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EUB Releases Reserves Report: Crude Bitumen Production Exceeds Conventional Oil by 50%

On June 3, the Alberta Energy and Utilities Board (EUB) released its annual report *Alberta's Reserves 2003 and Supply/Demand Outlook 2004-2013*. This report is considered by many sources to be one of the most reliable sources of information on the state of reserves and the supply and demand for Alberta's diverse energy resources-crude bitumen, crude oil, natural gas, natural gas liquids, coal, and sulphur. It includes estimates of reserves and production volumes for 2003 and a 10-year supply/demand forecast for each resource.

- conventional oil.
- In 2003, the number of successful wells drilled increased by 42 per cent (2360 in 2003, up from 1661 in 2002).
- The EUB estimates that about 2300 successful oil wells will be drilled in 2004 and the number will stay at about 2200 wells per year over the remainder of the forecast period.

Total Oil Supply and Demand

- In 2003, Alberta produced 595 million barrels (94.6 million m³) of conventional oil, crude bitumen, and pentanes plus. This is 6 per cent higher than in 2002.
- By 2013, EUB forecasts production of 2.6 million barrels (413 000 m³) per day. The ability to increase bitumen production have offset the continuing decline in conventional crude oil.

Natural Gas Reserves and Production

- In 2003, remaining established reserves (measured downstream of field plants) stood at 40 trillion cubic feet (1122 billion m³).
- While natural gas reserves estimates do not include coalbed methane (also known as natural gas in coal), an initial conservative estimate of Alberta's coalbed methane reserves of 35 billion cubic feet (1.0 billion m³) is published for the first time.
- High gas prices led to a 46 per cent increase in successful gas wells drilled in 2003.
- Alberta produced 4.8 trillion cubic feet (135 billion m³) of marketable natural gas in 2003, a decline of 2 per cent despite record drilling.
- The EUB projects that 11000 new successful gas wells will be connected in 2004 and expects this high level of drilling activity to continue over the forecast period.

Crude Bitumen Reserves and Production

- Alberta's remaining established reserves of crude bitumen are estimated at 174.5 billion barrels (27.7 billion m³).
- In 2003, crude bitumen production reached 350 million barrels (55.7 million m³), exceeding conventional oil production by 50 per cent:
 - crude bitumen, 964 000 barrels (153 000 m³) per day
 - conventional oil, 629 300 barrels (100 000 m³) per day
- Upgraded bitumen yielded 196 million barrels (31.3 million m³) of synthetic crude oil.
- The EUB estimates that by 2013 bitumen production could triple.

Conventional Oil Reserves and Production

- Alberta's remaining established reserves of conventional oil are estimated at 1.6 billion barrels (260 million m³).
- In 2003, 194 million barrels (30.8 million m³) of conventional oil were added to initial reserves. The EUB estimates the remaining ultimate potential of conventional oil at 4.7 billion barrels (750 million m³).
- In 2003, Alberta produced 230 million barrels (36.5 million m³) of

The Petroleum Registry of Alberta Takes the Gold

The Petroleum Registry of Alberta has been awarded a GOLD AWARD for the 2004 Premier's Award of Excellence. Since 1995, the Premier has presented awards annually to teams to promote and recognize superior client service and business practices in the Alberta public service.

This award recognizes all the hard work staff of the Department of Energy, Energy and Utilities Board and industry undertook to ensure the Registry is successful.

In his letter informing the Registry team of the award, the Premier had the following comment: "I commend you for demonstrating exceptional commitment to superior client service and business practices, as well as creating a supportive work environment for your team".

About the EUB

Our mission is to ensure that the discovery, development, and delivery of Alberta's energy resources and utilities services take place in a manner that is fair, responsible, and in the public interest. We regulate oil, natural gas, oil sands, coal, hydro and electric energy, pipelines, and transmission line development.

On the utilities side, we regulate investor-owned natural gas, electric, and water utilities to ensure that customers receive safe and reliable service at just and reasonable rates. Regulation is done through two core functions: adjudication and regulation, information and knowledge.

(continued on page 2)

For Your Information...**Recent EUB publications****General Bulletins**

June 16: Bulletin 2004-17: 2004 Administration Fees, General Assessment, and Funding of Broad Industry Initiatives

May 28: Bulletin 2004-16: Changes to Enhanced Oil Recovery Application Requirements and Review Process

May 21: Bulletin 2004-15: New Well Test Capture (WTC) System Implementation Data Reminder Changes to Final WTC Pressure ASCII Standard (PAS) Formats and Version 4.0 PAS File Business Rules Implications

May 17: Bulletin 2004-08: Sour Gas Development Planning and Proliferation Assessment

News Releases

June 15: NR2004-22: EUB approves 2004 rate riders for ATCO's gas distribution system

June 8: NR 2004-21: EUB Decision Protects Bitumen for Future Generations of Albertans

June 3: NR 2004-20: EUB releases reserves report: Crude bitumen production exceeds conventional oil by 50%

May 28: NR2004-19: EUB verifies June natural gas cost rates

May 14: NR2004-17: EUB approves final 2004 regulated rate tariff for EPCOR's Edmonton customers

Other Publications

June 7: Media Advisory: EUB News Conference on Bitumen Conservation Hearing

June 3: ST-3: Alberta Energy Resource Industries Monthly Statistics (for April 2004)

June 1: Tariff Billing Code Standards: Project Information Web page

June 1: Presentation to CIM (May 31, 2004) "Well Test Capture (WTC) System Update"

June 1: Directive 006: Licensee Liability Rating (LLR) Program and Licence Transfer Process

June 1: Directive 011: Licensee Liability Rating (LLR) Program Updated Industry Parameters and Liability Costs

May 27: EnerFAQs 11: Natural Gas Utilities; EnerFAQs 12: Utility Concerns: How to Make a Complaint to the EUB; EnerFAQs 7: Electricity and the EUB (revised edition)

May 18: ST 2004-60B: Upstream Petroleum Industry Flaring and Venting Report Industry Performance for Year Ending December 31, 2003

Recent Decisions

June 23: Decision 2004-048: Alberta Electric System Operator Needs Identification Document Application Edmonton-Calgary 500 kV Electric Transmission Facilities - Prehearing Meeting

June 15: Decision 2004-047: ATCO Gas 2003/2004 General Rate Application Second Compliance Filing

June 8: Decision 2004-045: Phase 3 Proceedings Under Bitumen Conservation Requirements and Applications for Approval to Produce Gas in the Athabasca Wabiskaw-McMurray Area

June 2: Decision 2004-046: AltaLink Management Ltd. and TransAlta Utilities Corporation - 2004-2005 Interim Transmission Tariff

May 21: Decision 2004-043: TransAlta Utilities Corporation Decommissioning Costs of Wabamun Units 1, 2 & 3 Ruling on Balancing Pool Motion

May 20: Decision 2004-044: Alberta Electric System Operator Needs Identification Document Application Southwest Alberta 240-kV Transmission Facilities Pincher Creek - Lethbridge Area

May 14: Decision 2004-040: EPCOR Energy Services Inc. 2004 Regulated Rate Tariff - Part B: Final Tariff

May 14: Decision 2004-041: EPCOR Energy Services (Alberta) Inc. 2004 Regulated Rate Tariff - Part B: Final Tariff

May 14: Decision 2004-042: ENMAX Energy Corporation 2004 Regulated Rate Tariff - Part B: Energy Price Setting Plan - Negotiated Settlement

EUB Releases Reserves Report: Crude Bitumen Production Exceeds Conventional oil by 50% *(continued from page 1)***Natural Gas Supply and Demand**

- The EUB expects gas production to stay flat in 2004 but decline an average of 2-3 per cent each year over the remainder of the forecast period.
- New pools are smaller and are showing lower initial production rates and steeper decline rates.
- As Alberta's natural gas requirements increase and production declines over time, the volumes available for potential removal from the province will decline.
- The EUB's mandate requires that the natural gas requirements for Alberta's core market (residential, commercial, and institutional gas consumers) be met in the long term before any new gas removal permits are approved.

Ethane

- Remaining established reserves of extractable ethane is estimated at over 780 million barrels (124 million m³).
- Production of specification ethane in 2003, remained flat compared to 2002 at about 86.0 million barrels (13.7 million m³).
- The ethane supply is expected to meet demand over the forecast period.

Coal Reserves and Production

- The current estimate for remaining established reserves for all types of coal is about 37 billion tons (34 billion tonnes). This is a massive resource and helps to meet the energy needs of Albertans. Coal supplies fuel for about 66 per cent of electricity generation in Alberta.
- Alberta's total 2003 marketable coal production was 29 million tons (27.7 million tonnes), slightly lower than in 2002. Coal production is expected to increase over the forecast period to meet demand for additional electrical generation and metallurgy.

Reserves Definitions

Initial in-place: The volume of oil and gas calculated or interpreted to exist in a reservoir before any volume has been produced.

Established reserves: Reserves recoverable under current technology and present and anticipated economic conditions specifically

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EUB Releases Reserves Report: Crude Bitumen Production Exceeds Conventional by 50% *(continued from page 2)*

proven by drilling, testing, or production, plus the portion of reserves interpreted to exist from geological, geophysical, or similar information with reasonable certainty.

Initial established reserves: Established reserves prior to the deduction of all production.

Cumulative production: The sum of production volumes from all prior years.

Remaining established reserves: Initial established reserves minus cumulative production.

Ultimate potential: An estimate of initial established reserves that will have been developed in an area by the time all exploratory and development activity has ceased, having regard for the geological prospects of the area and anticipated technology and economic conditions. ❖

Reserves and Production Summary 2003								
	Crude Bitumen		Crude Oil		Natural Gas		Coal	
	million cubic metres	billion barrels	million cubic metres	billion barrels	billion cubic metres	trillion cubic feet	billion tonnes	billion tonnes
Initial in-place	258 900	1 629	9 878	62	7 504	266	94	103
Initial established	28 392	179	2 634	16.6	4 401	156	35	38
Cumulative production	667	4.2	2 380	15	3 279	116	1.21	1.3
Remaining established	27 726	175	254	1.6	1 122	40	34	37
Annual production	56	0.352	37	0.23	135	4.8	0.029	0.032
Ultimate potential (recoverable)	50 000	315	3 130	19.7	5 600	200	620	683

Sale of ATCO Retail Business to Direct Energy

The sale of the ATCO Group Retail Business to Direct Energy officially closed on May 4, 2004. Customers who have been served by either ATCO Gas or ATCO Electric will now receive their bills from Direct Energy. ATCO Gas will continue to provide the gas delivery function and ATCO Electric will continue to be the wire service provider, but the billing for these functions, as well as the retail function, will now be done by Direct Energy. Initially the bills will include the logos of both ATCO and Direct Energy.

Customers from ATCO Electric and ATCO Gas are being transferred to Direct Energy by billing cycles throughout the month of June. Therefore a bill received in May would have included all of the charges approved for ATCO Gas or Electric and bills received in June will reflect the new approved charges for Direct Energy and ATCO Gas and/or ATCO Electric.

Direct Energy is now responsible for the provision of electricity through the Regulated Rate Tariff (RRT) and the provision of natural gas through the Default Rate Tariff (DRT) in the ATCO Electric and ATCO Gas service territories respectively. Both the RRT and the DRT will continue to be approved by the EUB.

In late 2003 the EUB issued a series of decisions that dealt with the sale of the retail business and with changes to rates for Direct Energy, ATCO Electric, and ATCO Gas to accommodate the sale. Customers will see moderate changes to their bills as a result of the sale. For example, it is estimated that an average residential customer served by ATCO Gas in southern Alberta will see an increase of \$3.40 per month on their bills. This is 32 per cent less than the increase that was requested by Direct

Energy. An average ATCO Electric customer is expected to have an increase of \$3.81 per month on their bills. This is 21 per cent less than the increase that was requested by Direct Energy.

Customers' rates may increase or decrease from time to time for reasons that are not related to the sale. For example, the cost of gas for the month of June increased substantially due to a combination of increasing natural gas prices and a billed rate in May that was less than the actual cost of acquiring the May natural gas supply. These changes to the cost of gas would have occurred whether the service was still provided by ATCO Gas or by Direct Energy.

Customers can be assured that the EUB will continue to regulate the delivery rates charged by ATCO Gas and ATCO Electric as well as reviewing the rates for providing the DRT and RRT services supplied by Direct Energy. If you have any problems respecting the regulated rates or activities provided by ATCO or Direct Energy, you may contact the EUB's complaints staff at (780) 427-4903 or by e-mail at <utilities.concerns@gov.ab.ca>. ❖

This list is subject to change at any time, so please check the complete list of upcoming public hearings on the EUB Web site at <www.eub.gov.ab.ca/bbs/applications/hearings/hearings.pdf>. If you do not have Internet access, contact EUB Information Services at (403) 297-8190.

Upcoming public hearings

Application No.	Applicant	Hearing Purpose
1340139	Bow Valley Energy Ltd.	Compulsory pooling application - Cardiff Field
Start date: July 15, at Govier Hall, Energy and Utilities Board Building, 640 - 5 Avenue SW, Calgary		
1341461	Addison Energy Inc.	Compulsory pooling application - Caroline Field
Start date: July 16, at Govier Hall, Energy and Utilities Board Building, 640 - 5 Avenue SW, Calgary		
1340805	Bears paw Petroleum Ltd.	Compulsory pooling application - Crossfield Field
Start date: July 19, at Govier Hall, Energy and Utilities Board Building, 640 - 5 Avenue SW, Calgary		
1336421	AltaLink Management Ltd. and TransAlta Utilities Corporation	Transmission Tariff for May 1, 2004 to December 31, 2007
Start date: September 21, at Govier Hall, Energy and Utilities Board Building, 640 - 5 Avenue SW, Calgary		

Pending decisions

Application No.	Applicant	Hearing Purpose
1310259	ATCO Group (ATCO Electric, ATCO Gas, ATCO Pipelines)	Review of executive compensation allocated to the ATCO Utilities
1271597	AltaGas Utilities Inc. AltaLink Management Ltd. Aquila Networks Canada (Alberta) Ltd. The ATCO Group of Companies ENMAX Power Corporation The EPCOR Group of Companies NOVA Gas Transmission Ltd.	Generic cost of capital
1317784	ATCO Electric	Application for exemptions from ATCO Group inter-affiliate Code of Conduct (The ATCO Group)
1318476	ATCO Pipelines - Division of ATCO Gas and Pipelines Ltd.	Applications for exemptions from ATCO Group inter-affiliate Code of Conduct (The ATCO Group)
1275505	City of Airdrie	Application for determination of terms and price of potential purchase of the Electric Distribution System within the municipality from Aquila Networks Canada (Alberta) Ltd.
1315423	Nova Gas Transmission Ltd	2004 General Rate Application Phase I
1306821	EPCOR Distribution Inc.	2004 Distribution tariff
1306819	ENMAX Power Corporation	2004 Distribution tariff
1306818	ENMAX Power Corporation	2004 Regulated Rate Tariff (Non Energy)
1315997	ATCO Pipelines	2004 General Rate Application Phase II

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For Alberta Geological Survey (AGS) documents on geological research

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Questions, complaints, problems?

Utilities: For information or to file a consumer utility complaint, contact us at:
EUB Utilities Branch, 10th floor, 10055-106 Street,
Edmonton, Alberta T5J 2Y2
Fax: (780) 427-6970
Complaints: (780) 427-4903*
E-mail: <utilities.concerns@eub.gov.ab.ca>

Oil and gas: For information or complaints about new or existing oil and gas developments and facilities, we recommend contacting the operating company first. If the company does not respond appropriately, you may contact the nearest EUB Field Centre.

EUB Field Centres (24-hour service)

Bonnyville	(780) 826-5352*
Drayton Valley	(780) 542-5182*
Grande Prairie	(780) 538-5138*
Medicine Hat	(403) 527-3385*
Midnapore	(403) 297-8303*
Red Deer	(403) 340-5454*
St. Albert	(780) 460-3800*
Wainwright	(780) 842-7570*

*To call toll free from anywhere in Alberta, dial 310-0000 and enter the phone number, including area code, or press zero for a RITE operator.

Across the Board Advisory Committee

Diane Earle, Greg Gilbertson, Barbara Kapel Holden, Becky Torrance, Brenda Poole Bellows

Editor: Darin Barter

EUB Decision Protects Bitumen for Future Generations of Albertans

Energy Content of Conserved Bitumen about 500 Times Larger Than Energy Content of Shut-in Gas

On June 8, the EUB held a news conference to announce Decision 2004-045, Order 2004-01, and Order 2004-02, which address the risk that natural gas production poses to the ultimate recovery of bitumen from the geological strata known as the Wabiskaw-McMurray in the Athabasca Oil Sands Area.

“These steps protect the bitumen for future generations of Albertans and reflect the EUB’s mandate of conserving Alberta’s energy resources,” said EUB Chairman Neil McCrank.

The EUB believes there is an immediate and continued risk to bitumen recovery from the production of some natural gas in the Wabiskaw-McMurray. The Wabiskaw-McMurray contains gas that is in contact with some of the highest quality bitumen resources in the province. As this gas is extracted, there is a drop in pressure within the gas pools. The EUB has found that gas production in these circumstances poses an unacceptable risk to bitumen recovery using thermal techniques, such as steam-assisted gravity drainage (SAGD).

The decision and orders result in

- the shut-in of Wabiskaw-McMurray natural gas totalling about 280 billion cubic feet (about 0.7 per cent) of Alberta’s remaining natural gas reserves, or about 45 billion cubic feet (about 0.9 per cent) of Alberta’s annual natural gas production; and
- the conservation of about 25.5 billion barrels of potentially recoverable Wabiskaw-McMurray bitumen that is in contact with the shut-in gas. The bitumen conserved is about 14.6 per cent of Alberta’s remaining bitumen reserves.

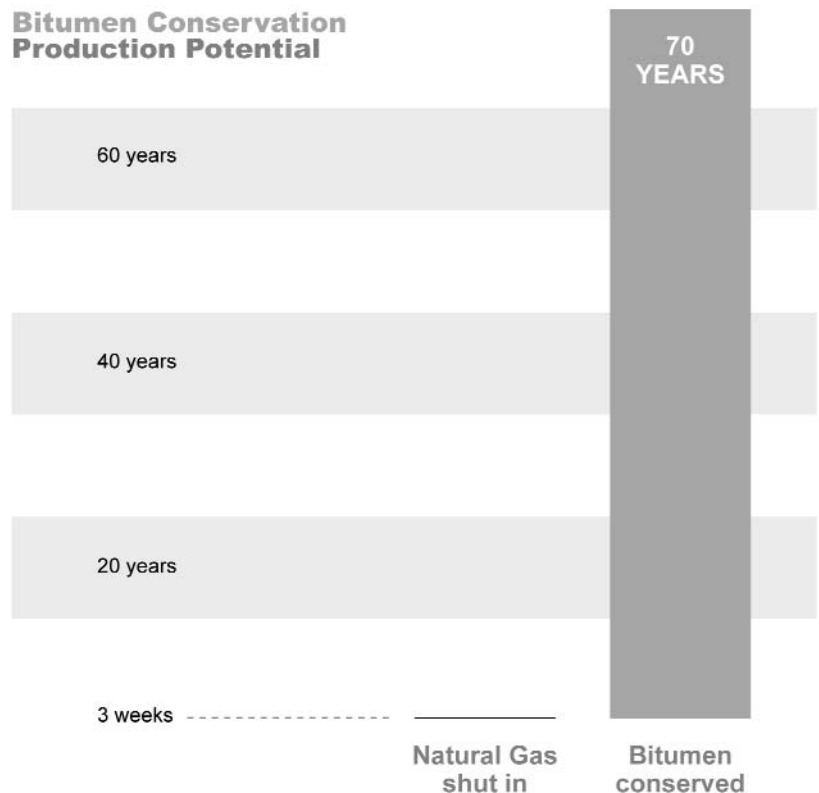
The energy content of the bitumen reserves at risk and conserved through the decision and orders is about 500 times larger than the energy content of the shut-in natural gas production.

Decision 2004-045 and Order 04-001 result from a public hearing held in Calgary from March 10 to April 1, 2004. The focus of the hearing was Wabiskaw-McMurray gas production that an EUB Staff Submission Group recommended either be shut-in or allowed to produce. Gas and bitumen producers that disagreed with specific Staff Submission Group recommendations presented their cases during the hearing.

Order 04-002 rules on other Wabiskaw-McMurray gas production that was also subject of recommendations from the EUB Staff Submission Group. These specific recommendations were not challenged during the hearing and are not addressed in Decision 2004-045.

On July 22, 2003, the EUB issued Bitumen Conservation Guidelines that ordered the interim shut-in of Wabiskaw-McMurray gas totalling about 2 per cent of Alberta’s remaining gas reserves and about 2 per cent of Alberta’s total annual gas production. The EUB then moved forward with a phased process to more accurately identify gas that is in contact with bitumen in the Wabiskaw-McMurray. The release of Decision 2004-045 and Orders 04-001 and 04-002 are the latest steps in that process.

Bitumen Conservation Production Potential



Based on the 4.8 trillion cubic feet of natural gas produced in Alberta during 2003, the shut-in of 280 billion cubic feet of gas represents about 3 weeks of production. 25.5 billion barrels of bitumen conserved represents about 70 years of production based upon the 352 million barrels of bitumen produced in Alberta during 2003.

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Frequently Asked Questions: Bitumen Conservation

What are the oil sands?

- Alberta's oil sands are a mixture of sand, clay, water, and bitumen.

What is bitumen?

- Bitumen is thick, heavy oil with the consistency of asphalt and is contained within the spaces between sand grains in the oil sands.

How does the 25.5 billion barrels of bitumen conserved through the decision and order compare with Alberta's bitumen production in 2003?

- Based upon the 352 million barrels of bitumen produced in Alberta in 2003, the 25.5 billion barrels of bitumen conserved represents over 70 years of bitumen production in Alberta.

How does the 280 billion cubic feet of natural gas shut-in through the decision and order compare with Alberta's gas production in 2003?

- Based upon the 4.8 trillion cubic feet of natural gas produced in Alberta in 2003, the 280 billion cubic feet of shut-in gas represents about 3 weeks of gas production in Alberta.

The EUB states that about 25.5 billion barrels of bitumen are at risk and conserved through the decision and orders. In July 2003, the EUB stated that about 100 billion barrels of bitumen were at risk due to Wabiskaw-McMurray gas production. Why is that number lower?

- 25.5 billion barrels of bitumen are shut-in because - in July 2003, the EUB ordered an interim shut-in of all the gas in the Wabiskaw-McMurray strata, subject to the completion of the Regional Geological Study, which provided the EUB with the detail it needed to more accurately identify the specific Wabiskaw-McMurray gas that is in contact with bitumen, therefore posing a threat to bitumen recovery.
- the 2004 decision and orders only shut-in gas that is in contact with bitumen. Other Wabiskaw-McMurray gas that is not in contact with bitumen is allowed to produce. Therefore, the amount of bitumen at risk has been reduced from 100 billion barrels to 25.5 billion barrels.

How many wells are dealt with in the decision and orders?

- 1806 wells are dealt with by Decision 2004-045, Order 04-001, and Order 04-002.

How many wells are allowed to produce Wabiskaw-McMurray gas due to the decision and orders?

- The decision and orders allow full Wabiskaw-McMurray gas production from 552 wells.
- The decision and orders allow partial Wabiskaw-McMurray gas production from an additional 233 wells.

How many wells have gas that is in contact with bitumen and will be shut-in because of the EUB decision and orders?

- The decision and orders have ruled that 1021 wells may pose a risk to bitumen recovery and are not allowed to produce any Wabiskaw-McMurray gas:
 - 186 of these wells are abandoned,
 - 505 of these wells may be capable of producing gas from other non-Wabiskaw McMurray gas zones, and
 - 330 of these wells do not have the ability to produce gas from any other zone.

How many wells are currently shut-in?

- There are currently 280 wells shut-in in the Wabiskaw-McMurray. The shut-in gas amounts to 80 million cubic feet of gas production per day, or 34.4 per cent of the area's daily gas production. There are currently 658 wells in the Wabiskaw-McMurray that have temporary exemptions that allow gas production. ❖

Bitumen Conservation Alberta Energy Reserves

