in recent years as gas prices rose from less than $2 per thousand cubic feet in 1996 to the neighbourhood of $8 this year. The windfall has turned the oil sheikdom of Alberta into a kingdom of gas. In 2003-04, the province raked in more than $5.4 billion from gas revenues; oil revenues barely topped $1.2 billion.

At a series of workshops last year, the National Energy Board (NEB) offered two solutions to the crisis. The first is liquefied natural gas (LNG), which can be shipped in big tankers from abroad. But even a big tanker carries only enough gas to heat a community of 80,000 for a year. And it will take from three to seven years, and hundreds of millions of dollars, to build an LNG port facility. So the NEB placed its bet on answer 2: unconventional gas such as CBM.

An NEB report issued after the workshops noted that CBM differed from conventional gas in some critical ways. Most notably, CBM has relatively low well productivity and therefore requires "a high drilling density to achieve economies of scale." The report said 50,000 wells might be needed to exploit Alberta's CBM motherlode, the Horseshoe Canyon, and that the whole endeavour would look like a "manufacturing process." The report neglected to add that the Horseshoe Canyon play lies underneath one of the most densely populated and most fertile areas of the province, including both little Rosebud and the busy corridor between Edmonton and Calgary.

The push is yet to come, but even the acceleration of drilling to date has strained relations between landowners and the gas sector. Most of Alberta's 50,000 farmers now sport a well or pipeline on their properties. More than 250,000 wells and 332,464 kilometres of pipeline have been planted on the province's landscape in the past 40 years; many areas resemble industrial pincushions. Some farmers have difficulty manoeuvring their machinery around all the wellheads and pipelines on their land.

The pace of development is controlled by the provincial government which sells off gas and oil leases. (All told, Alberta owns 81% of the turf; the rest is held privately or by the federal government.) Companies gain access to their mineral leases by negotiating with landowners. The Alberta Energy and Utilities Board (AEUB), a quasi-judicial agency, enforces rules for the process, approves licences and adjudicates disputes.

But saying "no" to drilling is more a theoretical than a practical possibility in Alberta. Landowners own only the surface of their land. Generally, there are few legal grounds for refusing the advances of the oil and gas industry. The AEUB, which has the unusual distinction for a public agency of being mostly funded by the industry it oversees, has in recent years approved 97% of drilling

Peter and Fiona Lauridsen unwittingly allowed CBM drilling on land they farm. (Their home is in the background; an EnCana gas compressor is in the middle distance.) "I ruminate now over whether I am being a good steward of the land," says Peter

applications as being "in the public interest."

Although landowners receive compensation for wells on their land, the sheer intensity of drilling has created a volatile atmosphere. In particular, the almost total lack of regional planning (the AEUB approves one gas-well permit at a time, without regard for the eventual size of a project) has angered municipal planning councils and residents of new subdivisions. One town, Bonnyville, is about to have a gas well drilled beneath its water supply, Moose Lake, despite protests by hundreds of residents.

In a recent annual report, the AEUB pointed out that in the 1970s it dealt with 70 companies, between 2,000 and 5,000 wells a year and a population of 1.6 million. As of 2003, 1,600 companies were drilling 18,000 wells annually on a landscape inhabited by three million people. Alberta, the report concluded, faces "some interesting, almost contradictory challenges."

Historically, the only

meaning of coal bed methane to resource extraction was: hazard. Leaking methane from coal seams not only suffocated miners but also periodically set off catastrophic explosions. To get rid of unwanted gas, mining companies eventually installed venting systems. During the energy crunch of the 1970s and 1980s, U.S. entrepreneurs found a way to capture that vented methane and sell it.

As conventional gas sources declined, the U.S. probed its coal fields for gas. In the 1990s, companies such as BP Amoco and Burlington Resources found promising seams in Colorado, New Mexico and Wyoming. They began an intense drilling program, lubricated by substantial federal tax breaks. Today, the San Juan basin and several adjacent basins in Colorado and New Mexico provide 60% of U.S. CBM production, gushing an average of 2.6 billion cubic feet of gas a day. CBM now accounts for 8.5% of America's natural gas production.

The exploitation of this unconventional resource produced some ugly surprises. Most coal beds are covered with groundwater. It may be fresh or salty, but in either case, two years of pumping are usually required before production can begin. In Wyoming, 12,000 CBM wells now produce between one million and two

million gallons of water a day. Much of this water, containing sodium, arsenic and manganese, has been dumped into rivers and open pits, and onto native grasslands. Many ranchers have lost their water sources; in some areas, aquifers have dropped by 200 feet. One recent report estimated that the water losses caused by CBM could total $2 billion (U.S.) in economic damage for Montana and Wyoming over the next 20 years.

Water, however, wasn't the only concern. Methane started to invade people's basements and water wells. Compressor stations caused noise complaints. But the biggest issue has been the industrialization of the landscape. The land fragmentation caused by CBM has riled even staunch Republicans. After CBM drilling tore up her ranch with scores of roads, wells and pipelines, Republican activist Tweeti Blancett transmogrified into something of an environmental activist. Having called CBM "nasty, nasty stuff" that is displacing local economies, she's suing the U.S. government for failing to balance gas production with conservation.

Canada's natural gas industry, which had dabbled with CBM test projects in the late 1970s, watched with alarm the battles raging south of the border. Five years ago, a number of companies, including EnCana and MGV Energy, the Canadian subsidiary of Texas-based Quicksilver Resources, quietly spent $100 million on test wells throughout Alberta. Some of these CBM pioneers also formed the Canadian Society for Unconventional Gas, to build upon the U.S. experience and "avoid their mistakes."

Provincial officials, meanwhile, started to do some calculations. With half of Alberta lying atop coal beds, geologists estimated that the province had between 100 trillion and 500 trillion cubic feet of methane. The "pipeable" share is put at between 10 trillion and 23 trillion cubic feet.

Before the prospect of CBM came along, the industry's choice was between drilling costly sour gas wells in the foothills of the Rockies, or plumbing southeastern Alberta for conventional gas with lots of shallow wells. Many companies opted for the latter, "the shallow gas machine." But as the best shallow prospects get tapped out—the wells have brief lives by definition—CBM looks more attractive. Randall Eresman, EnCana's chief operating officer, wrote last year that the company remains "firmly convinced that unconventional resources are the next 'big thing.'"

Although $700 million has been sunk into CBM in Alberta, initial test results in most locations have been less than spectacular. Canadian coal seams don't harbour the riches of the San Juan basin. Many also come with substantial water issues. (This is especially true in British Columbia—see "Meanwhile in B.C.," above.) In the Ardley geologic formation in central Alberta, companies found fresh water—an economic and political liability, given water shortages in the province. In the Mannville formation of deep coals along the Foothills, companies hit a "witch's brew" of salt water that corroded pumps in three days. Despite three years of pumping, companies such as Nexen have yet to produce any profitable gas from Mannville coals.

But in the Horseshoe Canyon, EnCana hit pay dirt.

After drilling 35 pilot wells into shallow coal seams just south and west of Rosebud, EnCana discovered that the coal was mostly "dry," a North American novelty. "Nobody has a really good theory why," says Mark Taylor, team leader of EnCana's Wheatland unit. So here was a CBM play that didn't have water

MEANWHILE IN B.C.: PROMOTION, BUT NO PRODUCTION

If coal bed methane development is in its infancy in Alberta, it's positively embryonic in British Columbia. No matter that B.C.'s Liberal government has pushed the resource. No matter that analysts say B.C.'s coals are arguably better quality than Alberta's. The infant industry has encountered one setback after another, including U.S. opposition and stubborn economic obstacles.

But you can't say the B.C. government hasn't tried hard enough. Four years ago, it targeted royalties from CBM as one solution to its then-$33.6-billion debt load. Based on estimates that the province likely harboured 90 trillion cubic feet of gas in its coals, the Ministry of Energy and Mines put up a For Sale sign. Even at a 20% recovery rate, the paper bonanza promised to yield a giant pool of gas for domestic and export markets for 25 to 75 years.

To entice investors, the government consulted with industry for a year and then offered royalty incentives and streamlined regulations. In 2003, the government also passed the Coalbed Gas Act, which declared, to the chagrin of 600 owners of coal rights, that gas in coal belonged to the Crown and not the owner of the coal. (In Alberta, coal rights bestow gas rights.) Bright government pamphlets advertised Vancouver Island, the Peace River area in the northeast and the Fernie Elk Valley area in the southeast as key regions ripe for drilling.

Despite all the hype, companies have pursued only a dozen experimental projects. So far, none has brought any gas to market, thanks to a host of technical challenges including groundwater, the remoteness of sites and lack of infrastructure. Compared to Alberta, "It's definitely a different economic animal," says David Molinski, assistant deputy minister with Energy and Mines.

It is also disappointing. On Vancouver Island, a small firm called Priority Ventures drilled a test well in 2001 with bullish hopes of supplying the Island's gas needs for 25 years. But three years later, the B.C. Securities Commission fined company president Neil Swift for making false and misleading statements to investors. Drilling is on hold.

In 2004, the government created an international incident by announcing the sell-off of coal leases in the Flathead Valley, just south of Fernie. Fearing that water pumped from CBM wells could affect the watersheds of Montana's Glacier National Park, the state's then-governor, Judy Martz, demanded that British Columbia conduct a comprehensive environmental assessment. When the government refused, citizens on both sides of the border took their case to the media and the industry umbrella group, the Canadian Society of Unconventional Gas.

Unrepentant, the government held its auction last August. Having added up the formidable environmental and social costs, industry simply stayed away. As the industry surmised, B.C.—the Left Coast—promises far more community and aboriginal resistance to drilling than free-enterprising Alberta.

Shortly after the Flathead episode, the province's CBM hopes received another setback when EnCana announced that it was suspending its 17-well project in Elkford, near the Alberta border, until it could find a partner with expertise in horizontal drilling to share risks and costs. EnCana reported, however, that water from the site could be handled easily.

Molinski, who is an energy economist, notes that many of the setbacks simply reflect the "technical challenges" of the resource, and that all oil and gas companies in the province remain interested in CBM's potential. He concedes, however, that "it is definitely a go-slow approach to commercialization."

THAT'S INTENSE

These aerial views show the impact of three levels of drilling in Alberta. At left is an average section with a normal level of development. The middle image shows conventional development augmented by coal bed methane development. At right is the upper-limit density of 32 wells

LEGEND well sites · 100m setback · pipeline · roads

headaches. It also tapped gas "clean enough to pipe to your furnace," Taylor adds. Although the wells only produced a fraction of the gas of conventional wells, it appeared that they didn't decline as quickly, and could produce for 30 or 40 years.

The Alberta government held a series of hearings in 2003 on the impact of drilling for CBM. Mike Ekelund, assistant deputy minister of energy, got an earful from landowners familiar with the U.S. experience: Their worries included compressor noise, groundwater depletion, declining property values and the fragmentation of agricultural and public lands. Ekelund promised to weigh those concerns.

By 2003, EnCana had assembled a team, headed by Taylor in the Rosebud area, to put together the technology and know-how to develop the Horseshoe Canyon coals. Using the experience of the shallow gas machine, the company refined an assembly-line system that can drill as many as three shallow wells in one day with a crew of 10. (In contrast, a conventional well can take three weeks to drill.) After drilling the well, the crew fractures the coal seams with an injection of nitrogen, which releases the methane. In many cases, a CBM well can produce small amounts of gas within 24 hours of the start of drilling.

The Horseshoe Canyon play offered EnCana several strategic advantages. The company owned 700,000 acres of royalty-free lands in the formation, and already had extensive infrastructure in place: pipelines and well pads for shallow gas wells. All this meant it could minimize its footprint by planting a lot of CBM wells right on top of its shallow gas machine, and thereby keep drilling costs around $250,000 a well. To Stacy Knull, vice-president of EnCana's Chinook business unit, CBM looked like a dream. "It was a low geological risk and we were no longer on the [shallow gas] treadmill."

Other companies, including Apache Canada, Thunder Energy and Compton Petroleum, came to similar conclusions and started drilling for CBM throughout central Alberta. One company dubbed CBM "instant gratification." In 2003, EnCana announced its own drilling plans and projected that it could ultimately suck two trillion cubic feet out of the Horseshoe Canyon. Unfortunately, no one informed the folks in Rosebud.

"CBM was here before I knew it," says Peter Lauridsen, a 44-year-old cattle and grain farmer. He farms 930 acres west of Rosebud, land that now sports 11 gas wells. After reading the fine print on his surface-lease contracts last summer, he was alarmed to discover that three of the wells were actually for CBM. Nonetheless, an EnCana landman told him they were shallow gas wells. Having heard about the CBM horror stories in the U.S., Lauridsen was concerned. "I have to admit to a certain gullibility," he says. "But my trust in the company has been compromised. They tried to keep it quiet."

Like most farmers battered by drought and mad-cow disease, Lauridsen initially welcomed drilling. EnCana paid him $1,000 for loss of farmland on each CBM well, as well as an annual rent of $350 per well. "It was one source of guaranteed income," says Lauridsen, "and we're as happy to cash the cheques as the government is." But after watching EnCana drilling crews plant one CBM well after another throughout the rolling prairie landscape around his farm, Lauridsen started to have second thoughts. "I ruminate now over whether I am being a good steward of the land," he says. CBM is expanding exponentially in an area where the province has conducted neither a groundwater survey nor an environmental assessment, he notes. A 2002 report on groundwater by provincial environmental ministers warned that massive CBM drilling "without adequate baseline groundwater knowledge may have unintended future consequences." Yet Alberta Environment still hasn't done extensive groundwater studies in the Horseshoe Canyon.

Lauridsen is also concerned about land fragmentation. The farmland around Rosebud now supports between three and five wells per section of land (a section is a square mile, or 640 acres). Lauridsen fears that CBM could increase that

An oil-patch veteran warns investors away from CBM. "There is a bullish enthusiasm out there that smells like a tech bubble"

density to eight or 16 wells. (Intensification has routinely been allowed by the AEUB in the past.)

As with water, so with land use: Although the Alberta government has the tools to document the impacts of CBM development over time, it has yet to apply them. For this article, landscape ecologist Brad Stelfox calculated the footprint of the Horseshoe Canyon play with a land-use computer model, consistent with industry and government methodology. He used the most conservative variables—no access roads or seismic lines. Stelfox found that a 50,000-well project over an 11,000-section area in central Alberta would take up 2% of the land base for a 35-year period. Another 12% of the land would be affected by 100-metre well and pipeline setbacks, preventing owners from erecting structures on that portion of their properties.

What floored Lauridsen's wife, Fiona, about the advent of CBM was the landmen constantly stopping by the house, inquiring about potential well sites. She noticed that the formerly clear night sky was now lit up by yellow vapour lights and flares. "I don't have all the city amenities, but I had quiet, space and peace. Now I don't have that." This is possibly one reason why a Colorado study found that CBM wells and pipelines can drive down the value of residential properties by as much as 22%.

The Lauridsens weren't the only ones noticing changes. With as many as 20 trucks tearing through town every hour, dust, traffic and noise increased throughout the summer. And Jessica Ernst's new neighbour, an EnCana compressor station, roared away all night long, keeping Ernst and other residents awake. A tainting of its idyllic setting was no small problem for a place that makes its living entertaining 30,000 visitors a year.

The community's unease deepened when an EnCana landman asked permission to increase the spacing of shallow gas wells in the area from one to four per section. None of the actors, artists or café owners in Rosebud had ever been asked to give such approval before. Many suspected that CBM was at the root of the request. But EnCana was mum on that point. Shauna Murphy, a Rosebud homeowner, didn't appreciate being on the receiving end of pressure to sign off on the increased density. "I felt it wasn't right."

When the landman refused to directly address the community's growing concerns, Ernst, who did consultation work for EnCana regarding pipeline impacts on wildlife and trappers, intervened. Having worked in the oil patch, she thought some frank talk would ease tensions, so she requested that an open house be held. Two company employees saw no need. Ernst promptly resigned her contract with EnCana on Sept. 10 with an angry e-mail: "In my professional opinion, EnCana has not conducted adequate consultation, cumulative-effects assessment or socioeconomic assessment for its CBM proposed development."

EnCana's Mark Taylor wrote Ernst back, thanking her for her comments. "EnCana has not presented enough clarity regarding its proposal to you and the other Rosebud community members," he acknowledged. Taylor followed up with an emergency meeting in September that was attended by 100 residents, including Ernst. To Ernst's astonishment, Taylor said it was the community's responsibility to determine impacts and bring them to EnCana's attention. By Ernst's account, he also denied that EnCana was drilling any CBM wells. (Taylor disputes this.) Taylor promised prompt action on speeding EnCana trucks. A traffic survey that he subsequently commissioned found that nearly 80% of the 76 industry vehicles going through town on the first day of the survey were speeding.

Residents started writing letters to the Energy and Utilities Board, demanding a cumulative-effects assessment. After dismissing a local manager who had riled residents, EnCana's local vice-president, Stacy Knull, promised Ernst that the company would be more up front about its plans. Ernst accepted his invitation to speak to EnCana employees about the importance of full disclosure.

Ernst pinned up posters at the community store announcing the latest CBM developments. One of them announced that EnCana was prepared to disclose its plans for the next five to 10 years, and promised to stop hiding behind "inappropriate and dishonest consultations." Ernst put the name and phone number of the co-ordinator of a local landowners' group, Norma LaFonte, at the bottom of the poster. Days later, LaFonte received a letter from a Calgary law firm threatening a lawsuit for defaming EnCana.

On Oct. 21, EnCana finally held an open house, which drew more than 200 people. The company served beef on a bun, gave out EnCana tuques and videotaped the entire process. "That was very intimidating," says guest-house owner Alana Bowker. Taylor told the restless audience that CBM wells were indeed planned for Rosebud, and that EnCana wanted to drill another two to three wells per section on its 42 sections around Rosebud, at a cost of $50 million. (In fact, Alberta government reports showed that EnCana had begun drilling CBM wells in the area in 2003.) None of the locals left feeling any better. The next day, the headline in the *Drumheller Valley Times* read, "Rosebud residents not too happy with EnCana's plans."

During a tour of EnCana's facilities before Christmas, Taylor and Knull admitted that the company's consultation process at Rosebud had been inadequate. "We are looking for feedback on our plans and how we can do it differently," Taylor explained. He says the threatened lawsuit has "disappeared."

At another public meeting in Rosebud in early February of this year, EnCana asked the community if "there were different ways of working together." Some landowners pointedly replied that the industry might try respect and honesty. Others asked for reliable information about the impacts on land and water. Representatives from EnCana promised to work "in whatever way the community sees as the best way."

Shortly afterward, the Wheatland Surface Rights Action Group, which represents more than 100 farms south of Rosebud, made a presentation to Alberta's standing policy committee for energy and sustainable resources. The group argued that existing regulations weren't designed to handle CBM projects composed of thousands of wells. They noted that adding all the compressor stations needed for the Horseshoe Canyon play—one for every seven sections—will "forever change the landscape." All in all, the current CBM activity was "already in conflict with cultivated agricultural land," and "sterilizes future potential use."

April 26, 1964. It's all over as Toronto Maple Leaf goalie Johnny Bower receives congratulations from teammates after a 4-0 victory over Detroit Red Wings to win the Stanley Cup.

December 14, 1965. Checking a safety cable on the 43rd floor of the Toronto-Dominion Centre.

February 27, 1984. Tugboat Bagotville clears a channel off Hanlan's Point in Toronto Harbor.

Own Yesterday. Today.

The Globe and Mail is pleased to offer its readers a chance to own a piece of history. The unique collection of over 400 iconic images in the making of our nation is available at globeandmail.com/photostore

THE GLOBE AND MAIL PhotoStore

globeandmail.com/photostore

Mike Gatens, CEO of CBM

pioneer MGV and chairman of the Canadian Society for Unconventional Gas, agrees that many companies haven't been transparent with communities about their long-term plans. The industry probably needs a best-practices tool kit, he says. "It's a two-way street. It's about respect and understanding. Let landowners see the plans and react to them. Let's show them that we are willing to work with them."

But even if the industry gets on consistently good terms with landowners, some doubts hang over the future of CBM. One is just how big it will be; estimates vary wildly.

One of the less rosy views comes from Jon Baker, CEO of Trident Exploration Corp., a Calgary-based firm that has focused solely on CBM since it was founded in 2000. Baker recently told a Calgary audience that Alberta government estimates of 66 trillion cubic feet of gas in the Horseshoe Canyon were wishful thinking. He predicts that only 10% of the world's coal seams will yield commercial gas. "It's R&D work, and it's high-risk."

Some industry veterans even think CBM will turn out to be economically borderline. One observer, who has tracked gas production from 300 CBM wells in the Horseshoe Canyon, said investors should approach with caution. "There is a bullish enthusiasm out there that smells a lot like a tech bubble."

To date, Horseshoe Canyon is one of the lowest-producing CBM plays in North America. "The quality of our coals just sucks," adds the observer. "CBM is still a science project in Alberta." Contrary to enthusiastic claims from some investment houses, production from CBM wells is already declining significantly—35% in the first year. Production to date has been economically marginal. EnCana, for example, recently reported it was producing no more than 27 million cubic feet a day from its CBM wells.

An environmentalist, like Julian Darley, director of the Post Carbon Institute in Vancouver, would say that the pursuit of marginal gas sources is just a Band-Aid on a hemorrhage. Describing CBM projects as "stupid and dangerous," he says such developments mask the reality that Canadians should be preparing for the day gas pipelines run dry. Instead of investing massively in CBM, he says Canada should build an energy policy that reduces demand, conserves gas and supports renewable sources of energy.

Dave Hughes, the coal specialist with Natural Resources Canada, thinks CBM development is necessary in the short term to avert a gas shortfall, but he seconds some of Darley's concerns. By his figuring, it would take the annual addition of 33,000 CBM wells of typical output to replace the overall decline in gas production.

Hughes notes that the Canadian Gas Potential Committee, a group of geoscientists from government and industry, calculates that it took about 100,000 exploration wells to discover the first two-thirds of Western Canada's gas reserves, which lay in some 28,770 pools. It didn't take much energy to bring this gas to market, Hughes adds. He figures that the remaining third of our gas will be found in 70,000 mini-pools that will require more than 200,000 wells. Much of this gas will be subeconomic, and will likely take big inputs of fossil fuels to find and extract. "What is the full-cycle energy cost for these unconventional fuels?"

In Rosebud, EnCana has

recently promised to shut up its noisy compressor station with a "community gift"—the construction of a $100,000 enclosure over it. Ernst is not impressed. As of press time, the enclosure wasn't built. "EnCana has made a lot of promises. Will they keep this one? I still believe I'll be living with noise."

And so the debate has begun: Should Alberta take the bloom off its Rosebuds or plan for a future with limited supplies of natural gas and declining gas revenues? "If we want a secure energy future," warns Hughes, "Canadians are going to have to deal with these issues practically instead of emotionally." But no one, above all the citizens of Rosebud, believes that's going to be easy. R

Andrew Nikiforuk is a Calgary writer and a member of the Livingstone Landowners Group