



Freedom To Create. Spirit To Achieve.

ENERGYECONOMICS

UNDERSTANDING ROYALTIES

Forward

Royalties

What are they?

How are they calculated?

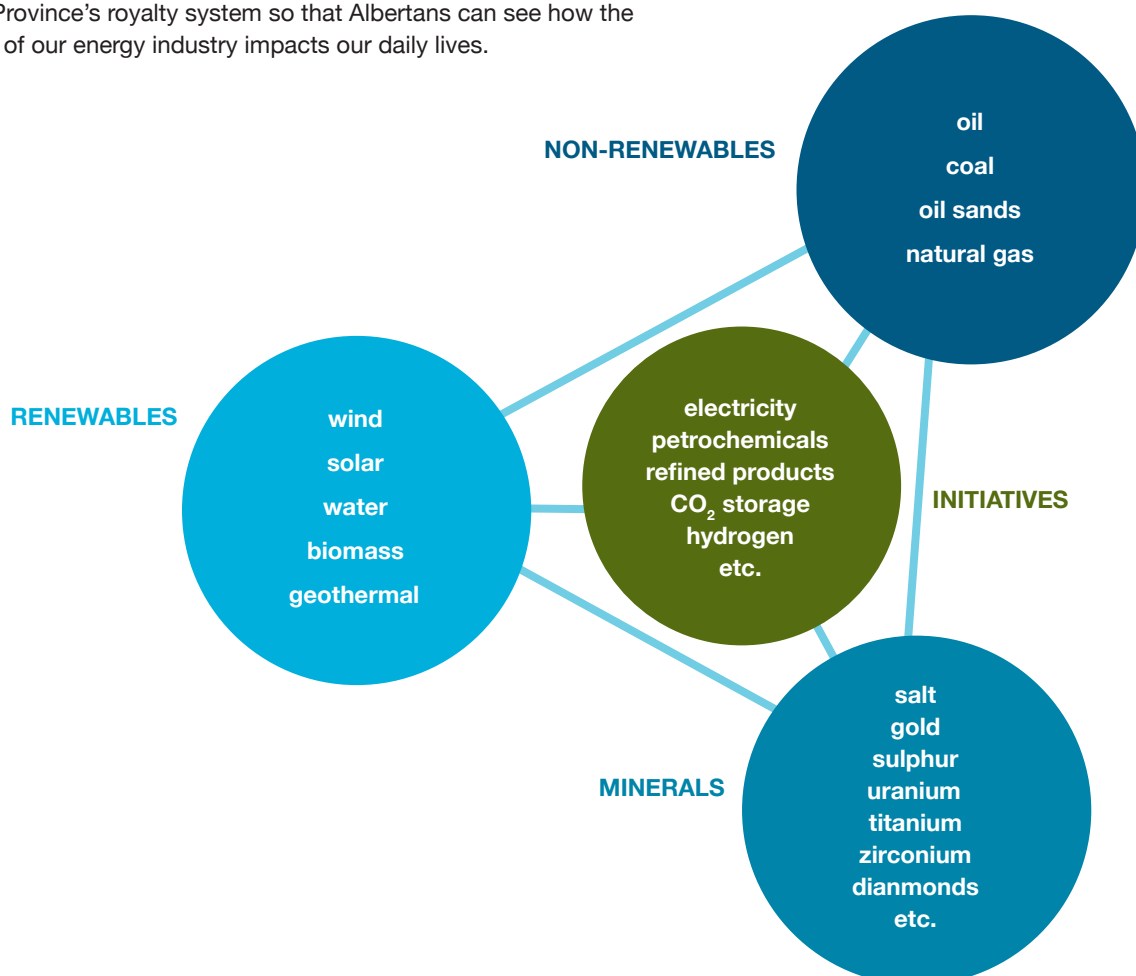
How are they collected?

What are they used for?

Royalties are an important part of the Alberta government's revenue stream and help in funding important programs like health, education and infrastructure. They ensure that Albertans receive a portion of the benefits arising from the development of the Province's energy resources. A well-designed royalty system endeavours to strike the right balance between returning a share of the profits to the resource owner, while encouraging the development of the resource which creates jobs and economic growth.

A jurisdiction's royalty system can have a direct consequence on the pace of development, including the rate at which resources are developed, jobs created and the level of investment. Alberta's royalty system, however, is only one of many factors that affect development. Such things as commodity prices, the political climate, currency exchange rates and labour costs also play a role.

Energyeconomics: Understanding Royalties is intended to provide easy-to-understand information about the Province's royalty system so that Albertans can see how the history and economics of our energy industry impacts our daily lives.





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The background image shows a silhouette of an oil pumpjack against a sunset sky. The foreground is filled with a field of purple wildflowers. The text is overlaid on a dark blue rectangular area on the right side of the image.

Introduction

With a diverse energy resource portfolio and mature energy sector, Alberta is a global energy leader.

Alberta produces about five trillion cubic feet (Tcf) of natural gas, 250 million barrels of conventional oil, 500 million barrels of bitumen (a semi-solid form of crude oil) and more than 30 million tonnes of coal each year.

We have an extensive pipeline infrastructure and a growing petrochemicals sector, which is the largest in Canada. The Province has also shown significant leadership in renewable energy development, including hydro, wind and biomass. Electrical generation capacity is more than 12,500 megawatts, with demand growing at twice the rate of the rest of Canada.

Energy development in Alberta is the key driver of the economy. It directly and indirectly is the single largest contributor to provincial Gross Domestic Product, income, employment and government revenues.

A key element of understanding Alberta's energy sector, and how the government works to have these resources developed in a successful and responsible manner, is to appreciate conventional and unconventional energy resources and the economic activity created by transforming these resources into energy products.

Western Canada Sedimentary Basin



Our changing energy resources

The Western Canada Sedimentary Basin (WCSB) is a massive wedge of rock underlying north-eastern British Columbia, western North West Territories, most of Alberta, southern Saskatchewan and southwestern Manitoba. These geological formations have endowed Alberta with tremendous hydrocarbon resources.

Created over hundreds of millions of years, the basin rock is about six kilometres thick at its western extent, thinning gradually to the east. The Basin is called “sedimentary” because it contains layers of minerals or rock grains that come from the breakdown of the earth’s surface rocks through interaction with surrounding water, air, organisms, and plants. About 60 to 100 million years ago it was the sea bottom of the Western Interior Seaway.

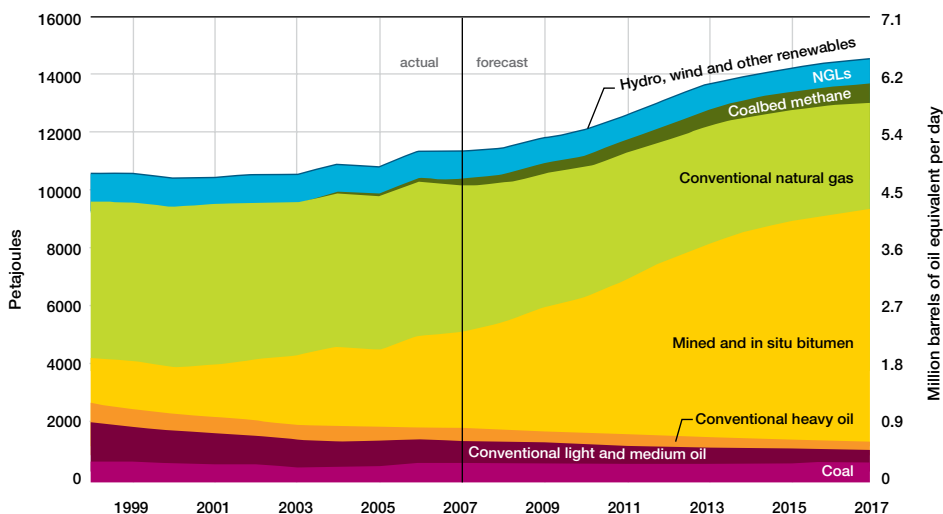
Over time, the layers of the WCSB gradually hardened with the pressure of overlying rock, trapping decayed organic materials like plants and plankton that eventually became “fossil fuels”: coal, oil, bitumen and gas. These carbon resources are used to heat our homes, provide electricity, fuel our cars and aid in the creation of a multitude of everyday products like plastics, dishwashing liquids and heart valves. Of the jurisdictions that sit over top of the WCSB today, Alberta is in a unique area as it presides over most of the basin’s oil, gas and coal reserves and almost all of its bitumen.

Extracting the Resource

The powerful image of a drilling rig on the prairie is a critical part of Alberta’s past, present and future. Developing the province’s conventional oil resources has been an important facet of Alberta life since 1914, when the province’s first major oil field was discovered at Turner Valley.

After nearly a century of resource development, production of conventional oil and conventional gas is declining in the WCSB. Conventional oil production peaked in Alberta in the 1970s and conventional gas production peaked in 2001. However, Alberta is still the world’s second largest exporter of natural gas. It is also the fourth largest producer of natural gas; and, Alberta leads the country in conventional oil reserves, with 39 per cent of the total reserves.

Total energy production in Alberta



Currently, only about 27 per cent of light oil and 15 per cent of heavy oil is being recovered in Alberta. With advancements in technology and techniques there are opportunities to access the majority of these hard to reach conventional resources.

To continue the production of conventional light oil, industry is searching for remaining undiscovered pools and redeveloping existing pools using enhanced oil recovery (EOR) techniques such as water floods and carbon dioxide injection, which increase reservoir pressure permitting greater extraction.

The resources of the WCSB have impressive diversity. Technology,

commodity prices and escalating global demand are combining to extend fossil fuels by also allowing us to tap into unconventional resources.

Growth in the production of oil and gas in Alberta will come from the change from conventional resources to an increasing reliance on unconventional oil and gas production. Unconventional natural gas offers the potential to extend production of this valuable resource, the cleanest burning fossil fuel, well into the future.

There is huge potential for tight and shale gas in Alberta, as well as natural gas from coal, known as coalbed methane. There are 500 trillion cubic feet of natural gas estimated in coal bed methane and in 2008, over 11,000 coalbed methane wells reported natural gas production. Unconventional gas may be recoverable in quantities that are a many times greater than our original conventional gas reserves.

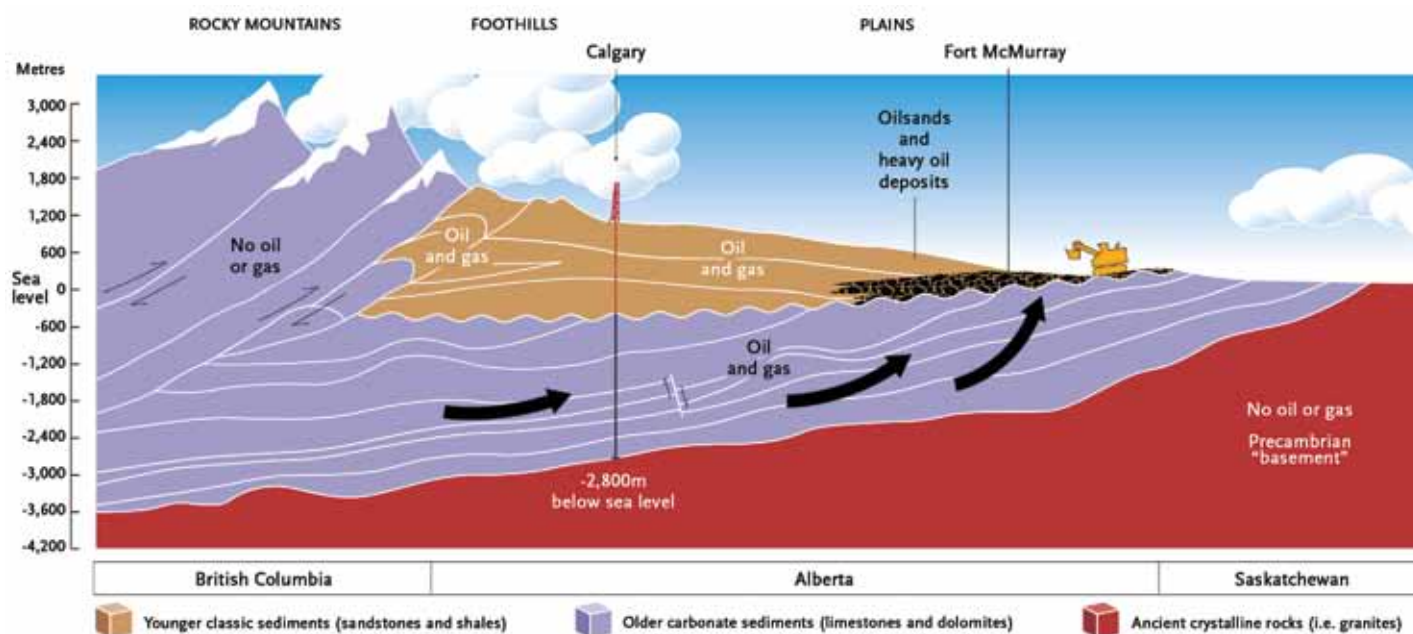
If we include bitumen found in our oil sands to our reserves of conventional crude, Alberta's borders contain more than 98 per cent of total Canadian oil reserves – about 13 per cent of proven global reserves.

Oil Sands

The reserves of the province's major oil sands areas – Athabasca, Cold Lake and Peace River – dwarf those of the conventional oil fields. The oil sands contain approximately 170 billion barrels of economically recoverable crude bitumen - a volume that ranks Canada in second place behind Saudi Arabia in proven global reserves.

Oil sands which underlie 140,200 square kilometres of northern Alberta, are much less expensive to locate than conventional oil, but are much more expensive to produce. Commercial production of the oil sands was originally achieved by surface-mining; however, thanks to advancements in research and technology, we now recover deeper bitumen by heating the oil sands and drawing bitumen up wells to the surface – a process called in situ recovery.

Western Canada Sedimentary Basin Cross-section



Source: Canadian Centre for Energy Information

Understanding Alberta's Royalty Regime

With these world-class energy reserves, Alberta needs an effective system to allow and encourage producers to develop them while providing a return to Albertans.

A royalty is the price charged by the energy resource owner for the right to develop those resources. In Alberta, 81 per cent of the mineral rights are owned by the Government of Alberta, which manages those resources on behalf of Albertans. The remaining 19 per cent are owned by the Government of Canada in national parks or held on behalf of First Nations and by individuals or corporations.

Industry acquires leases from the Province to develop Crown resources through a competitive bid auction, which occurs about every two weeks. In return, the Province sets terms and conditions for the development and rates of royalties that the Crown is owed as stewards of the resource.

Royalties are part of the overall revenue share received from energy development. In addition, the Province receives revenue from bonus bids from the successful auction of mineral leases, rentals and fees associated with the leases, and through municipal and corporate income taxes. While these are not royalties, they are all part of the return Albertans receive for the development their resources.

When royalty rates are set, government considers the full combination of royalties, taxes, and other fiscal charges (levies) that affect the competitiveness of Alberta's oil and gas sector and the economy as a whole. This does not imply that the sector is "better off" if royalties are lower. It means that they must be at the right level – too high will result in underinvestment, while royalties that are too low can result in inflation and a less than equitable return to the owner of the resource.

Royalty rates are set with the expectation that industry will earn a reasonable rate of return given the risk and investment they make in developing the resource. When setting royalty rates, the government considers factors such as commodity prices, production, costs and the Province's competitive ability to attract industry investment.

Evolution of Alberta's Royalty System

The history of Alberta's royalty regime dates back over 70 years. When Alberta entered Confederation in 1905, the federal government retained rights over natural resources. However, with the passage of the Natural Resources Transfer Acts in 1930, the Western provinces of Manitoba, Saskatchewan, and Alberta gained exclusive jurisdiction over their natural resources.

Alberta first set its royalty rate using a five per cent flat rate (of net revenue) for both oil and gas, which was later raised to 10 per cent by 1935. In 1941, the government raised the royalty rate to a flat 12.5 per cent and introduced a variable rate option where producers could choose between the 12.5 per cent flat rate or a variable rate of five to 15 per cent based on production. By 1972, the royalty rate increased to 25 per cent of industry net revenue in response to increasing world prices.

The period between 1974 and 1997 saw many important variations to the royalty system responding to changing conditions in the oil and gas industry. In an effort to level the 'playing field', the government introduced price sensitivity features to account for the volatility in energy prices throughout the 1970s and 1980s.

Incentive Programs 1980-1997

Alberta introduced the 'vintage' concept to reflect the quality, maturity and productivity of existing conventional sources. Numerous special programs were implemented in the 1980s to encourage exploration and development. Overall, this period reflected a shift towards making oil and gas production incentives responsive to market conditions and resource maturity.

In 1993, a number of important changes were made, including increasing the sensitivity of the royalty regime to prices. In addition, the government introduced new tiers to the royalty system, with a distinction made between heavy oil and light oil in recognition of the different value these products have on the open market.

Generic Oil Sands Regime 1997-2008

By 1997, the federal and provincial governments reached an agreement with respect to oil sands development including a tax treatment (i.e. accelerated capital cost allowance) for oil sands similar to other surface mining operations in Canada. This resulted in charging one per cent of a project's gross revenues until the project's investment costs are paid in full at which point rates increased to 25 per cent of net revenue. These policy changes and higher oil prices after 2003 had the desired effect of accelerating the development of the oil sands industry.

Alberta Royalty Regime 2009

In February 2007, Premier Ed Stelmach appointed an Alberta Royalty Review Panel whose members were asked to provide advice on how to restructure Alberta's royalty system. The panel delivered its report in September 2007 and following analysis of the Panel's report, Premier Stelmach announced on October 23, 2007 the newly created Alberta Royalty Regime. The regime was implemented January 1, 2009.

(See Appendix B – How are royalties calculated?)



Appendix A: Royalty Terminology

The following information explains some of the technical terms and industry language to help you better understand Alberta's energy industry and royalty regime.

Crude oil

Crude oil is a naturally occurring, hydrocarbon liquid found in rock formations in the Earth. Crude oil is used to produce fuel for cars, trucks, airplanes, boats and trains. It is also used for a wide variety of other products including asphalt for roads, lubricants for all kinds of machines, plastics for toys, bottles, food wrap and computers.

Oil sands

Oil sands are a complex mixture of sand, water, clay and very heavy oil known as bitumen that will not flow unless heated or diluted with lighter liquids. Once the bitumen is separated it still requires significant upgrading in order to be used as consumer products.

Synthetic crude oil (SCO)

SCO is high-quality oil produced by upgrading bitumen to a mixture of hydrocarbons similar to light crude oil.

Pre-payout and post pay-out on oil sands projects

Project “payout” refers to the point at which the oil sands developer has earned sufficient revenues to recover all of the allowed costs for the project plus a return allowance. Unlike conventional oil and gas development where the costs of drilling can be a few hundred thousand or even a few million dollars and where production can be achieved within a few months, oil sands developments require massive investments, often billions of dollars, and may require many years before production can be realized.

Allowable costs

Expenditures for business items that have no future value (such as rent, utilities or wages) and are incurred in conducting normal business activities. These are costs which a business owner may deduct from gross revenues.

Government take

Government take is the total amount of revenue that the government receives from the development of its non-renewable energy resources. This amount includes taxes, royalties, land sales and bonuses.

How is the price of a barrel of oil set?

Crude oil prices are primarily determined by worldwide supply and demand. Additional factors contributing to crude oil prices include:

- weather related events like hurricanes, which may affect producing areas like the Gulf of Mexico;
- war and political unrest in some major oil producing regions;
- actions by OPEC (Organization of the Petroleum Exporting Countries) to limit or increase production; and,
- the value of the U.S. dollar (the currency at which crude oil is traded globally).

What are the different types of oil?

Oil is not just one single substance - there are many different kinds of oil. There are very light oils, medium oils (most crude oil falls into this category) and heavy fuel oils like heavy crude oil and bitumen.

In fact, the density of the oil and its chemical composition determines the various products into which it can be transformed by refining. The value of the oil is determined by the value of the refined products it can generate. For example, the higher the percentage of the oil that can be made into products in high demand, like gasoline and diesel, the higher the price of the crude oil.

West Texas Intermediate (WTI)

The Alberta benchmark price for oil is based on particular crude - West Texas Intermediate (WTI). WTI is a lighter type of crude that is excellent for producing gasoline. As such, its price is higher than the price for most of the crude oil Alberta produces.

Due to the heavier weight of our oil and the transportation costs, Alberta's conventional oil is sold at a reduced rate.

During the last four years, Alberta's non-heavy crude oil has been worth 86 per cent to 100 per cent of the WTI price, while our heavy crude oil has been worth 38 per cent to 83 per cent of WTI due to the quality difference compared to lighter crudes.

Alberta's bitumen (the ultra-heavy type of oil found in Alberta's oil sands) has been worth 26 per cent to 80 per cent of WTI during this same period, recognizing the upgrading, refining and transportation costs in creating higher value products from oil sands crude.

The chart (right) is an example of the percentages of the primary products that can be extracted from a barrel of convention light crude oil and what can be extracted from a barrel of very heavy oil.

Gasoline

Because gasoline is refined from oil, the price you pay at the pump generally follows the ups and downs of the oil market, although supply and demand, refining costs and taxes also play a significant part.

Natural gas

Natural gas is a mixture of gases formed in deposits of oil or generated in mature coal beds while natural gas is composed primarily of methane, it can also include ethane, propane, butane and pentane.

Coal

Coal is a mineral formed from the remains of land-based plants buried hundreds of millions of years ago and subjected to tremendous heat and pressure. Coal is a readily combustible black or brownish-black rock consisting of a complex range of materials and varies greatly in quality from deposit to deposit.

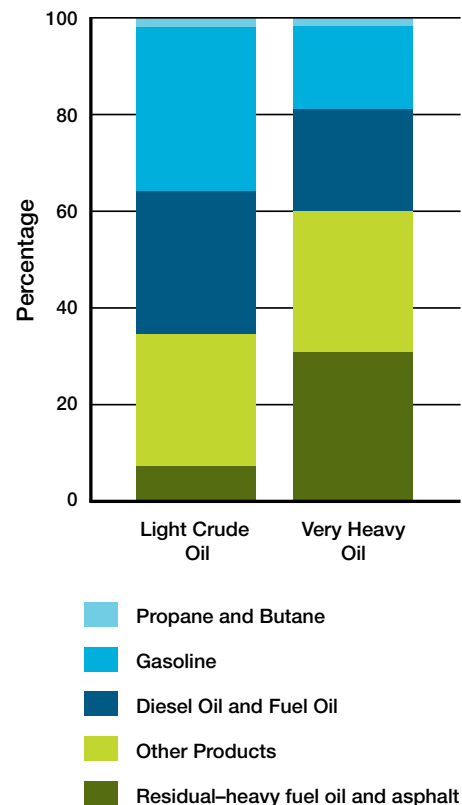
Coalbed methane (CBM)

CBM is natural gas extracted from an underground coal formation.

Tenure

Tenure is the process of leasing and administering petroleum and natural gas rights owned by the Province of Alberta. Rules of tenure define how property rights in land are to be allocated and determine who can use what resources for how long, and under what conditions.

Products that can be extracted from a barrel of oil



Source: NRCan

Royalty Collected

Total revenue collected:

- 2006/07 \$12.260 billion
- 2007/08 \$11.271 billion
- 2008/09 \$12.176 billion
- 2009/10 \$6.103 billion (Budget 2009)

Oil royalty revenue:

- 2006/07 \$1.400 billion
- 2007/08 \$1.655 billion
- 2008/09 \$1.800 billion
- 2009/10 \$1.249 billion (Budget 2009)

Natural Gas and by-product royalty revenue:

- 2006/07 \$5.988 billion
- 2007/08 \$5.199 billion
- 2008/09 \$5.834 billion
- 2009/10 \$3.687 billion (Budget 2009)

Oil sands royalty revenue:

- 2006/07 \$2.411 billion
- 2007/08 \$2.913 billion
- 2008/09 \$2.973 billion
- 2009/10 \$1.008 billion (Budget 2009)

Coal royalty revenue:

- 2006/07 \$13 million
- 2007/08 \$14 million
- 2008/09 \$36 million
- 2009/10 \$27 million (Budget 2009)

Additional Energy Revenue

Bonuses from Public Offerings of Crown leases:

The Department of Energy leases mineral rights for industry exploration and development through a competitive sealed bid auction held about every two weeks. Successful bids received are referred to as “bonus bids”.

- 2006/07 \$2.463 billion
- 2007/08 \$1.128 billion
- 2008/09 \$1.112 billion
- 2009/10 \$0.631 billion (Budget 2009)

Rentals and fees:

Leases issued are charged an annual rent of \$3.50 per hectare for each hectare covered by the agreement.

- 2006/07 \$159 million
- 2007/08 \$159 million
- 2008/09 \$160 million
- 2009/10 \$143 million (Budget 2009)

Freehold Mineral Tax:

The Crown owns 81 per cent of the province's mineral rights. The remaining 19 per cent are 'freehold' mineral rights owned by the federal government on behalf of First Nations or in National Parks, and by individuals and companies. The Crown levies an annual tax on freehold oil and gas production.

- 2006/07 \$317 million
- 2007/08 \$247 million
- 2008/09 \$261 million
- 2009/10 \$200 million (Budget 2009)

How does the government collect royalty (in-kind, etc.):

The Province already accepts crude oil in lieu of cash royalties on conventional and heavy oils. The oil is then sold by an agent of the Crown (the Alberta Petroleum Marketing Commission) into the market with the proceeds paid to the Government of Alberta.

Amendments to the *Mines and Minerals Act* made in November 2008 now allow the province to collect raw bitumen, or products from bitumen, anywhere along the value chain, in lieu of cash royalties. These products may then be sold at market prices to encourage more value-added development within the province. As with conventional oil, proceeds would be paid to the Government of Alberta.

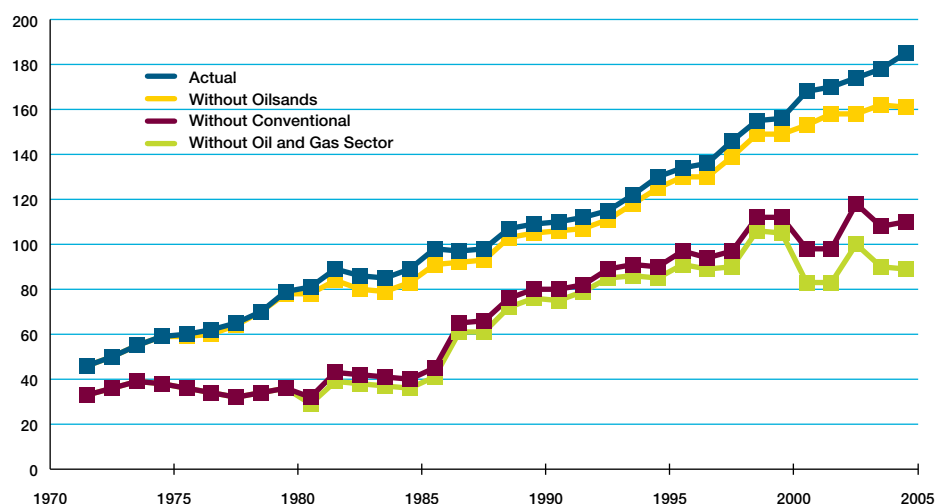
For natural gas and coal, the Province receives royalties in the form of cash payment.

Economic activity:

Energy comprises more than two-thirds of Alberta's exports. Our strength in energy has helped Alberta cultivate a strong and vibrant economy, a skilled and productive workforce, the lowest overall tax burden of any province in Canada, leadership in innovation and knowledge-based progress, an entrepreneurial and competitive business community, and modern and efficient infrastructure.

The energy sector delivers wealth to the entire province. Our Gross Domestic Product (GDP) on a per-person basis is the highest among provinces and fully 70 per cent higher than the Canadian

Impact of oil and gas on Alberta GDP

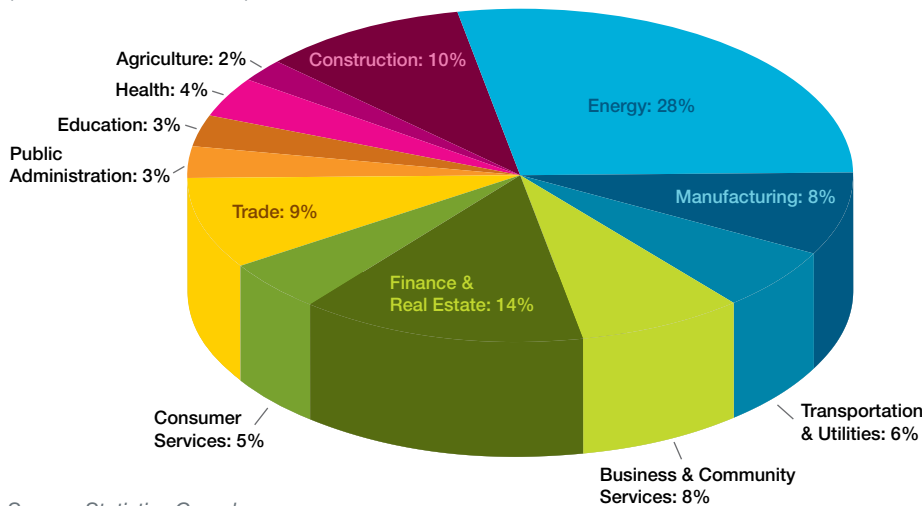


Source: University of Calgary

average. A study undertaken at the University of Calgary suggests that our economy, without the impact of oil and gas, would be less than half its current size.

Many Albertans and Alberta communities owe their livelihood and economic success, either directly or indirectly, to oil and natural gas development. Albertans contribute every day to an energy sector that yields benefits year after year to all who live in our Province. Many are employed directly in the energy industry. Others are not, but they still owe their livelihood to the sector.

Alberta 2008 GDP
(Total GDP: \$290 Billion)



Source: Statistics Canada

Employment:

- Mining and Oil and Gas Extraction Sector = 146,900 jobs
- Oil and Gas Extraction Industry = 69,900 jobs
- Support activities for Mining and Oil and Gas Extraction (primarily oil and gas exploration and drilling) = 71,700 jobs
- Mining other than oil and gas (mainly coal and mineral mining and quarrying) = 5,100 jobs

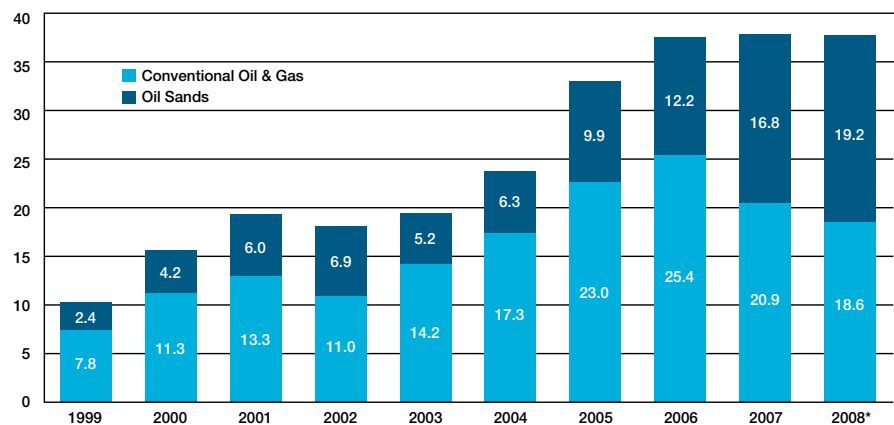
(Source: Alberta Finance and Industry, January 1, 2009)

According to the Canadian Energy Research Institute:

- an average well drilled to a depth of 2,300 meters generates approximately \$1.65 million in economic activity, mainly covering labour and supply costs;
- each new oil or gas well drilled supports approximately 120 jobs including those directly employed by the energy industry, supplies and service sector; indirectly in other support industries, including hotels and restaurants; and induced jobs including those that provide supplies and services to the support industries; and
- one job in the oil and gas sector is supported by two jobs in other support industries, and the support industries are supported by 1.7 jobs in other industries.

In 2008, estimated oil sands investment reached a record-high \$19.2 billion, a 14 per cent increase over the 2007 level.

Oil and Gas Investment in Alberta (in Billions of Canadian Dollars)



Source: Statistics Canada, Public and Private Investment in Canada (*2008 data are preliminary actual)

Infrastructure:

Extensive infrastructure is required to facilitate the continued drive to locate, drill for, mine, upgrade and transport the oil to market. Jobs are created in exploration, production, transportation, refining, distribution, and marketing of energy resources. This economic activity supports further jobs in construction, manufacturing, transportation, finance and real estate, accommodations and other services. Environmental management, financial management, research and technology and other areas of expertise combine to leverage energy resources to their full value in attracting and developing new business and expertise.

Oil Sands:

While all fossil fuel development has contributed to Alberta's current position of strength, investment in Alberta's conventional oil and gas industry still dominates total Canadian oil and gas investment. But, it is the oil sands that are beginning to have what can be described as a transformative impact on our economy.

Construction activities in the oil sands triggered an unprecedented investment boom. Representing most of Alberta's major project investment, these are long-term, multi-billion dollar projects—many of which are already well into planning or even construction.

The oil sands plants will require more labour on a more sustained basis than the conventional oil and gas sector. Their impact on employment, demand for goods and services, provincial tax and royalty revenues have been and will continue to be substantial. That is why it is important to understand that royalties are just one of the many benefits of resource development for the Province of Alberta.

How does our royalty system compare with other jurisdictions?

The Alberta Department of Energy is responsible for the administration of the *Mines & Minerals Act*, which sets out the requirements for the responsible development of Alberta's non-renewable mineral resources. Companies are granted the right to explore for and develop petroleum and natural gas resources, in exchange for the value to Albertans that flows from development in the form of royalties, bonus bid payments (the amount of money offered or bid for the mineral rights) and rents.

A well-designed royalty system endeavours to strike the right balance between returning a share of the profits to the resource owner, while encouraging the development of the resource to create jobs and economic growth.

Comparing royalty regimes is not an easy task. Around the world, jurisdictions have established systems of royalty return based on any number of criteria: quality and quantity of resource, political structure, government objectives, mix and level of taxes, etc. Every nation is unique.

Additional information can be found at:

www.energy.alberta.ca/Org/pdfs/Royalty_Jurisdiction.pdf



Alberta Statistics/Industry Activity 2008

(except where noted)

- Reserves (Discovered and recoverable under current technology and prices)
 - Crude bitumen = 170.4 billion barrels
 - Conventional Oil = 1.5 billion barrels
 - Natural Gas = 39 trillion cubic feet
 - Coal = 34 billion tonnes
- Number of oil sands projects:
 - As of February 2009, the province had 91 active oil sands projects
 - 48 in pre-payout
 - 43 in post-payout
- Drilling statistics:
 - At the end of March 2009, there were 67,909 oil wells and 143,016 gas wells in Alberta.
 - In 2008, there were 7,241 natural gas wells, 695 CBM wells, 1,720 oil wells and 1,519 bitumen wells successfully drilled in Alberta.
- Production numbers (per day):
 - 1.31 million barrels per day of bitumen.
 - 502,800 barrels per day of conventional oil
 - 4.4 trillion cubic feet of natural gas
 - 284 billion cubic feet of commingled gas from CBM wells
 - 34 million tonnes of coal
- How much does it cost to build an oil sands plant? upgrader? refinery?
 - According to the Canadian Petroleum Products Institute, the estimated cost to build a new refinery with production capacity between 175,000 and 200,000 barrels per day is \$4 billion.
 - According to the Petroleum Economist the cost for a new 140,000 barrels a day oil sands plant (mining) is approximately C\$2.2 billion. With an on-site upgrader the same plant would cost approximately C\$2.53 billion.

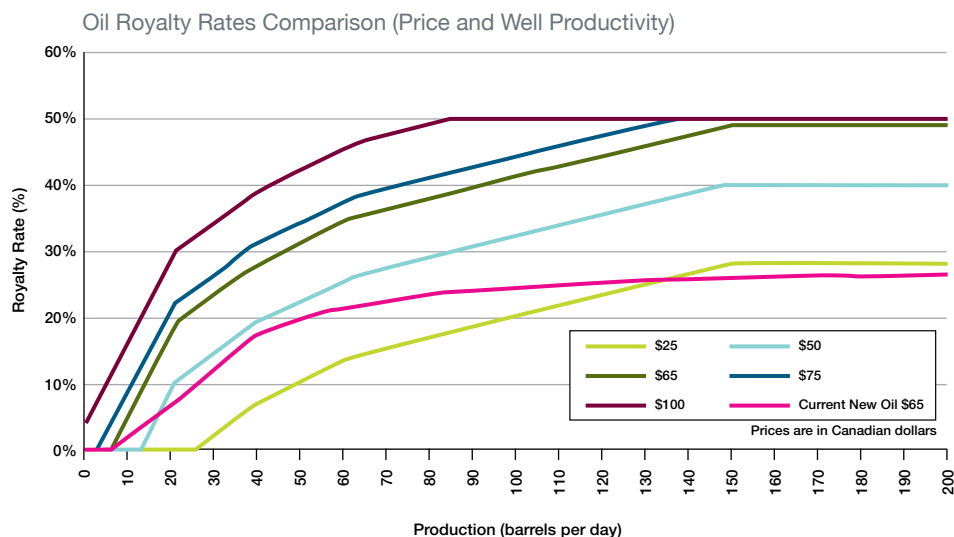
Current upgrading capacity in Alberta is approximately 1.21 million bpd of bitumen with synthetic crude oil (SCO) output of approximately 1.04 million bpd.

Project Name	Location	Capacity (bpd)	
		Bitumen	SCO
AOSP (Shell) Scotford Upgrader 1	Fort Saskatchewan	155,000	158,000
Suncor Base and Millennium	Fort McMurray	440,000	357,000
Syncrude Mildred Lake	Fort McMurray	407,000	350,000
CNRL Horizon – Phase 1	Fort McMurray	135,000	114,000
OPTI/Nexen Long Lake – Phase 1	Fort McMurray	72,000	58,500
Total		1,209,000	1,037,500

Appendix B: How are royalties calculated?

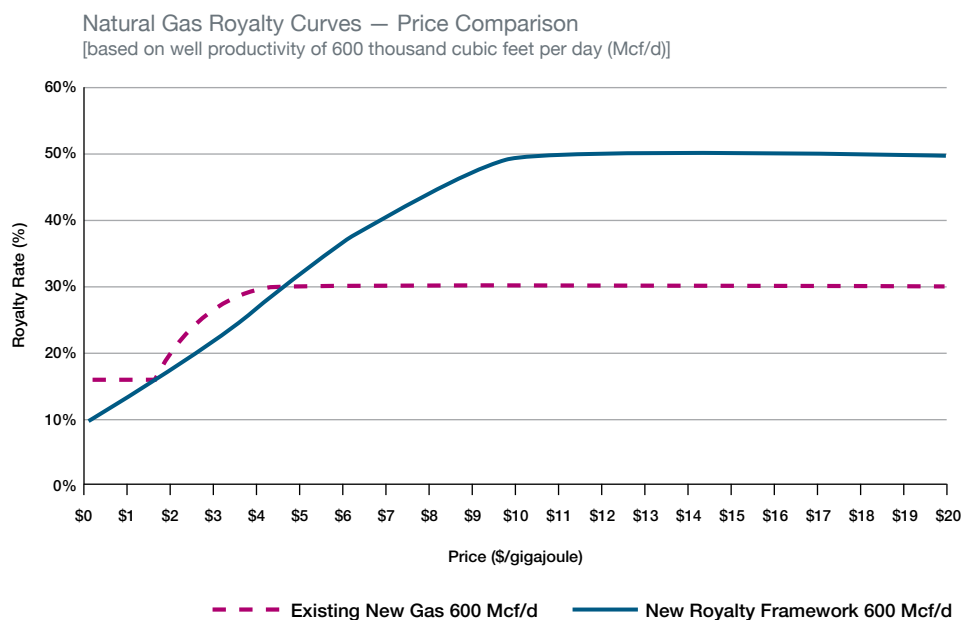
Conventional Oil

Royalties are set by a sliding rate formula containing separate elements that account for oil price and well production. Royalty rates will range up to 50 per cent, with rate caps at \$120 per barrel (bbl).



Natural Gas

Gas royalties are set by a sliding rate formula sensitive to price and production volume. New royalty rates range from five per cent to 50 per cent with rate caps at \$17.75 Cdn/GJ (gigajoule)



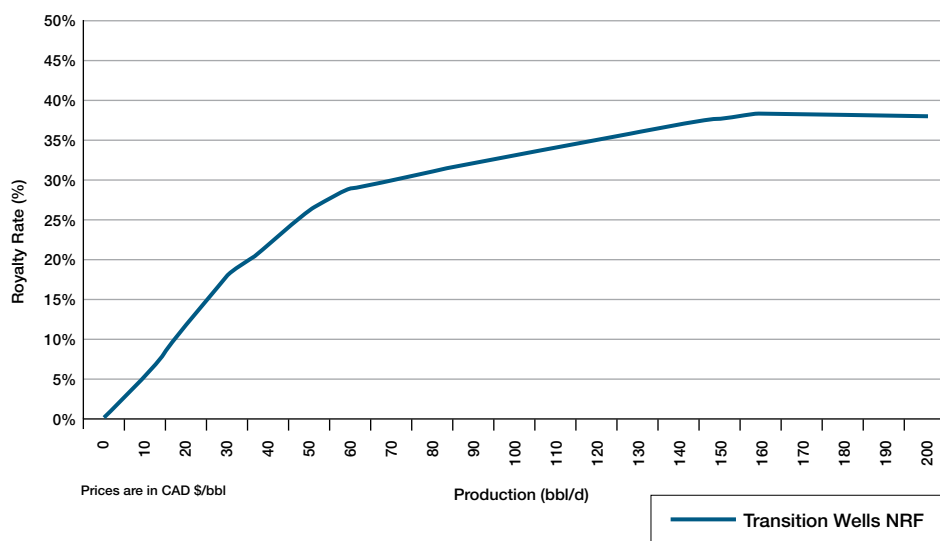
Conventional oil and natural gas transitional royalty rates

For new natural gas or conventional oil well between 1,000 to 3,500 metres the Government of Alberta is providing industry with a one-time option of selecting a transitional rate or the conventional oil/natural gas royalty rate.

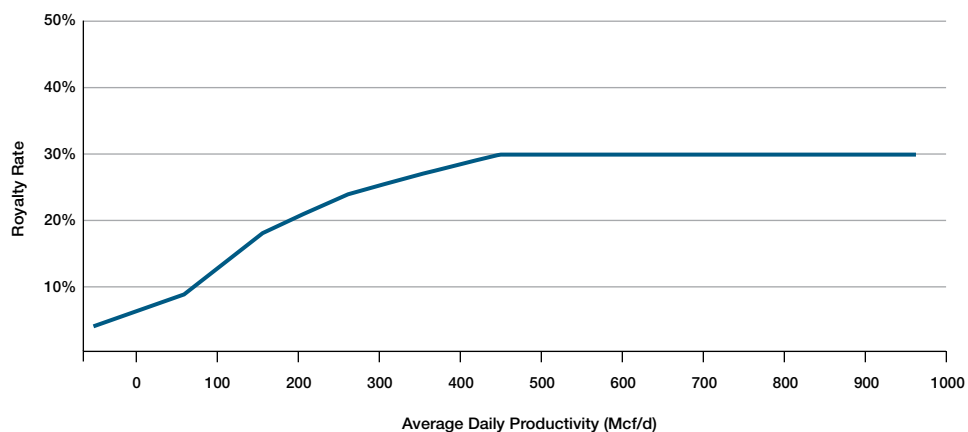
All wells drilled between 2009 and 2013 that adopt the transitional rates will be required to shift to the conventional oil/natural gas royalty rates on January 1, 2014. No wells drilled before the effective date of the transitional rate program (November 19, 2008) or oil sands projects are eligible for the transitional rates.

The five year transition option is designed to provide lower royalties at some price levels in the initial years of a well's life when production rates are the highest.

Conventional Oil Royalty Rates Comparison
(based on a price of \$75 per barrel)



Natural Gas Royalty Rates
\$6.75/GJ Well Productivity Comparison



Oil Sands

A sliding scale is used for oil sands royalty rates ranging from one to nine per cent pre-payout and 25 to 40 per cent post-payout depending on the price of oil.

The base royalty starts at one per cent, and increases for every dollar the world oil price, as reflected by West Texas Intermediate (WTI), is priced above \$55 per barrel, to a maximum of nine per cent when oil is priced at \$120 or higher.

The net royalty starts at 25 per cent and increases for every dollar oil is priced above \$55 per barrel to 40 per cent when oil is priced at \$120 or higher.

Bitumen Valuation Methodology (BVM)

BVM is a method to determine for royalty purposes a value for bitumen produced in oil sands projects and either upgraded on-site or sold or transferred to affiliates. The BVM ensures that Alberta receives market value for its bitumen production, taken in cash or bitumen royalty-in-kind, through the royalty formula.

Western Canadian Select (WCS), a grade or blend of Alberta bitumens, diluents (a product such as naphtha or condensate which is added to increase the ability of the oil to flow through a pipeline) and conventional heavy oils, developed by Alberta producers and stored and valued at Hardisty, AB was determined to be the best reference crude price in the development of a BVM.

The value of a project's bitumen at Hardisty is determined by:

1. Blending the bitumen with diluent until the blend is equal to WCS. Then the project blend is deemed to have the same value as WCS.
2. The cost of the diluent is then deducted from the project blend as well as the transportation cost of sending the bitumen from the project to Hardisty and the resulting value is the price of the project bitumen.

Because more diluent is required for heavier bitumen the higher density bitumens are of "lower value" or quality.

Coal

Under the *Coal Royalty Regulation*, there are two royalty regimes based on the nature of the coal resource developed:

- The royalty rate for Crown-owned Sub-bituminous (Plains) coal, used mainly to generate electricity, is: \$0.55/tonne.
- The royalty rate for Crown-owned Bituminous (Mountain/Foothills) coal, which is based on a revenue minus costs royalty regime, is:
 - Before mine payout: 1% of mine mouth* revenue
 - After mine payout: 1% of mine mouth revenue plus 13% of net revenue

**Mine mouth - royalty is calculated based on the value of the coal at the mine, so any transportation costs or port costs are deducted.*

Oil Sands Royalty Rates

Price WTI C\$/bbl	Royalty Rate on Gross Revenue	Royalty Rate on Net Revenue
Below C\$55	1.00%	25.00%
C\$55	1.00%	25.00%
C\$60	1.62%	26.15%
C\$65	2.23%	27.31%
C\$70	2.85%	28.46%
C\$75	3.46%	29.62%
C\$80	4.08%	30.77%
C\$85	4.69%	31.92%
C\$90	5.31%	33.08%
C\$95	5.92%	34.23%
C\$100	6.54%	35.38%
C\$105	7.15%	36.54%
C\$110	7.77%	37.69%
C\$115	8.38%	38.85%
C\$120	9.00%	40.00%
Above C\$125	9.00%	40.00%

Additional Sources of Energy Related Information

PROVINCIAL GOVERNMENT

Alberta Energy

www.energy.alberta.ca

Alberta Economic Development Authority (AEDA)

www.aeda.alberta.ca

Alberta Finance and Enterprise

www.finance.alberta.ca

Alberta's Oil Sands

www.oilsands.alberta.ca

Oil Sands Sustainable Development Secretariat (Alberta Treasury Board)

www.treasuryboard.gov.ab.ca/OilSandsSecretariat.cfm

INDUSTRY ASSOCIATIONS

Canadian Association of Petroleum Producers (CAPP)

www.capp.ca

Canadian Energy Pipeline Association (CEPA)

www.cepa.com

Canadian Petroleum Products Institute (CPPI)

www.cppei.ca

Canadian Society for Unconventional Gas (CSUG)

www.csug.ca

Coal Association of Canada

www.coal.ca

Small Explorers and Producers Association of Canada (SEPAC)

www.sepac.ca

INDUSTRY

EnCana

www.encana.com

Shell Canada Ltd.

www.shell.ca

Suncor Energy Inc.

www.suncor.com

Syncrude Canada Ltd

www.syncrude.com

OTHER

Canadian Centre for Energy

www.centreforenergy.com

National Energy Board

www.neb.gc.ca

OPEC (Organization of the Petroleum Exporting Countries)

www.opec.org

U.S. Energy Information Administration

www.eia.doe.gov





For more information visit:
www.energy.alberta.ca

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