Government of Alberta

Alberta

Freedom To Create. Spirit To Achieve.

Energizing Investment

A Framework to Improve Alberta's Natural Gas and Conventional Oil Competitiveness


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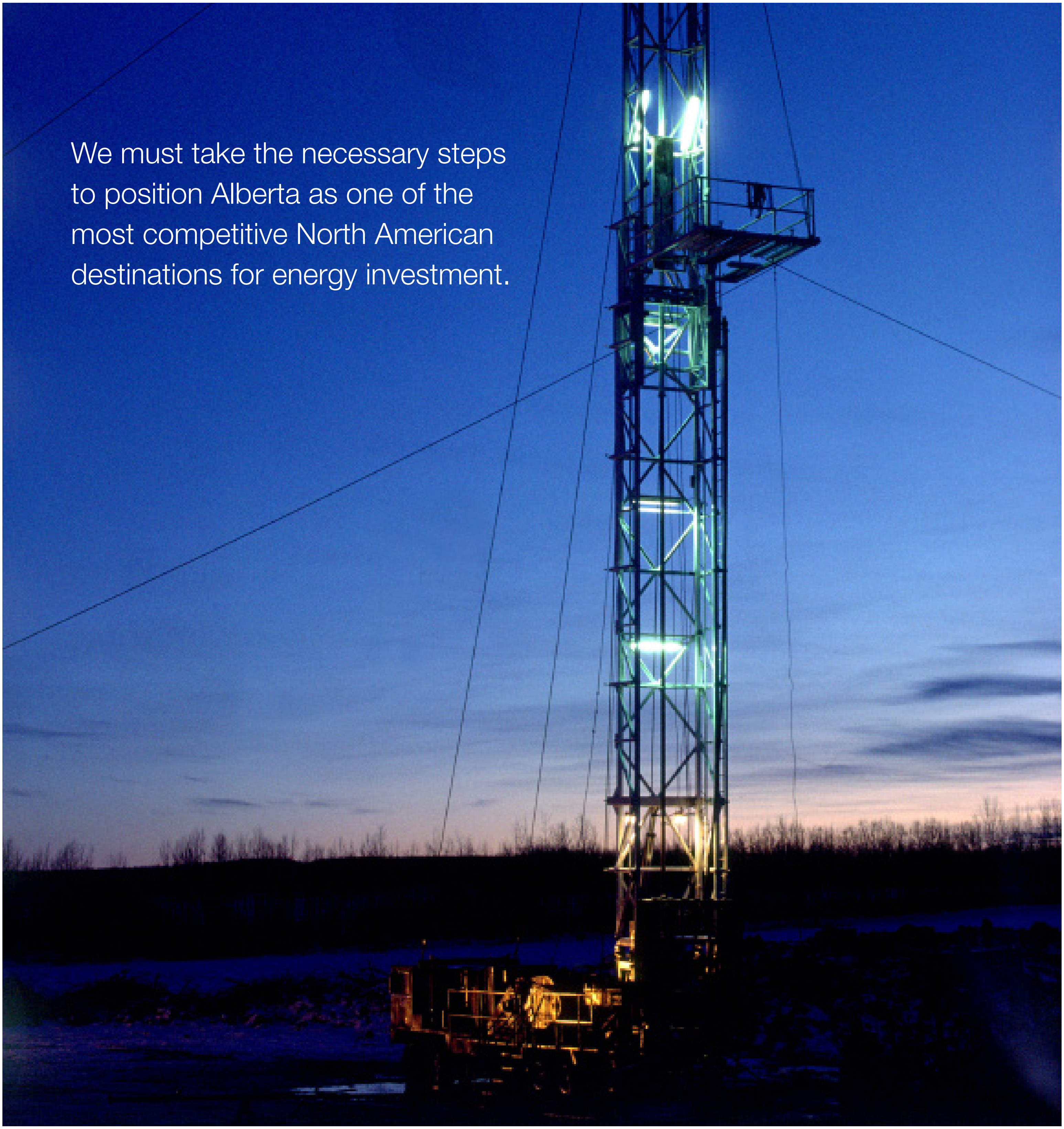

We must take the necessary steps to position Alberta as one of the most competitive North American destinations for energy investment.

Positioned for Competition

"Sustainable Prosperity" – that's the path set out in Alberta's *Provincial Energy Strategy,* a framework for the efficient development of Alberta's resources and for the creation of innovative, value-added opportunities to improve the quality of life for Albertans.

Following a path of sustainable prosperity requires us to take action – to make deliberate choices that will enable us to adapt to new realities and changing circumstances.

In October 2007, Alberta announced the *Alberta Royalty Framework* (ARF), aimed at ensuring Albertans could effectively realize the benefits of energy development through a renewed and simplified oil and gas royalty regime. The ARF updated a system mainly designed in the 1970s to recognize the realities of the day.

Decisions made in the Alberta Royalty Framework were based on three guiding principles, which remain relevant today:

- support sustainable economic development that contributes to a high quality of life for all Albertans now and into the future;
- support a fair, predictable and transparent royalty regime; and
- align Alberta's royalty regime with overall government objectives.

In the main, the Alberta Royalty Framework has lived up to these guiding principles. Investment is returning to the oil sands following the economic downturn. But fundamental structural changes in the natural gas market and challenges around conventional oil development have meant that investment is lagging in these areas.

In addition to an unexpected and dramatic global recession, Alberta has faced a growing tide of new challenges. Energy prices have become more volatile. Competition for capital has become more intense. Other jurisdictions have stepped up their efforts to attract investment in natural gas and conventional oil development.

Technological advances have also helped unlock significant unconventional energy supplies such as shale gas, shifting the lines of supply and demand. As it seeks to develop its shale gas resources, the United States – once a major customer for Alberta's natural gas – is increasingly becoming a competitor for natural gas investment.

Alberta has abundant unconventional gas resources, including shale gas, which present incredible opportunities for future growth. Alberta must be positioned to develop these resources, or face erosion of its overall share of the natural gas market.

Though still a dominant player in the energy business, Alberta has lost competitive ground. Alberta's share of oil and gas capital investment has declined. Our province faces growing and increasingly stiff competition for energy investment. Alberta has begun to feel the effects of this competition, and the Government of Alberta recognizes the need to adapt.

Oil and gas investment decisions made today will have long-lasting impacts on Alberta's economy and our standard of living. Energy development accounts for 30 percent of Alberta's total GDP. Upstream oil and gas development supports jobs for tens of thousands of Albertans – those working directly in the sector, and those working in many other industries. Virtually every community in this province is touched by the industry.

Albertans should realize the full economic benefits of our oil and gas resources. **Over the next 25 years, upstream oil and gas development in Alberta has the potential to add $2.5 trillion in new economic activity, and millions of person-years in jobs**.

To realize these benefits, Alberta must take stock of new circumstances and market realities. We must take necessary steps to position Alberta as one of the most competitive North American destinations for energy investment.

Assessing Alberta's Competitiveness

In response to changes in the marketplace, Alberta Energy led a project team that studied Alberta's investment competitiveness with a focus on upstream natural gas and conventional oil development.

The study assessed the ways in which Alberta's competitive share of energy investment has shifted, and the factors contributing to such shifts. It also considered ways in which Alberta can improve its ability to attract natural gas and conventional oil investment in light of market changes and marketplace realities.

Alberta's investment competitiveness was examined in relation to upstream development of conventional natural gas, unconventional natural gas (e.g. coal bed methane, shale gas and tight sands formations) and conventional oil.

The unconventional oil sector (i.e. oil sands) was not included in the study, given the province's unique position in this area and its continued success in attracting significant investment in new and expanding oil sands projects.

The investment competitiveness study was informed by considerable technical analysis and the input of energy investment stakeholders. Technical analysis evaluated measures such as: rates of return; project payout times; cost per unit of production; profitability ratios; and net present values.

Analysis also included examination of key economic data relating to Alberta's natural gas and conventional oil development, as well as data on current and projected industry activity.

The technical review was designed to provide a comprehensive comparison of Alberta's investment competitiveness relative to competing jurisdictions, with a focus on British Columbia, Saskatchewan and the United States. Ten jurisdictions in the United States were examined as part of the review: Arkansas, Colorado, Kansas, Louisiana, New Mexico, Oklahoma, Pennsylvania, Texas, Utah and Wyoming. These jurisdictions were selected because they are Alberta's main competitors for new investment.

Experts from the financial sector, the oil and natural gas industries, and Alberta government ministries provided their expertise and perspectives about Alberta's competitiveness. Through a series of interviews, focus groups and a cross-sector workshop, these individuals offered economic and financial input regarding the province's investment climate.

In the course of the investment competitiveness study, it was determined that other factors, such as support for innovation and Alberta's regulatory system, are also critical to competitiveness.

As this report indicates, the Government of Alberta has reviewed the Project Committee's Technical Report, and has accepted its recommendations on the most effective ways to improve Alberta's competitiveness in conventional upstream oil and gas. While the fiscal recommendations pertain to natural gas and conventional oil, the issues around innovation and regulatory systems are important across the entire oil and gas sector.

Alberta's Competitive Edge

Alberta has grown to become a major international producer of energy. Our province is among a top tier of jurisdictions that have the resource base, the expertise and the creative and entrepreneurial spirit to serve the globe's increasingly energy needs.

But Alberta also faces a crossroads. Globalization has connected the world as never before, bringing greater complexity to flows of capital and trade. Patterns of energy supply and demand are shifting as countries seek to improve energy efficiency, develop alternatives, and use energy produced closer to home. These and other factors are impacting the attractiveness of our province as a destination for oil and gas investment.

A Capital Intensive Business

To understand how Alberta stacks up competitively, it helps to understand the factors that impact upstream oil and gas investment and development.

Years of strong energy prices and record levels of demand contributed to a general perception that oil and gas exploration and development is certain to be a favourable investment. In truth, the oil and gas business remains risky and uncertain because:

Production levels can be highly variable.

Although a significant portion of Alberta lies atop the Western Canadian Sedimentary Basin, conditions underground are not identical everywhere. Each oil and gas formation is unique, and will produce different levels of oil and gas. Some produce large volumes; others fail. Whether a winner or not, they all require substantial investment to drill.

Successful wells do not produce oil and gas at a constant rate forever. Generally, they deplete at a rate of approximately 30 percent per year, and sometimes more. This means that resource companies must always be hunting for new production to offset the declines – even if that means looking outside Alberta.

Revenues can fluctuate quickly.

Events that occur geographically far away can have sudden and dramatic impacts on the economics of oil and gas plays in Alberta. Energy prices rise and fall based on political developments, natural disasters, overall economic conditions and market speculation.

Price volatility is also bound up with the natural cycle of supply and demand. When energy prices and returns are sufficiently high, industry is encouraged to explore and develop new oil and gas wells. This production expands available supplies of oil and natural gas, causing prices to fall. Lower prices spur increased demand and restrict supply, fuelling the cyclical volatility of the industry.

Costs are substantial.

There are many costs associated with upstream development of oil and gas. These costs have been rising over time, due in part to higher land prices, higher transportation and service costs and greater difficulty in locating new oil and gas reserves. Expenditures on technology have also increased, as more advanced processes and equipment are required to enhance recovery from mature oil and gas formations.

Oil and gas development is powered by investment.

Oil and gas is a capital-intensive business. It requires millions of dollars of investment just to explore for and discover untapped sources of oil and natural gas – and then millions more to develop and extract those resources. Resource companies must also continually re-invest to facilitate the cycle of exploration and production.

Capital investment has been at the heart of Alberta's success in oil and gas. Since 1995, the oil and gas industry has accounted for 51 percent of total non-housing related capital investment in Alberta.

However, securing access to capital is increasingly challenging in today's environment. In addition, globalization has opened markets as never before, and capital is now highly mobile, following the best prospects for higher or more reliable returns.

Sustaining Alberta's prosperity through resource development depends on our ability to continue attracting high levels of investment.

Attracting investment requires the right conditions. When considering where to invest, investors place value on stability and predictability of the prevailing fiscal and regulatory conditions, because these factors impact costs and overall project economics.

Investors also look for opportunities and investment climates that offer the right balance of risks and rewards. While there is always risk in the oil and gas business, investors want a degree of confidence they will be able to earn an acceptable return on their upfront investments and the prospect of future gains.

Factors Affecting Alberta's Competitiveness

Alberta must compete aggressively for investment by adapting to market changes and by taking advantage of our competitive strengths, including the following:

Alberta has an established upstream oil and gas industry.

While other jurisdictions are still trying to form clusters of new activity, Alberta is already home to many companies with solid experience in upstream oil and gas development with the capacity to support new generations of exploration and development.

Alberta is home to a highly skilled and experienced workforce.

Alberta has a large pool of highly skilled workers, including those with advanced technical training in trades, sciences and engineering.

Alberta is a stable democracy with open, free markets.

While not a differentiating factor when competing with other North American jurisdictions, it is important for investors to know that Alberta is a safe place to invest. We enjoy a stable democracy and an economy based on free market principles.

Alberta has extensive infrastructure to support oil and gas development.

Alberta's robust infrastructure includes access roads and seismic lines, a network of modern provincial highways, rail lines, and existing utility lines. Importantly, our province also has the Alberta Hub, a network of 392,000 kilometres of energy-related pipelines. With increased utilization of this infrastructure, per-unit costs of production are reduced.

Alberta has abundant oil and gas reserves remaining to be developed.

Alberta retains massive reserves of conventional oil and natural gas that can be tapped using new technologies. Our province's conventional oil resources are well understood geologically, and contain higher value light oil. There is an opportunity to recover more oil resources from mature reservoirs as well as access resources from tighter formations using new technologies. Alberta also has huge volumes of unconventional gas, such as shale gas and coal-bed methane, which also have the potential to be developed.

However, a number of factors and trends are placing pressures on Alberta's overall competitiveness:

More aggressive competition.

Other jurisdictions, wishing to benefit from their oil and gas resources, have stepped up efforts to attract oil and gas investment through policy and regulatory changes. Energy has increasingly emerged as a security issue as well as an economic issue. The United States is actively seeking investment to develop its domestic energy sources, including shale gas, as an alternative to energy imports. British Columbia and Saskatchewan are also competing aggressively for investment in natural gas and conventional oil.

Resource maturity.

Alberta's conventional oil and gas resources are often considered to be more mature relative to those of other Western Canadian jurisdictions. They do not flow from the ground as easily, and advanced technologies and methods are increasingly required to enhance oil and gas recovery. This adds cost and risk to Alberta's oil and gas plays.

Economic volatility.

Recent economic developments have impacted oil and gas development. The global recession resulted in a general decrease in energy demand, bringing volatility back to prices. Capital markets are also very competitive, not only within the sector but also among other industries. In light of the 2008-2009 financial crisis, new discipline is rightfully being applied across the investment community. These and other factors have made it even more challenging for companies to access capital.

Higher costs.

Western Canada's conventional oil and gas resources are often more costly to develop relative to those in the United States. Alberta's resources are also located further away from major markets. All of these factors add additional costs compared to other jurisdictions.

In fact, it is estimated a natural gas well in Alberta is 12 percent to 14 percent more expensive to drill than one in the United States with identical technical specifications.

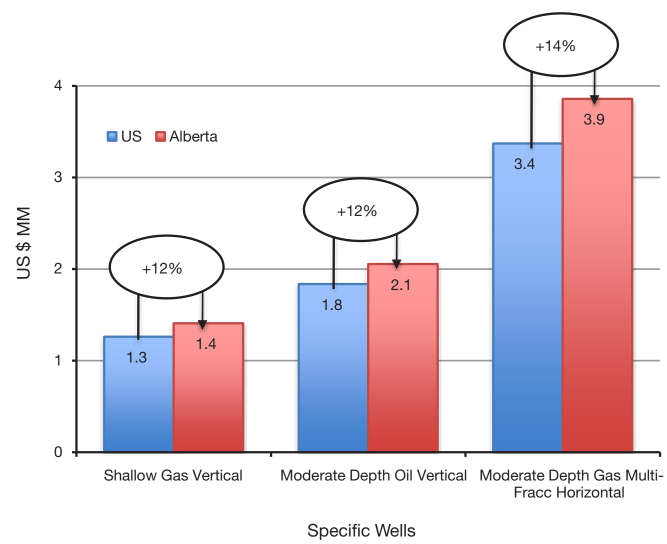

Figure 1
Comparison of Well Costs between Alberta and the United States, 2009
Source: IHS CERA

Regulatory complexity.

Over time, our world has become more complex and public expectations around resource development have increased. As a result, Alberta has set and met high standards in protecting the safety and health of Albertans and our natural environment. However, incremental layers of regulation over many years and across many government departments have created an inefficient and complicated web of processes that are hard to navigate. This has resulted in greater complexity and higher compliance costs for industry.

Structural market changes.

Alberta is the world's second largest exporter of natural gas, and its fourth largest producer. But we are no longer the only significant player.

Advances in technology have brought new possibilities to the development of unconventional gas, resulting in fundamental structural changes in the natural gas market. New horizontal well drilling and multi-stage hydraulic fracturing technologies have begun to unlock vast deposits of shale gas.

While production from shale gas currently represents only 13 percent of total North American natural gas production, it has grown rapidly. Between 2006 and 2009 shale gas production has more than quadrupled. Virtually all of this production has emerged from the United States, with increasing production also emerging from British Columbia.

The reality of shale gas means that supplies of technically recoverable natural gas in North America have gone from a position of scarcity to abundance. This has had a structural effect on natural gas prices. Prices are widely expected to remain in the range of \$4.00 to \$7.00 per Mcf for the foreseeable future,[1] down from previous highs of \$10.00 to \$12.00 per Mcf.

Several jurisdictions in the United States have large quantities of shale gas. This is generating speculation that America will be able to reduce its reliance on imports of natural gas from Western Canada in favour of using its domestic supplies of shale gas. In 2008, Alberta supplied the United States with more than half of its natural gas imports. Going forward, Alberta's largest natural gas customer is now a significant competitor for natural gas investment.

Figure 2
Major New Natural Gas Supply Basins
Source: 'Modern Shale Gas Development in the United States: A Primer', U.S. Department of Energy

Alberta also has large supplies of unconventional gas, including shale gas, tight gas and coal-bed methane. The same technological advances that changed the natural gas market also create great opportunities for our province. The geologic characteristics of Alberta's shale gas deposits are similar to those of the United States, as is the technology required to develop them.

But our province is at risk of being pushed out of key markets in the United States and Eastern Canada. Growing shale gas production in the United States is gradually eroding Alberta's market share in natural gas. **To secure future market share, our province must take steps to attract investment and encourage development of our unconventional gas resources.**

[1] In U.S. dollars, per thousand cubic feet.

Alberta Must Regain Competitive Ground

On the whole, Alberta continues to provide economic investment opportunities in upstream oil and gas. But our position is not what it was a decade ago.

The hard truth is that Alberta has lost competitive ground. A number of trends illustrate this situation.

Among the Western Canadian provinces, Alberta continues to receive the largest share of capital investment by industry in conventional oil and natural gas. However, in recent years the total natural gas and conventional oil expenditures in Alberta have waned, while steadily increasing in British Columbia and Saskatchewan. Though investment may be growing overall, it is not coming to Alberta.

More concerning is the pattern of industry's expenditures on conventional oil and gas exploration. British Columbia and Saskatchewan have realized significant increases in exploration activity, while Alberta has experienced a significant decrease since 2005, despite strong resource prices during those years.

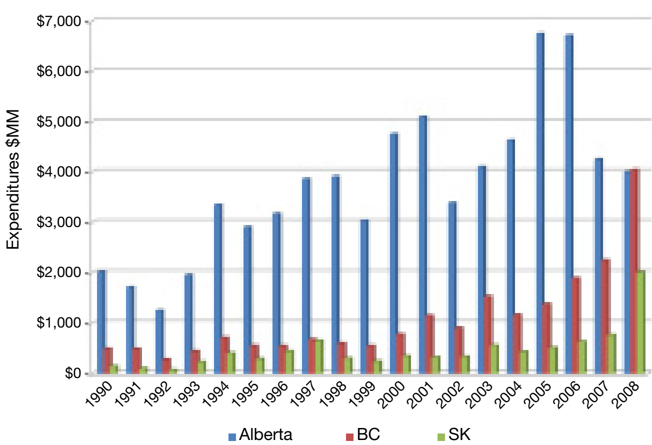

Figure 3
Conventional and Gas Exploration Expenditures
Source: Canadian Association of Petroleum Producers, 2009 Statistical Handbook

Industry reinvestment patterns have reflected a similar trend. The share of industry cash flow from conventional oil and gas that is reinvested back into Alberta has declined from around 60 percent over the past decade to about 40 percent in 2008. By contrast, industry appears to be increasing the amount it reinvests in British Columbia.

These trends suggest that well-capitalized mid-sized and major resource producers are increasingly focusing their investment decisions outside of Alberta. The fact that Alberta's share of capital investment has fallen even during times of strong resource prices suggests that non-fiscal factors, such as regulatory complexity, are also inhibiting our competitiveness.

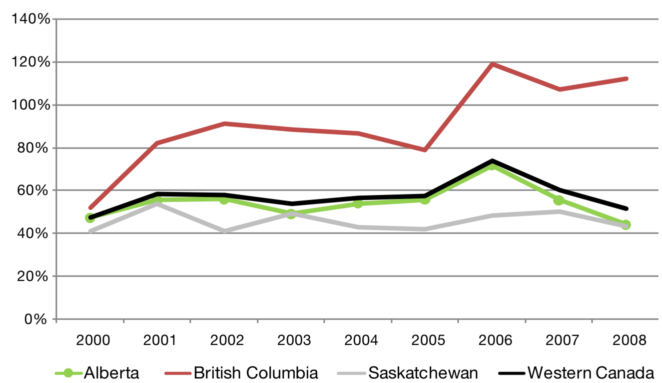

Figure 4
Western Canada Oil and Gas Industry Reinvestment (Excludes Oil Sands)
Source: Alberta Department of Energy - Canadian Association of Petroleum Producers, 2009 Statistical Handbook

The impact of changes in the natural gas marketplace can also be seen from trends in drilling and well completions.

Natural gas well completions have decreased across Western Canada. Compared to 2004, gas well completions are down by about a third in Alberta, down 40 percent in British Columbia, and down 53 percent in Saskatchewan. This reflects increasing investor interest in United States shale gas plays.

The number of active drilling rigs has also been falling in western Canadian provinces over the last number of years, while the number of active drilling rigs in Texas has markedly increased, until the recession took hold.

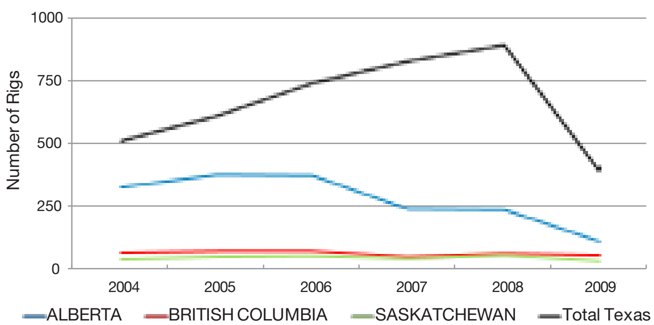

Figure 5
Active Drilling Rigs
Source: Canadian Association of Oilwell Drilling Contractors, Baker Hughes

Land sales in Western Canada, which can be a general indicator of drilling and investment intentions, also reflect growing investor interest in shale gas. From 1999 through 2007, two-thirds of all land sales among the three western provinces were in Alberta. In 2008 and 2009, British Columbia comprised the largest percentage of land sales, likely attributable to its shale gas deposits.

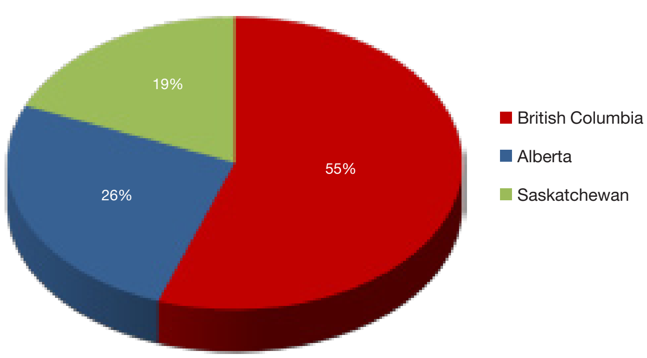

Figure 6
Land Sales Revenues
Source: Alberta Department of Energy, Province of British Columbia, Government of Saskatchewan

Domestic, continental and global factors have contributed to a shift of investment away from our province and into other jurisdictions. Alberta is already beginning to see the effects, in the form of reduced oil and gas drilling activity.

If left unaddressed, this erosion in level of investment in Alberta will continue.

Energy Powers Alberta

Maintaining a competitive position in oil and gas development is essential for sustaining Alberta's long-term prosperity.

Alberta's energy industry – and the oil and gas sector in particular – impacts the daily lives of Albertans from all backgrounds and of all ages, whether they are employed in the sector or not. Virtually every community in Alberta is affected by the industry's ups and downs.

Energy investment powers Alberta in many substantial ways:

Energy investment accounts for almost one third of Alberta's economy.

In 2008, approximately 30 percent of Alberta's total GDP was from energy development, contributing $87 billion to the provincial economy. Approximately 55 percent of this amount is attributable to oil and gas extraction.

This wealth further stimulates the rest of the economy, as individuals, businesses and employees who have earned money from the oil and gas sector spend in other areas such as retail trade, hospitality and food, construction, real estate, and many others.

When one considers these additional effects, the cumulative contribution of oil and gas investment to the overall economy is very much higher. In fact, the University of Calgary has estimated that without oil and gas development, Alberta's economy would be *less than half* its current size.[2] The Alberta we know would simply not be viable.

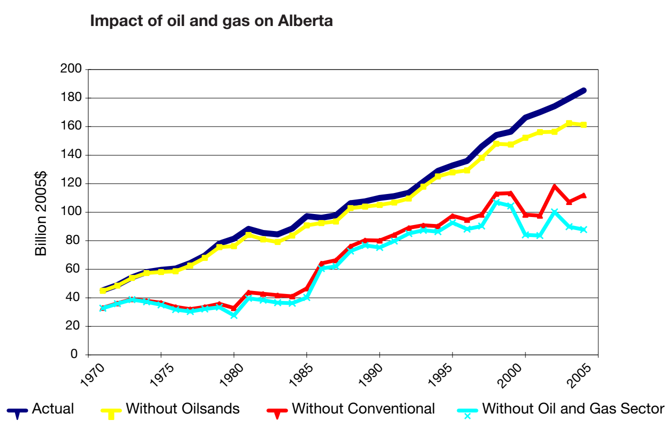

Figure 7
Impact of the Oil and Gas Industry on Alberta's Economy
Source: Energy and the Alberta Economy: Past and Future Impacts and Implications, Institute for Sustainable Energy, Environment and Economy (ISEEE), University of Calgary, Robert L. Mansell and Ron Schlenker, 2006

The significant contribution of energy development propels Alberta's standard of living. Generally, a jurisdiction's standard of living is correlated with its level of GDP per person. On a per-person basis, Alberta's GDP is the highest among the provinces and 70 percent higher than the Canadian average.

Hundreds of thousands of Albertans are employed through investment in oil and gas development.

Conventional oil and gas exploration and extraction is literally the lifeblood of hundreds of local communities, providing vital income for residents and businesses. Thousands of Albertans depend on the oil and gas sector for their current job and income, even if they aren't working in the energy industry.

As of January 2009, Alberta's mining, oil and gas extraction sector was responsible for 146,900 direct jobs for Albertans. Of these, 69,900 jobs were in oil and gas extraction. Another 71,700 indirect jobs were in support activities for oil and gas extraction, such as exploration and drilling, construction, transportation and technical services.

On the whole, approximately 13.8 percent of Albertans – almost one in seven – are directly or indirectly employed in the energy industry.

In addition, Alberta's oil and gas industry induces further employment across the entire economy through the substantial labour income it provides. Albertans directly and indirectly employed by the oil and gas industry spend their earnings on food, clothes, shelter, vehicles, home improvements, electronics, and other goods at local businesses, spurring additional employment and labour income.

The Canadian Energy Research Institute (CERI) estimates that each job in the oil and gas sector is supported by two jobs in support industries, which are in turn supported by 1.7 jobs in other industries. Each new oil and gas well drilled in Alberta supports approximately 120 direct, indirect and induced jobs across the economy.[3]

Energy contributes billions in revenues to governments, contributing to a better quality of life for Albertans.

The oil and gas industry generates substantial revenues to the Alberta government and the federal government. Revenues flowing to the Alberta

[2] Institute for Sustainable Energy, Environment and Economy (ISEEE). (2006). *Energy and the Alberta Economy: Past and Future Impacts and Implications.* University of Calgary: Calgary

[3] Canadian Energy Research Institute. (2009). *Economic Impacts of the Petroleum Industry.* CERI: Calgary

government include resource royalties, taxes and land bonuses. Most of the revenues that flow to the federal government are in the form of federal taxes.

On an overall basis, revenues from royalties, taxes and land bonuses have had an enormous impact on the Government of Alberta's revenue capacity. Between 1999 and 2008, non-renewable resource revenues have, on average, comprised 32 percent of total Alberta government revenues. By comparison, over the same period, personal income taxes have comprised 19.4 percent of total provincial revenues on average.

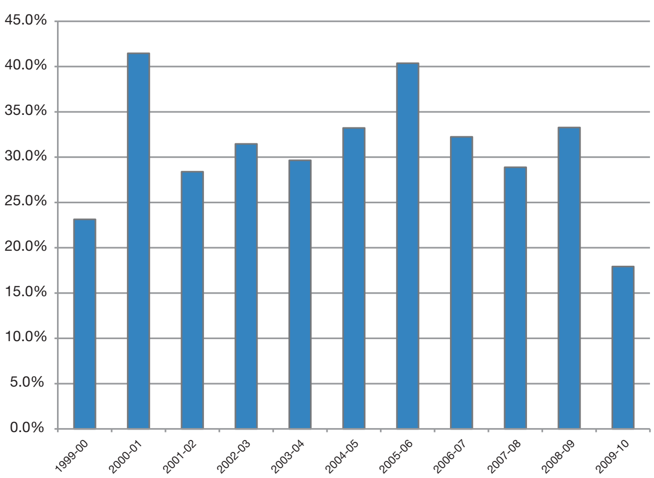

Figure 8
Non Renewable Resource Revenue as a Percentage of Total Government Revenues
Source: Alberta Finance and Enterprise

Non-renewable resource revenues have enabled Albertans to benefit from lower, more competitive taxes relative to other provinces in Canada. Importantly, these revenues pay for essential programs and services for all Albertans. Revenues from the oil and gas industry have also contributed to substantial surpluses in the Alberta budget, enabling us to retire provincial debt. Non-renewable resource revenues have built the Heritage Savings Trust Fund and the Sustainability Fund, the income from which also contributes to programs and services, helping ensure a better quality of life for future generations of Albertans.

Without oil and gas development in the province, Alberta's budgets would look much different. Albertans would be forced to choose between higher taxes, lower levels of services, the assumption of new provincial debt, or some combination of these.

Alberta's oil and gas industry facilitates value-added production, leading to additional economic benefits.

Alberta's abundant oil and natural gas supplies have encouraged the establishment of value-added production facilities such as refineries, ethane extraction facilities and petrochemical plants. This includes two of the world's largest ethane-cracking facilities. Alberta is Canada's largest producer of petrochemicals, producing products valued at over $13.3 billion in 2008. This derivative activity provides additional jobs and income to Albertans and millions of dollars in taxes for the benefit of all Canadians.

The industry is an incubator of new technologies and innovations.

The oil and gas industry is a major investor in research and development, and has given rise to many new and improved products and technologies. These discoveries and breakthroughs have often been broadly transferable to other contexts, improving the quality of life of Albertans and enhancing the protection of Alberta's ecosystems.

Alberta's post-secondary institutions are often engaged as key partners with industry in these research and development activities. These initiatives contribute to the education, attraction and retention of the highly skilled professionals Alberta needs to help us compete in the twenty-first century.

Oil and gas development will drive future growth of the province.

Remaining a competitive destination for oil and gas investment will provide significant benefits to Albertans in the decades ahead.

The Canadian Energy Research Institute has forecast that over the next 25 years, Alberta's oil and gas industry is poised to contribute over $2.5 trillion to Alberta's GDP alone.[4] Of this, nearly $1 trillion is from natural gas and conventional oil. Upstream oil and gas activity in Alberta will also boost the economies of other provinces and territories by an additional $300 billion.[5]

Alberta's oil and gas industry is also expected to create hundreds of thousands of direct, indirect and induced jobs in our province and across the country over the next 25 years. **Over 18.5 million person-years of employment will be created nation-wide, with 13.75 million person-years created in Alberta.**[6]

The full economic benefits of our oil and gas resources do not materialize out of nowhere. Developing and realizing the potential of our oil and gas resources requires the involvement and investment of resource companies.

This reflects a very practical reality – we need to get our resources out of the ground before we can benefit from them.

To continue realizing the benefits of our resources, Alberta must continue to attract investment. This requires our province to adapt to changes in market conditions and increased global competition.

We must take appropriate action to regain lost ground, secure future market share, and position Alberta as the most competitive place in North America for investment in upstream oil and gas development.

[4] Canadian Energy Research Institute. (2009). *Economic Impacts of the Petroleum Industry.* CERI: Calgary. This includes contributions from the development of Alberta's conventional oil (over $107 billion), conventional natural gas ($746 billion) and unconventional coal bed methane ($98 billion).

[5] *Ibid.*

[6] *Ibid.*

Regaining our Ground

In taking action to re-stake our competitive position, we must acknowledge some realities.

Investors assess opportunities on the relative attractiveness of economic return based on factors such as prices, resource potential, and costs. If these factors are relatively similar, investment decisions among competing jurisdictions are based on the perceptions of the broad business climate.

Given our location and geology, Alberta will likely never be the lowest-cost jurisdiction for oil and gas development. And that's fine. We want an oil and gas industry that enables Albertans to realize the full economic benefits of our resources, while protecting our precious natural environment.

What the Government of Alberta can and must do, however, is continue to track and adjust the full range of factors that impact the province's competitive position.

In particular, Alberta needs to remain competitive by balancing the fiscal regime; driving innovation to enhance productivity; improving the regulatory system; and strengthening our productive partnership with industry.

Adapting these key components of the competitiveness formula can enhance Alberta's energy investment climate and boost the province's position as one of the most competitive places in North America to invest in upstream oil and gas.

Fiscal Adjustments to Position Us to Compete

In the case of oil and gas development, Alberta's fiscal regime has sought to achieve an attractive balance of conditions. That is, a climate that helps make the risks manageable for investors and the benefits worthwhile for all involved – especially Albertans.

Investment in Alberta's oil sands resources remains strong. In addition to ongoing development activity, a number of new investments in oil sands projects have been announced. Over the next three years, royalties on unconventional oil are expected to average approximately $4.16 billion per year – compared to the level of $2.4 billion in 2006-07.

However, a crisis in international financial markets, a subsequent global recession, and the emergence of viable shale gas supplies have altered natural gas and conventional oil development. At the same time, Alberta's natural gas and conventional oil resources are often more costly to develop than resources in the United States.

In light of this, the review of Alberta's competitiveness has identified two key concerns with the current royalty system, which are making Alberta a less attractive investment destination:

Front-end rates on natural gas and conventional oil create too much front-end risk.

Alberta's new unconventional resources also require the use of more costly technologies to unlock their potential. Given these higher costs and associated risk, investors place importance on realizing a timely return on their upfront investment early in the life of a development when the well is producing the highest volume. This provides the necessary capital to explore and develop additional wells. Investors consider this when deciding where to make investments.

Alberta's front-end royalty rates are significantly higher than those in British Columbia, Saskatchewan and the United States. This makes investment in Alberta less attractive, as there is comparatively greater risk that investors will not be able to recapture their upfront investments.

Alberta's risk-reward balance needs to be re-calibrated.

Since they provide the necessary capital and assume all the risks of exploration and production, investors also place importance on realizing the benefits of higher prices and higher levels of production. This helps offset losses on lower prices and on non-producing wells. In making investment decisions, investors are driven by their ability to capture a worthwhile portion of the upside value.

Alberta's current royalty structure imposes maximum royalty rates that are much higher than those in British Columbia, Saskatchewan and the United States. For example, at a price of $120.00 per barrel, Alberta's maximum rate on conventional oil is 49 percent while the rate is 18 percent for British Columbia and 19 percent for Saskatchewan.

Addressing these two aspects of the royalty system is critical to re-positioning Alberta's investment competitiveness in upstream natural gas and conventional oil.

Accordingly, the Government of Alberta will take the following actions:

- **The current royalty framework for natural gas and conventional oil will be modified for all production effective January 1, 2011** using the design criteria laid out below.
- Modifications will consider fiscal impacts, and will align with the *Provincial Energy Strategy* and Alberta's overall economic objectives. The new royalty curves will be reviewed and any changes will be announced prior to May 31, 2010, to facilitate investment decisions for the upcoming capital budget cycle. The drilling royalty credit will continue until expiry on March 31, 2011 and all other programs will continue as designed.

MODIFIED ROYALTY FRAMEWORK

Front-end Royalty Rates

- **The current maximum 5 percent front-end rate on natural gas and conventional oil will become a permanent feature of the royalty system effective January 1, 2011.** This feature will continue with the current time and volume limits (i.e. first 12 months of production, 50,000 barrels of oil equivalent, or 500 million cubic feet equivalent of natural gas, whichever comes first). This approach will facilitate the ability of investors to recover upfront investments and to reinvest this capital into additional oil and gas exploration and development in Alberta.
- The addition of this permanent feature will also allow for a more flexible and simplified framework that can be modified (for example: by extending the time and volume limits) as the need arises in the future to recognize the increased costs and risks associated with developing technically challenging reservoirs (e.g., tight formations such as shale gas, tight oil reservoirs, enhanced oil recovery).

Maximum Royalty Rates

- Royalty curves will also be reduced at higher price levels to provide better risk-reward balance to investors, while ensuring Albertans realize the full spectrum of economic benefits of resource development.
- **The maximum royalty rate will be reduced from the current levels of 50 percent to 40 percent for conventional oil and to 36 percent for natural gas, effective January 1, 2011.**

Additional Natural Gas Analysis

- In recognition of the unique challenges facing natural gas development (e.g. new shale gas supply/demand structures and significantly greater competition), the Alberta government believes that additional adjustments need to be considered for natural gas, distinct from conventional oil.

- As noted above, the maximum royalty rate for natural gas will be set at 36 percent, versus the new maximum of 40 percent for conventional oil. In addition, further analysis of natural gas royalty components is underway and will be concluded prior to finalizing the royalty curves at the end of May.

Transition Provisions

- The transitional royalty framework for oil and gas introduced in November 2008 will continue until December 31, 2013 as originally announced. **Effective January 1, 2011, no new wells will be allowed to select the transitional royalty rates.** Wells that have already selected the transitional royalty rates will be allowed an option to switch to the new rates effective January 1, 2011.

Broader Fiscal Examination

- Alberta's broader fiscal regime, including taxes, will also be examined. This will be undertaken with a view of positioning Alberta as one of the most competitive investment locations for upstream oil and gas. We will also invite the federal government to participate in this review. Federal taxes and tax rules have a bearing on investment in Alberta, and the Federal government is a significant beneficiary of revenues from oil and gas development.

- As part of this effort, the government will continue to monitor the fiscal regimes of competing North American jurisdictions to ensure Alberta remains an attractive place to invest and do business. In so doing, the government will be mindful of the stability required by industry partners, and will consider impacts on prior investment decisions.

While remaining consistent with directions under the Alberta Royalty Framework and the 2009 New Well Royalty Reduction Program, these modifications will serve to provide better risk-reward balance to investors in light of the current market realities. Alberta's natural gas and conventional oil plays will be more attractive to develop, encouraging a return of investment capital and additional oil and gas drilling activity.

Estimated Fiscal Impacts

These royalty modifications are not expected to impact the Government of Alberta's current fiscal plan to return to a surplus position by 2012-2013. Higher levels of investment and associated impacts (including higher land sales, and direct and indirect taxes generated by increases in industry activity) will partially offset modifications to the royalty framework. The extent of this offset will be determined by the level of industry re-investment. The increased activity resulting from these royalty modifications stimulate economic growth and lead to higher government tax revenues.

New development in natural gas and conventional oil will have a substantial and enduring impact on Alberta's economy. For each dollar of real capital investment, Alberta's real GDP increases by $1.44 in the first year of investment.[7]

Over a five-year period, each $1 billion of capital invested in Alberta will generate cumulative economic impacts of $2.1 billion.

It is estimated that employment in Alberta would increase by an estimated 8,000 jobs in 2011-2012 as a result of these changes to the royalty framework, and by an average of 13,000 jobs annually in the years following. Approximately eight percent of this increase occurs in the primary industries, largely oil and gas extraction; while 58 percent of the increase occurs in the service sector, 24 percent in construction, and seven percent in manufacturing.

[7] Conference Board of Canada. (2009). *Assessing the Impact of Oil and Natural Gas Drilling in Alberta.* Conference Board of Canada: Ottawa

Driving Innovation

Technology has been an important part of Alberta's oil and gas story, and it is an essential part of Alberta's energy future.

Much of Alberta's success in oil and gas development can be attributed to the development and deployment of innovative technologies to extract, transport and market our abundant resources.

Decades of partnerships among industry, the investment community, the research community, the Alberta government and Alberta's post-secondary institutions have led to incredible breakthroughs that have helped our province overcome geological and geographical challenges to unlock the opportunity of our oil and natural gas.

This approach is more important than ever for Alberta's long-term investment competitiveness.

Though Alberta has significant natural gas and conventional oil resources remaining in the ground, it will take a renewed spirit of entrepreneurial innovation to extract them. New and improved technologies will also be needed to balance our future economic growth with our desire to protect our natural environment.

Technologies such as miscible floods, grey water injection and horizontal drilling and multi-stage fracturing are already being used in parts of the province to enhance natural gas and conventional oil recovery and reduce the overall environmental footprint.

Our province must support and encourage the further development and deployment of technology to reach our economic, energy and environmental objectives.

To do this, we must recognize that:

Advanced technologies can be costly.

Employing new and advanced technologies in upstream oil and gas development comes with increased cost. This must be factored into the overall economics and profitability of an oil or natural gas well.

Technology deployment needs to be better enabled by government.

Alberta can leverage its longstanding strengths in world-class research and technology development to drive innovation in the oil and gas sector. This will enhance our province's productivity and help us maintain a competitive edge.

Alberta's regulatory agencies should be knowledgeable about new technology for upstream oil and gas development and open to innovation. Although the regulatory system must have assurance that a new technology is safe and environmentally sound, this can be accomplished through greater use of pilot projects that allow for evidence development. This approach can facilitate broader technology transfer and continuously build knowledge within regulatory bodies.

Today the Alberta government is working with many partners to develop the technologies needed to pursue cleaner, more efficient energy production. This work is occurring through a number of organizations and avenues including:

- *Alberta Innovates - Energy and Environment Solutions (EES)* – EES is supporting the development of novel oil and gas production technologies by funding Research Chairs at the University of Alberta and the University of Calgary in Drilling, Microbial Enhanced Oil Recovery and Tight Gas Research; and is supporting the In-Situ Recovery Program consortium focused on reducing costs, improving recovery and reducing environmental impact of oil recovery.

- *Alberta Innovates -Technology Futures (AITF)* – AITF funds Enhanced Oil and Enhanced Gas Recovery projects which support companies in minimizing risk and improving financial returns.
- Alberta's network of post-secondary institutions. Through Campus Alberta, a network of researchers are working in numerous areas related to upstream oil and gas recovery and cleaner energy development.
- International collaboration – Alberta is working collaboratively with other international research organizations, such as the Helmholtz Association of German Research Centres.

These research initiatives offer the promise of new technologies and breakthroughs that will help Albertans realize the full economic benefit of natural resources while working to protect our environment.

Alberta must build on these efforts, and take action to encourage industry to invest in new technologies that overcome geological and geographical challenges, and unlock new opportunities in natural gas and conventional oil. New technologies will also support improvements in environmental performance.

The Government of Alberta will therefore take the following actions:

- Front-end modifications to the royalty framework for natural gas and conventional oil will recognize the higher cost often associated with the deployment of new technologies and enable investors to recoup these upfront investments.
- As part of examining Alberta's broader investment competitiveness, the Alberta government will explore additional ways to recognize and account for the higher costs of new and advanced technologies needed to develop mature conventional oil and gas plays and unconventional natural gas.
- The Alberta government will identify ways to provide greater regulatory flexibility for the use of technologies in upstream development. Considerations will include ways to better support pilot projects, and ways of better assessing the real risks of new technologies and approaches.
- The Alberta government will ensure the development of technologies to support enhanced oil and gas recovery remains a key research priority through its successful partnership models with industry, the research community and post-secondary institutions.

Improving the Regulatory System

Albertans know that sustaining our province's economic prosperity comes with a responsibility to maintain high standards for protecting Alberta's environment and public safety.

We have learned many lessons in Alberta from our years of experience with oil and gas development. Our knowledge about the need to balance energy development with other factors is significant compared to many other jurisdictions.

Numerous regulations are in place to ensure that oil and gas development occurs in ways that protect the environment and ensure public safety and the wise use of resources.

Alberta has demonstrated a strong commitment to protecting the environment through a number of key policy initiatives such as *Alberta's Land Use Framework* to achieve Alberta's long-term economic, environmental and social goals; *Water for Life,* which sets out a plan for wise management of Alberta's water quality and quantity; and *Alberta's Climate Change Strategy* to reduce greenhouse gas emissions.

Alberta has also committed to high environmental standards through legislation such as the *Environmental Protection and Enhancement Act, Water Act* and *Oil and Gas Conservation Act.* Upstream oil and gas development in our province must occur in ways consistent with these strong commitments, now and in the future.

In addition to meeting strict standards, obtaining approval to develop an oil or natural gas well also involves many other regulatory processes and requirements. For example:

- securing mineral tenure;
- securing the right to access the land;
- consulting with local community residents and Aboriginal peoples; and
- applying for and securing various permits and approvals.

Regulatory requirements are rightly aimed at ensuring oil and gas development happens in an orderly and informed way, and is in the public interest. However, the processes around current regulatory requirements are not always efficient.

Alberta's regulatory processes are complex and not well coordinated.

A number of Alberta government ministries and agencies are involved in the regulation of the oil and gas industry. These include the departments of Alberta Energy, Alberta Sustainable Resource Development, Alberta Environment, and Alberta's independent, quasi-judicial Energy Resources Conservation Board (ERCB). The involvement of several players is not by itself a problem.

However, a lack of coordination and collaboration among the players makes the regulatory system hard to navigate and creates duplication. Information is not effectively and efficiently shared among these bodies. Proponents must submit applications and secure various approvals through multiple, disconnected points even when they are related to the same project. Those potentially impacted by oil and gas development have similar challenges when attempting to access information about a project.

This leads to unnecessary effort on the part of industry and confusion on the part of Albertans about which government body is responsible and accountable for varying aspects of regulatory approval.

Stakeholders have also raised concerns about duplicative and overly frequent reporting requirements. In order to sharpen our province's competitive position, Alberta's regulatory bodies need to work in a more integrated and practical fashion. This means sharing information sensibly and making it easier for Albertans and investors to interact with the government.

There are delays in current regulatory processes.

In situations where multiple approvals are required, it is not always clear which ministry or agency has precedence in decision making. Application processing and response times vary among the players. Delayed response times in one ministry or agency can cause a chain reaction across others, undermining project timelines and driving up overall costs.

Differences across regulatory bodies in terms of feedback, information and application requirements is another challenge. Directives and policy decisions are not always applied consistently. Consultation requirements can be inconsistent among the regulatory bodies, resulting in repetition or confusion.

Regulatory approaches need to keep pace with government policy on environmental performance and outcomes.

Alberta's regulatory processes also need to be consistent with our province's evolving approach to environmental protection and public safety. Initiatives such as the *Land-use Framework* are placing greater emphasis on setting environmental outcomes and establishing targets regarding the quality of our air, land and water resources. Developers will need to work within these targets, using technology improvements, less intensive approaches or other changes in the way they do business.

Alberta's regulatory system needs to be responsive and encourage innovation.

Issues have been raised that Alberta's regulatory system relies too much on prescriptive rules, provides limited flexibility and does not encourage performance-improving innovation. A project which proposes to use new or innovative technology can face an onerous approval process, even though the new technology would result in better performance.

Alberta's regulatory system must continue to balance oil and gas development with the health and safety of Albertans and the protection of Alberta's natural environment.

It must also enable the deployment of new technologies, to drive innovation and enhanced productivity in our upstream oil and gas sector.

To regain competitive ground and be one of the most competitive places in North America for oil and gas investment, Alberta's regulatory system needs to be more integrated, more practical and more efficient. This means reducing red tape, sharing information sensibly, and making it easier for Albertans and investors to interact with the Alberta government.

The Government of Alberta will therefore take the following actions:

Over the next six months, we will implement and build further on actions underway to improve the regulatory system. The following will be implemented to realize near-term enhancements to the regulatory system, while improving outcomes and maintaining Alberta's high environmental standards:

- Regulatory bodies will work together to put coordinated compliance inspections in place by October, 2010.
- Alberta Environment will streamline the review process for Pre-Disturbance Assessments (PDA).
- The ERCB will streamline processes for commercial in-situ oil sands development approval amendments and for harmonization of well spacing in development entities 1 and 2. It will also consider what further changes may be required for unconventional gas development using horizontal wells.
- The ERCB will work with industry to develop data confidentiality provisions better suited to unconventional gas development.
- In addition, the Alberta government will accelerate its shift to an outcome-based approach. This will assure provincial policy objectives are met, while enabling developers to use cost-effective and innovative approaches to improve environmental performance and *meet required outcomes.*

The Government of Alberta will also undertake a comprehensive review of Alberta's regulatory system for resource development, to ensure alignment with this outcome-based approach. This broad-based review will involve industry and other stakeholders to ensure that Alberta's regulatory system is modern, efficient, performance-based and competitive, and continues to maintain Alberta's strong commitment to environmental conservation and stewardship.

- **A Task Force, chaired by the Parliamentary Assistant for Energy, will be formed to oversee this review and will report to the Minister of Energy.** The Task Force will also include the Parliamentary Assistants for Alberta Environment and Alberta Sustainable Resource Development and its mandate will encompass regulatory processes for the three departments and the Energy Resources Conservation Board. This coordinated government approach will improve efficiency while protecting the environment, ensuring public safety and conservation of resources.
- The Task Force will issue a progress report within 90 days regarding the implementation of near-term enhancements, changes to support and facilitate the deployment of new technology; and the process for comprehensive review of the regulatory system going forward, including the establishment of specific milestones for progress.
- As part of this review, the Government of Alberta will establish measurable objectives for its regulatory system and benchmark against other jurisdictions to support continued competitiveness.

Strengthening the Productive Partnership

Albertans have enjoyed a long history of partnership with the resource industry – one that has evolved over decades. It has contributed to Alberta's reputation for an open and stable business climate. It has enabled us to unlock the world leading opportunities of Alberta's oil and gas resources and build the prosperity of this province.

It's a partnership that neither Albertans nor industry can take for granted.

It is a partnership that must continue to be fostered over time. Industry and investors need to have confidence that Alberta's regulatory and fiscal policies will remain stable and predictable.

This requires effective communication and public awareness on all sides, to ensure we all understand how upstream oil and gas development supports the goals of Alberta's *Provincial Energy Strategy.*

Albertans recognize the significance energy has for our province. They deserve and expect to have factual, balanced information about how energy development proceeds in Alberta, and the ways energy supports our economic and environmental goals.

Improved energy literacy is essential for our province to make informed, responsible decisions about our future development. It supports Albertans and Alberta businesses in identifying opportunities relating to development, and in discussing and working through energy-related issues, including responsible energy production and efficient energy use.

Enhanced energy literacy also leads to better understanding among Albertans and the resource industry, strengthening the long and productive partnership. This reinforces Alberta's favourable business climate, and positions our province as one of the most attractive places to investment in upstream oil and gas development.

The Government of Alberta will therefore take the following actions:

- Better communicate with Albertans regarding the *Provincial Energy Strategy*, its vision and desired outcomes.

- Consistent with the *Provincial Energy Strategy,* promote understanding and awareness among Albertans regarding Alberta's energy issues, including:
    - policies and initiatives being undertaken towards the development of cleaner energy production and alternative energy sources;
    - the ways in which resource development is supporting Alberta's economic, energy and environment objectives; and,
    - how Alberta develops and uses energy in environmentally responsible ways.
- Enhance national and international understanding of Alberta's energy resources and work being done to develop these resources in environmentally sustainable ways.
- Led by Alberta Energy, Alberta government ministries and energy agencies will work together and with industry and other stakeholders in aligning energy-related policies, to reduce barriers and support the achievement of the objectives of the *Provincial Energy Strategy.*

Next Steps

Albertans want our province to maintain a leadership position and set a path for sustained prosperity that will achieve Alberta's energy, economic and environmental goals. That means taking timely action in regards to our fiscal regime, our approach to research and innovation and our regulatory regime.

Addressing these aspects of our competitiveness will provide greater clarity and certainty for industry. It will help renew national and international confidence in Alberta's overall business climate. And it will position Alberta as one of the most competitive destinations in North America for upstream oil and gas investment.

This will help energize investment and development activity, and unlock the potential of Alberta's vast reserves of natural gas and conventional oil. It will enable Albertans to realize the full economic benefits of our resources – through more employment and business opportunities, new technologies and innovations, and enhanced wealth creation across the economy.

The following timelines will guide our next steps, as we work to secure Alberta's competitive future in conventional oil and gas.

- Over the next 60 days, we will finalize new royalty curves incorporating the key design elements identified earlier.
- Over the next 90 days, the Task Force on Regulatory Enhancement will report to government on near-term enhancements, processes to support and facilitate the deployment of new technology, and the status of a comprehensive review of our regulatory system.
- Over the longer term, we will:
  - monitor and assess our ongoing competitive position relative to competing jurisdictions, while being mindful of the stability industry partners require;
  - review our broader fiscal regime regarding upstream oil and gas, including taxes;
  - set measurable objectives for our regulatory system performance, and assess and benchmark our ongoing performance against other jurisdictions; and,
  - review and assess our ongoing support and plans for technology development and deployment through Alberta Innovates.