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HERALD SPECIAL REPORT

WHAT LIES BENEATH

Barely a blip six years ago, coal bed methane is now hailed as Alberta's next big energy play. But a growing number of rural landowners wonder whether the rush to cash in on the resource is worth the headache for Albertans

TODAY: PART 1 OF 4

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Tim Fraser, Calgary Herald

Rosebud resident Jessica Ernst highlights concerns over coal bed methane development by setting a jug of her well water on fire.

Tim Fraser, Calgary Herald

Coal bed methane has been touted as one of the next big energy plays in Alberta.

In just a few short years, more than 7,700 wells have been drilled across some of the province's most fertile farmland. The industry projects there'll be 50,000 more over the next two decades — triggering up to a half-billion dollars in royalties for the provincial treasury by 2010.

But the explosive boom has tapped into a reservoir of concern, particularly in rural Alberta, over where the development of coal bed methane is headed.

Critics worry about the impact on Alberta's landscape, both above ground and in the water beneath the soil.

"We have pipelines, we have power lines, but there's no way on earth we want this," says Gary Norman, a rancher from east of Bowden who opposes coal bed methane development.

Earlier this year, hundreds of anxious residents packed town halls to try to understand what the industry will mean for them.

"Am I a landowner or am I a guinea pig?" rural resident Jessica Ernst told one meeting of landowners in March.

Ernst, who lives near coal bed methane wells in central Alberta, has gained a certain notoriety for being able to create a burst of flame off the gas in her well water. There's no evidence, though, that coal bed methane activity has caused her water woes — or any others — the government says.

For their part, the industry and the province assure Albertans the resource is being developed properly, and safely.

"It's being done responsibly," says Kin Chow, chairman of the Canadian Society for Unconventional Gas, which represents energy firms producing coal bed methane.

"It's providing opportunities for Albertans that jurisdictions of the world would love to have," adds Alberta Energy Minister Greg Melchin.

Today, in the first of a four-part special report, the Herald's Tony Seskus and Renata D'Aliesio look at the debate over coal bed methane in a new series, What Lies Beneath.

WHAT LIES BENEATH

ALBERTA'S COAL BED METHANE INDUSTRY

WHAT LIES BENEATH

A new pursuit for natural gas in ancient coals is studding the prairie landscape with wells and worry. The government assures Albertans it's on top of the issue — others aren't sure.

TODAY
Before the boom and the worry, the government and regulator passed on a chance to head off many of the concerns Albertans have today.

THURSDAY
View from the industry: Canada's shrinking supply of conventional natural gas drives industry to CBM's door.

FRIDAY
The Herald examines the troubled U.S. experience with coal bed methane and looks at what lessons Albertans can learn.

SATURDAY
With the development of coal bed methane across the province, protection of water has become the key concern for some rural Albertans.

EARLY DAYS

Before the boom, the province passed on a chance to head off many of the concerns some Albertans have today about coal bed methane

RENATA D'ALIESIO AND TONY SESKUS
CALGARY HERALD

Photos: Tim Fraser, Calgary Herald

Dave Doze is fighting to conserve the sanctity of Battle Lake and the natural landscape that surrounds it from coal bed methane development.

The flyer was provocative.

"Profit zones or sacrifice zones?" its bold letters screamed.

From the southern prairie town of Nanton to the capital of Alberta, rural community halls and big-city classrooms were abuzz with worry last March about a type of natural gas called coal bed methane, or CBM.

"Hear the real truth about CBM's impact on farmlands, water and quality of life!"

Hundreds of people flocked to the town hall forums.

Anxious government officials also gathered to gauge public reaction and keep watch of politicians and reporters.

Today, many eyes — from community halls to the corridors of the legislature — are watching the rapid development of Alberta's coal bed methane industry.

"It's an enormous resource," says Alberta Energy Minister Greg Melchin. "The more wells you drill, certainly there are issues you have to be cognizant about."

Barely a blip six years ago, at least 7,700 coal bed methane wells have emerged on the landscape, many in the densely populated stretch between Calgary and Edmonton. And though it has produced a vital new source of natural gas, some concerned Albertans wonder if its development is worth the trouble.

"This activity is much like an addict that needs its next hit," charged farmer Kevin Niemi at a regulatory hearing last spring for 15 proposed coal bed methane wells in the Torrington area in central Alberta. "It's a rampant, runaway expansion of industrialization of rural Alberta."

For some, like rural mom Fiona Lauridsen, the concerns centre on their well water.

Last Christmas Eve, her family suffered nasty skin irritations after showering in water she believes was contaminated with methane — although there's no evidence industry had anything to do with it. She's not so sure, and Alberta Environment is investigating her complaints, along with nine others.

"I had total faith in the system," Lauridsen says. "It's been a colossal shock to me. I'm not just slightly rattled."

Some countryside residents cast a skeptical eye toward the entity that's supposed to represent their interests: government.

"What have they been doing for the last decade?" wonders Dave Doze as he struggles with industry's second bid in 12 years to develop coal bed methane at Battle Lake.

As the debate intensifies, industry officials and government regulators assure Albertans that the pace of development is thoughtful, well-managed and, above all, safe.

"It (the pace) has surprised maybe everybody," Melchin says. "But it hasn't surprised us in the sense that it's coming faster than you're capable of addressing."

Furthermore, they stress, there's no evidence coal bed methane is causing water woes or other major problems — and all development has been done according to existing provincial regulations.

"It's being done responsibly," says Kin Chow, chairman of the Canadian Society for Unconventional Gas, which represents energy firms drilling and producing coal bed methane.

"Once you educate most folks, they're OK, because it's a minimal impact."

Coal bed methane has been touted as Alberta's next big energy play, but for some rural residents it's also a worry.

So far, CBM development has meant chasing natural gas in shallow coal seams that can mean more wells per section than traditional drilling. It also includes a process called fracturing, where often nitrogen is pumped into the coal to help free up the gas.

The development has introduced new dollars into rural Alberta and government coffers — an anticipated half billion dollars of royalties by 2010 — but some residents say it's also brought more noise, vehicles, dust, and nagging groundwater concerns.

Even rural counties, which benefit from the property taxes paid by the energy companies, are raising flags about the impact on their roads caused by a steady stream of large industrial vehicles tied to CBM.

Mayor Dave "Bronconnier is always in the papers saying the province needs to give Calgary more money," says Glen Riep, manager of municipal services for Starland County near Drumheller.

"However, us in the rural areas, this is where the development is actually occurring. And it's our roads, people's driveways, that are getting ruined and we're not seeing that money coming back."

Government and industry say they're addressing countryside concerns. But documents obtained through the Freedom of Information legislation suggest the government passed on a chance to tackle some of the thorny issues years before.

Fifteen years ago, the government and Alberta's energy regulator established a task group to monitor coal bed methane activity and recommend regulatory policies and practices for the future.

In closed-door meetings, the group was made aware of some of the concerns Albertans have today, according to documents obtained by the Herald.

At a meeting in November 1993, an industry expert told the group he expected coal bed methane development to begin in earnest in the province within five years.

But the task group disbanded in September 1995, the documents show, with no public record of making a single recommendation to guide coal bed methane's future in Alberta.

Seven years later, coal bed methane took off, and at least one task group member has regrets.

"I guess if we would have really been thinking ahead, we should have realized the coals in Alberta are shallow and those are the ones that would be developed first — and that there would then be an effect on shallow groundwater supply," says Harold Keushnig, retired manager of the provincial energy regulator's gas department.

"We, the industry, maybe should have thought about that at an earlier stage."

The science of geology traces the origins of coal bed methane back millions of years, when intense pressure and heat transformed buried plants into coal. Methane gas and water also formed beneath the surface.

Coal absorbed much of the methane, with rocks and water locking it into the coal seams.

Unlike the low-hanging fruit of conventional natural gas, coal bed methane is trickier to get.

But more and more, coal bed methane and other types of unconventional gas are becoming more popular in Alberta as supplies of traditional gas decline. In 20 years, 7,700 CBM wells are expected to balloon to 50,000.

Nearly all the drilling so far has occurred in the Horseshoe and Belly River coal formations.

They cut a mammoth swath geographically, stretching from the Saskatchewan and U.S. borders to Calgary and Edmonton and everywhere in between.

Where the Horseshoe and Belly end, other more challenging CBM regions begin.

The Eastern Slopes, for instance, is caught in a tug-of-war that has pitted landowner and environmental groups against oil and gas companies seeking the energy beneath.

It's the same area Reform party founder Preston Manning is watching carefully.

In a speech in High River last month, the conservative icon said coal bed methane development, unless limited and carefully managed, could have irrevocably negative effects on the landscapes, watersheds, and eco-diversity of the Eastern Slopes.

"If we just make these decisions on kind of an ad-hoc basis, we increase the chances of making the wrong decisions," he added in an interview.

Coal bed methane development in Alberta started slowly.

Back in the 1970s and '80s, only a handful of methane test projects were tried, but none proved commercially successful.

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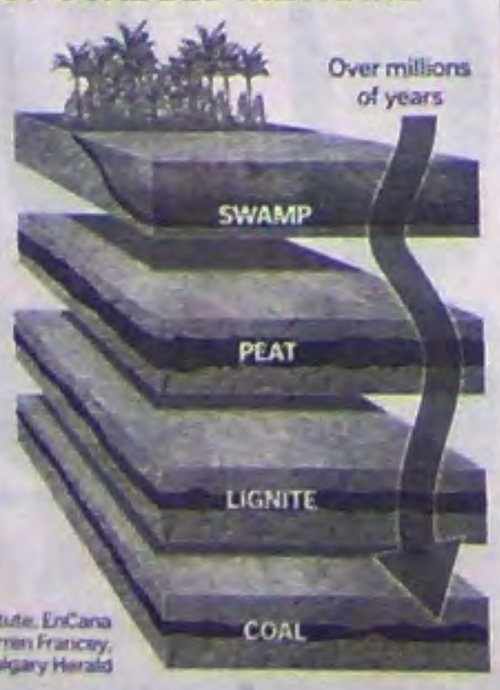
THE ORIGIN OF COAL BED METHANE

Millions of years ago deeply buried plant materials were converted to coal, a byproduct of high pressure and heat. This process also created methane and water. Much of the methane bonded to the coal at a molecular level, held in place by the pressure of overlying rocks and by water.



Source: Pembina Institute, EnCana
Graphic: Darren Francey, Calgary Herald

GETTING METHANE OUT OF THE GROUND

DRILLING: After seismic surveys determine where the coal is located, a hole is drilled into the coal seam and lined with concrete and steel pipe. The well usually produces minimal gas until it has been stimulated, or "fractured."

FRACTURING: To free the methane from the coal, gas (usually nitrogen) is injected at high pressure into the well, causing the coal seam to fracture in one direction.

WATER REMOVAL: If the coal is dry, it's possible to start producing the gas immediately. If there is water present, it must be pumped out. The deep Mannville coals contain saline water, which must be disposed of by injection into deep wells.

Bit used on a natural gas drilling rig.

COMPRESSION: CBM generally flows at a much lower pressure (10 psi) than conventional gas. The gas must be pumped to compressor stations, where it is compressed to 800 psi or more.

Source: Canadian Association of Petroleum Producers, EnCana, Pembina Institute

WHAT LIES **BENEATH**

ALBERTA'S COAL BED METHANE INDUSTRY

A HISTORY OF CBM

1975: Shell Canada and several other companies hire Sproule, a Calgary-based petroleum consulting firm, to assess the coal bed methane (CBM) potential of the Plains coal deposits in Alberta.

1977: Algas Resources Ltd., a subsidiary of NOVA Corporation, begins a five-year pilot program to develop CBM in Canmore. A dozen wells are drilled without commercial success.

1980s: As commercial development of coal bed methane in the United States began taking off, some more CBM tests are conducted in Canada, but still without commercial success.

1991: Alberta government and the province's energy regulator form the Coal Bed Methane Task Group to examine potential problems, monitor the industry and propose regulations.

1992: The Alberta Wilderness Association, who had reservations about the task group from the start, again raises concerns about the potential risks to water and land from CBM. They urge the task group to develop a CBM policy.

Late 1993: At the last official meeting of the task group, the founder of the industry's coal bed methane association tells the group he expects CBM development in Alberta to begin in five years.

October 1994: The energy regulator holds its first public hearing on a coal bed methane proposal by Petro-Canada for the Battle Lake area.

September 1995: The regulator decides to disband the task group because it determines there's not enough interest in developing coal bed methane.

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Photos, Tim Fraser, Calgary Herald

Cattle graze in the early morning fog near a coal bed methane production facility in the Rockyford area.

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However, success in the U.S. flared interest again in Canada in the 1990s. In turn, the Alberta Wilderness Association grew worried companies were eyeing the coal-rich foothills to drill.

Fears about the proliferation of new roads and pipelines, potential damage to water, and gas wells grouped more closely together, prompted the environmental group to call for a public hearing on coal bed methane.

The government and energy regulator declined, contending too little activity had taken place in Alberta to warrant a hearing.

A task group was created instead in 1991. Comprised of representatives from government, industry and the public, the group was directed to monitor coal bed methane activity and "develop and recommend appropriate regulatory policies and practices to be applied in the future."

The group existed for four years, but a request to the Alberta Energy and Utilities Board, the province's energy regulator, for a copy of recommendations, reports or meeting minutes yielded only a 13-page educational pamphlet.

"They did not make any actual recommendations," says Brenda Poole Bellows, an EUB spokeswoman.

A subsequent Freedom of Information request by the Herald uncovered 337 pages of information from the watchdog.

The documents show environmental groups and Alberta Environment officials told the task group about land and water concerns connected with coal bed methane development.

Many of these worries are echoing through rural community halls today.

But in 1995, the regulator decided to disband the task group, citing limited coal bed drilling, existing regulations, and an expectation the development wouldn't increase significantly in the next several years.

"It's an easy leap to make that it shouldn't have been disbanded, but we had, and continue to have, very strong regulation related to shallow gas and coal bed methane," says regulator spokesman Darin Barter.

"And the knowledge gained from that group has been very valuable."

A lack of interest in CBM was cited as a reason for stopping the task group's work, but the founder of Canada's first coal bed methane industry association didn't doubt the resource's potential.

At the task group's last official meeting in November 1993, Ken Sinclair told the members: "With the price of natural gas stabilizing and with the demand increasing this past winter, coal bed methane development in Alberta should happen in certain areas within five years."

His timing wasn't far off.

Having worked on CBM projects in the U.S., Sinclair proposed in the early 1990s setting up a test site in Turner Valley to evaluate technology and techniques. Several companies liked the idea, he recalls, but not the provincial government.

Alberta missed an opportunity to better chart coal bed methane's future, contends Sinclair, now vice-president of business development for Calgary-based Spirit Energy Corp., which is drilling CBM wells in British Columbia.

"We still haven't done an official test site to educate" the public and industry, he says. "It was everybody do their own thing and keep it hush-hush and go forward.

"The industry, as a whole, has to do a better job of educating the stakeholders."

While some in the industry are looking at the past for lessons on CBM, so are some members of the public.

A coal bed methane well interrupts a prairie landscape while chinook winds paint the sky.

Dave Doze sits in the small lodge on the grounds of the 4H Club in Battle Lake where he attended his first hearing on the coal bed methane issue in 1993.

Dave Doze remembers one of the first battles about coal bed methane. One firm wanted to drill five wells, build a compressor station and pipeline near Battle Lake, a secluded recreation spot about an hour's drive northwest of Red Deer.

Several residents objected, prompting Alberta's first public hearing on coal bed methane in October 1994.

Doze worried the project would adversely affect the lake, which relies on rainfall and snowmelt to feed a river. They were also worried about the Paskapoo aquifer, their source of drinking water and the largest groundwater supply in the Prairies.

The energy regulator approved the company's application, but the proposal didn't move forward.

Today, Battle Lake once again faces coal bed methane plans.

This time, Doze is working with representatives from the regulator and industry to establish protections for Battle Lake's escarpment before drilling goes ahead. But the semi-retired cattle rancher can't understand why the government and energy board didn't do more in the '90s to prepare for coal bed methane.

"This is something we've known about for basically 15 years," he says.

"It's pretty obvious from many of the meetings and seminars around the province that we need regulations that are different than conventional gas, because of the shallowness of it, and the possibility of influencing aquifers, because of the density of drilling."

Today, hundreds of coal bed methane executives and experts are gathering at Calgary's Telus Convention Centre for the eighth annual unconventional gas conference.

Last year, the Energy and Utilities Board chairman Neil McCrank told the conference the industry's biggest challenge is perception.

"The industry itself has to very much try to clear up some of the misconceptions that currently exist," he said last November, before many of the water issues were raised in the legislature this spring.

"Coal bed methane is nothing more than natural gas."

About the same time of last year's conference, Fiona Lauridsen was trying to figure out what was wrong with water on her farm near Rosebud, about an hour northeast of Calgary. Tests by an energy company showed its nearby activity hadn't impacted her water.

While the government is investigating her case, it says an estimated 1,000 naturally occurring gassy water wells exist in the province.

"Gassy wells are a common occurrence in Alberta and have been for decades," says Chow of the Canadian Society for Unconventional Gas.

The government and Calgary's oil firms say they're doing a good job in addressing the concerns of rural residents. They note while thousands of wells have been drilled, there's only been a few dozen complaints.

Mike Gatens, a veteran of CBM development and chairman of Quicksilver Resources Canada, says the Alberta government has been more involved than other jurisdictions in governing development of the resource. The province makes the rules and it's been on top of the issue from day one, he adds.

"We've drilled something between 1,000 and 2,000 wells," Gatens says of his company.

"We haven't found one yet where there's been anything negative that's happened because of what we're doing."

In November 2003, Alberta Energy created the province's second coal bed methane task force to evaluate the potential impacts and develop practices, guidelines and, if necessary, regulations to manage growth.

Last May, the government accepted a list of 42 recommendations for dealing with coal bed methane. Most relate to water and the need to understand what's happening beneath the ground.

The province also introduced baseline well water testing near CBM wells. These tests will sample underground water before some drilling takes place, allowing for comparisons after development occurs.

Several studies related to coal bed methane are on the go, as the government and regulator try to better understand everything from groundwater to coal seam fracturing to the cumulative impacts of further oil and gas activity. But worry lingers.

There weren't enough chairs to accommodate everyone who came in March to a community hall in Trochu to hear a talk about coal bed methane advertised in the provocative flyer.

Farmers in plaid shirts listened as Jessica Ernst spoke. The Rosebud-area resident has gained a certain notoriety: she can create a sudden flame and rocket-like roar from a container of her well water.

"Am I a landowner or am I guinea pig?" she said to the crowd of nearly 300.

It's time, she said later, for concerns heard in community halls to resonate in the legislature.

"More and more rural landowners are getting quite upset," she said.

"Industry and the government I think are going to have to back up a little bit and make sure they're doing the right thing."

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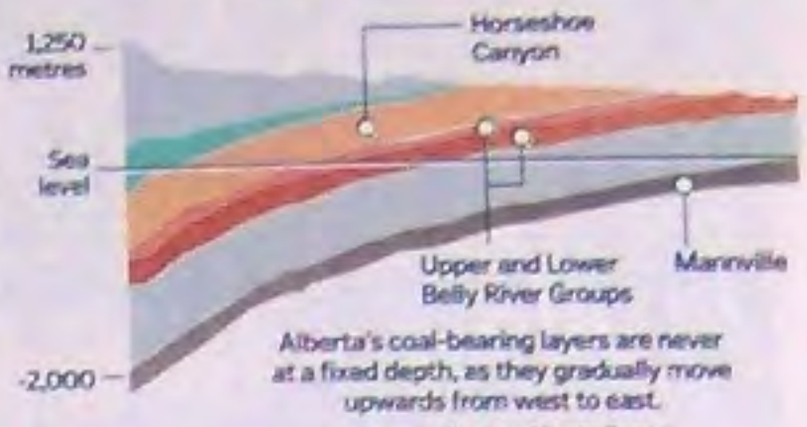
Going underground:

Alberta's coal-bearing formations (not to scale):



Alberta's coal-bearing layers are never at a fixed depth, as they gradually move upwards from west to east.

Source: Alberta Energy

■ The **Horseshoe Canyon** has been a powerhouse for the CBM industry. As of Dec. 31, 2005, there were 7,764 CBM wells in Alberta; the vast majority of these (7,377) are in the shallow, dry coals. Most of this activity is in the Hwy. 2 corridor between Calgary and Edmonton.

■ Development has been rapid because the wells produced little or no water.

■ It's estimated that CBM will generate more than three billion cubic feet of gas a day in Canada — much of this from the Horseshoe Canyon coals — by 2025.

■ Horseshoe Canyon development is expected to contribute $97 billion to $123 billion to Alberta's gross domestic product between 2006 and 2064.

■ The **Mannville formation** with over 260 trillion cubic feet of gas resource, is the single most important CBM resource in Alberta. These coals contain more gas than all of Canada's other coals combined. However, this formation also contains extremely salty water, which must be pumped to the surface to allow gas production.

Source: Alberta Energy, Canadian Energy Research Institute, Energy Utilities Board, Petrobank
Graphic: Darren Francey, Calgary Herald

WHAT LIES **BENEATH**

ALBERTA'S COAL BED METHANE INDUSTRY

A HISTORY OF CBM

Continued from Page A7

2000: A joint venture between two petroleum companies — PanCanadian Petroleum and MGV Energy Inc. — begins a large CBM exploration program in Alberta.

Late 2001: PanCanadian and MGV establish first significant commercial CBM production in the Horseshoe Canyon and Belly River coals.

2002: Thanks to a rise in natural gas prices, coal bed methane begins to take off in the Horseshoe Canyon formation, with the bulk of the drilling between Calgary and Red Deer.

November 2003: Alberta Energy creates the Multi-stakeholder Advisory Committee (MAC) to evaluate potential impacts of CBM and develop practices, guidelines and, if necessary, regulations to manage the growth.

July 2005: MAC releases its preliminary findings. Many of its recommendations focus on groundwater concerns related to coal bed methane.

■ By the end of 2005, Alberta has 7,764 CBM wells, about 96 per cent in the Horseshoe Canyon. However, only 5,419 of those wells are producing.

April 2006: Objections from landowners in the Torrington area prompt the energy regulator to hold the first CBM hearing in a dozen years. EnCana Corp.'s proposed wells are approved in November, but with conditions.

■ **May:** The final MAC report is released. The Alberta government asserts it will act on all of the recommendations except those involving royalty breaks.

Renata D'Aliesio

PRECIOUS LAND

Coal bed methane has brought money and jobs to rural Alberta, but some landowners aren't happy with the disruption and noise

Tim Fraser, Calgary Herald

Glenn Norman climbs up from a new water well he is digging on his property near Bowden. "This isn't conventional oil and gas," says Norman, of the burgeoning coal bed methane industry. " We're resisting every single well."

TONY SESKUS
CALGARY HERALD

There's little in this world capable of troubling the Bunyanesque Norman boys, Glenn and Gary.

The fiftysomething siblings — soldier's sons and former football players — stand 6-foot-5 and tip the scales at over 250 lbs. As farmers, they've survived the worst of the drought years with their cattle living off the lush valley east of Bowden.

And on a summer's day, the two men relish the best part of a busy afternoon, stealing a few minutes from work to chuckle at the antics of their five border collies.

But trouble is never far from mind these days.

Popping up across Alberta's landscape, and around their farm, are thousands of new wells pulling methane natural gas from the ancient layers of coal below.

Glenn can spend an entire afternoon in his area, bumping along in his truck pointing out the coal bed methane wells, trails and compressor stations linked to the development. And while the men have lived with a well and pipelines on their land for years, this is different.

"We have pipelines, we have power lines, but there's no way on earth we want this," says Gary, hand-rolling a cigarette.

"This isn't conventional oil and gas," adds Glenn, who calls a Tim Hortons coffee cup discarded in the ditch industry's calling card.

"We're resisting every single well."

However, it appears to be an uphill battle for the Normans and other rural residents who look at the existing 140,000 oil and gas wells in Alberta and are now drawing a line in the sand over coal bed methane.

Though city dwellers driving through the countryside may not notice, rural landowners are witnessing a wave of development across the prairies, some in areas unaccustomed to it.

A number of them, like the Normans, aren't happy.

For rural residents, land isn't just a commodity, it's often at the heart of who they are — a link to their pioneering past.

Now, with farming as tough as ever, some landowners feel under pressure to let a new industry pursue its profits on their property.

Development of coal bed methane — one of the purest forms of natural gas and a key part of the province's resource future — has brought new jobs, businesses and dollars in rural counties struggling with the difficulties of agriculture.

But it's also meant surges in traffic, noise and industrial activity, studding the landscape with thousands of steely wells and stirring emotions.

Combined with fears over its potential impact on groundwater, some rural landowners who've welcomed energy companies onto their land in exchange for cash are now wary of doing so in the future.

And industry realizes that it's a different ball game, too, with the subject of landowner/industry relations now pushed to the fore.

"In the old days, you went out, you drilled a well and you probably never spoke to the farmer," says John Squarek of the Canadian Association of Petroleum Producers, the industry's main lobby group.

"You can't do that any more and people understand that."

Coal bed methane has been touted as Alberta's next big energy play.

Though now only three per cent of Canada's natural gas production, some estimates say that by 2011 it could account for nearly 10 per cent.

But getting gas out of the coal takes a lot of work and a lot of holes.

Since the fledgling industry began to take off early this decade, more than 7,700 CBM wells have perforated the ground across the province.

It's expected tens of thousands more will be drilled over the next two decades, many in the highly populated and fertile corridor between Calgary and Edmonton. Coal bed methane is coming and landowners with energy under their soil are grappling with its impact.

In some ways, it's good news for the cash-strapped countryside.

The industry has generated jobs, donated to community groups and spawned local businesses. As well, the vast majority of wells drilled so far are "dry," meaning they produce little or no water and have a relatively small footprint. Some even use existing holes to tap the gas.

Once in production, CBM wells only require a fenced area typically nine square metres around. In return, landowners receive "bonuses" and rentals for well sites and access roads.

For every gas well on a farm, industry typically pays $10,000 to $20,000 for the rights to do the drilling, plus annual rentals of $2,000 to $3,500 until production ends and the facilities are dismantled.

An average coal bed methane project requires four to eight wells per section of land.

Yet for some, coal bed methane development can be considered a mixed blessing — or worse.

In Alberta, landowners may own the surface rights, but few hold the mineral rights below their property. As a result, landowners can try to resist energy development on their property by taking the company to a regulatory hearing, but they are rarely ever able to prevent it.

Instead, most choose to try to negotiate the best compensation deal they can with companies.

Some landowners, though, are becoming wary.

In addition to concerns about water, they are grappling with changes to the landscape and their quality of life.

"If I knew five years ago what I know now, things would have been done a lot different," says Lloyd Marshman, who has seven CBM wells on his land in central Alberta. Marshman isn't an anti-business activist, nor a rich acreage owner with an idyllic vision of the countryside.

His family has been working the land in the Rockyford region since 1909.

He's spent three decades managing a cow-calf operation, expanding 10 years ago to include grain. He's quick to note he has good friends working in the energy sector. But the rugged rancher doesn't pull his punches in discussing his experience with coal bed methane development, from larger issues to niggling nuisances.

Simply put, he's fed up.

His list of headaches begins with the proliferation of wells.

While one well might be required per section for conventional gas, CBM could require up to eight per section, producing for up to three decades or longer. Marshman points out with the size of today's machinery, farming around the wells adds to the bills.

"You're overlapping and it's costing a fortune to go around this stuff," he says, noting his wife hit a well with a combine last year.

There's also potentially damaging weeds that get stirred up and tracked from one field to the next by unwitting companies moving muddy vehicles.

With more traffic on the roads due to the increased activity, his family has had three dogs run over.

Then there's the noise. Low-volume gas from the CBM wells means the construction of compressor stations to boost pressure in the pipelines.

The humming stations have been a sore point, despite rules aimed at limiting their noise to no more than 40 decibels at the nearest home, which is about the same as a residential neighbourhood at night.

While that may be fine for city dwellers, it's an intrusion for people accustomed to the quiet of the country, he says.

"We used to be able to sit out on the back deck and hear nothing in the evening or on a Sunday. Now we hear motors all the time," Marshman says.

"Our quality of life has gone for complete crap."

Some of those concerns were raised last winter after CBM opponents launched the Alberta Coalbed Methane Tour, a six-community road show that promised "the real truth about CBM's impact farm lands, water and quality of life!"

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WHAT LIES BENEATH

ALBERTA'S COAL BED METHANE INDUSTRY

7,764
Number of coal bed methane wells in the province as of Dec. 31, 2005

2,500
Number of coal bed methane wells expected to be drilled in 2006

43
Number of complaints the Alberta Energy and Utilities Board has received about coal bed methane since 2001.

55
Number of water well complaints lodged with Alberta Environment related to CBM development since 2000.

45
Number of the water well complaints found by Alberta Environment to have no link to CBM.

50,000
Number of coal bed methane wells expected over the next two decades in Alberta.

$152 million
Forecast of gross coal bed methane royalties to provincial government in 2006-07 before deductions for low productivity, holidays and costs.

Lloyd Marshman stands by a coal bed methane well on his grazing land, south of Rockyford. "If I knew five years ago what I know now, things would have been done a lot different," he says.

Photos: Tim Fraser, Calgary Herald

Glenn Norman pets his border collie Jane for doing a good job directing cattle into a fenced area on his Bowden farm.

Curtis Fraser of Skocdopole Construction fuses pipeline laid down in a field near Carseland.

> **We have pipelines, we have power lines, but there's no way on earth we want this**
>
> GARY NORMAN

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Large crowds came to hear speeches by U.S. activists as well as Jessica Ernst, an Alberta landowner battling CBM near her home. At the event in Trochu, Ernst received a standing ovation from landowners in the audience as she detailed her struggles with coal bed methane development.

Though it's difficult to gauge exactly how widespread such a sentiment is, evidence obtained from the Alberta Energy and Utilities Board through a freedom of information request found a wide range of issues were boiling below the surface.

From 2001 to last summer, the Herald found more than 40 complaints related to surface concerns were lodged with Alberta's energy regulator. They included issues with crop damage, lack of notification prior to activity and noise. All of the complaints have been resolved.

However, EUB e-mails reveal just how agitated some rural residents are, with one making reference to Wiebo Ludwig, who was convicted in 2001 on five charges related to bombings and other forms of vandalism against oil and gas facilities in northern Alberta.

"While conversing with (the complainant) he advised that he would become another Wiebo Ludwig in dealing with the industry and the board," one EUB official wrote to a colleague after speaking with a landowner last May.

In another matter, a worried landowner reported to the EUB that a compressor was going in very close to their family's home without notification.

"(Complainant) was very agitated and hard to calm down to get details," says the e-mail.

EUB spokesman Darin Barter notes that in the vast majority of cases, there are no problems.

"There's over 7,000 CBM wells and we've had the one major hearing," he says.

"I think (it) speaks volumes to, number one, our regulations, and number two, the ability, if both parties are willing to negotiate and discuss this openly, to actually move forward with a mutually beneficial solution. And it's happened over 7,000 times."

Yet, landowner concerns are also manifesting themselves politically.

Ken Sauve was elected as councillor in 2004 in Wheatland County east of Calgary, running on a goal of achieving more control for landowners.

Earlier this year, Sauve had some success on the issue at the spring meeting of the Alberta Association of Municipal Districts & Counties.

He won support for setting up an association task group examining potential changes to the Surface Rights Act, the provincial legislation which governs industry-landowner relations.

While Sauve stresses he's not anti-industry, he suggests there's anxiety that landowners don't have enough control over what's going on.

"We've just got to have a balance," says the Gleichen-area farmer, who has 11 industry wells on his land, a number of which are CBM.

Alberta Energy Minister Greg Melchin sympathizes with the concerns that landowners express, but notes they are being financially compensated.

Alberta's natural gas wells

There are 140,000 gas wells across Alberta. Shaded areas indicate conventional natural gas wells; darker areas indicate CBM wells.

Source: Alberta Energy
Graphic: Darren Francey, Calgary Herald

"The farmers or ranchers are required to be compensated for loss of revenue so if there's a loss of a commodity, then they are compensated for that — you would have to ensure that," he says.

"So, yes, you do ensure there is a balance, if you need an alternative use of the land temporarily. These (wells) aren't forever."

Sauve sees it differently.

"I'm not going to say I don't like the money (from the wells) because I'd be lying. It's helped us to be where we're at in the farm," he explains.

"But the compensation is certainly not enough. It's a pittance. The lowest paid guy on the pipeline crew, in 12 days he makes as much as I get in annual rent off a (small) lease."

Still, the regulator and industry point to the number of CBM complaints and see success. In a recent statement, the EUB pointed out that while it's received roughly 5,000 total complaints related to the entire upstream oil and gas industry since 2001, it's had only 43 complaints about CBM.

Kin Chow, chairman of the Canadian Society for Unconventional Gas, which represents many coal bed methane companies, says the vast majority of people are comfortable with CBM. He believes 80 to 90 per cent of people have no problem at all when a company comes knocking.

"I think once you educate most folks, they're OK because it's a minimal impact," he says.

But the petroleum sector — not wanting to spark broader countryside conflict — is trying to get a handle on landowner worries.

In a bid to help it get a better grasp of farmers' issues, the industry group is launching a course aimed at educating energy companies about agricultural operations. The goal is to minimize CBM's impact on farmers and build better relationships.

This spring, the Canadian Association of Petroleum Producers created a "best management practices" manual for coal bed methane development.

In part, it encourages companies to involve the public in all stages of development and provides guidance on how to minimize environmental effects.

And the EUB is running two pilot projects that will look at ways to address the cumulative impacts of all petroleum development in a region.

Companies operating in an area are being asked to identify public objections early on and to co-ordinate development with other energy businesses — sharing access roads as one example.

Squarek, manager of Alberta operations for the Canadian Association of Petroleum Producers, says companies and landowners have to view the arrangement as a partnership. If you're going to be in the CBM business, you have to recognize landowners' concerns and work with them, he adds.

"And if you can't do that or if you're not willing to do that, then you should be in some other business," Squarek says.

Glenn and Gary Norman, meanwhile, just hope to remain in their line of work, continuing to farm the land their father purchased after the Second World War.

But Glenn says every time the price of natural gas goes up, he shudders because it could mean more CBM wells springing up in the countryside.

When Glenn is asked what he'll do if the spread of coal bed methane brings wells and compressors to his property, he points to a New Zealand ball cap.

"I won't stay here to see it," Glenn says. "That's a pretty big choice, but tell me: With all this happening, with the way we feel about our land, how can you stay?"

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Tomorrow: View from the industry