

# **UPGRADING ALBERTA'S FUTURE**

Securing long-term economic opportunities through adding value to bitumen

A discussion paper

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## Table of Contents

1. Our Greatest Risk Is Doing Nothing	2-6
2. The Benefits: Upgrading Alberta’s Future	8-11
i. In Brief	
ii. Taxation Revenues	
iii. GDP and Job Growth	
3. The Urgency: Securing Our Economic Future	12
4. Facilitating Value Add–Part of Alberta’s History	13
5. Conclusion: Value Add–Keeping Our Promise	14
6. Sources	15

If we don’t upgrade Alberta’s future now, we stand to lose up to 48% of the potential revenue from our resource, which represents the loss of hundreds of billions of dollars over coming decades. Such a lost opportunity will affect the future stability, prosperity, and quality of life for generations of Albertans. As today’s decision makers, can we ignore such an opportunity or responsibility as this?

## 1. Our Greatest Risk Is Doing Nothing

*“[The export of Canadian bitumen rather than higher quality upgraded oil] could become the greatest loss of economic value for any country in world history.”*

- **Wilf Gobert**, Chairman Calgary Economic Development and Energy Analyst, Financial Post, November 2009.

**Alberta is vulnerable.** As diminishing portions of our bitumen is processed into higher value products at home, we are increasingly engaged in only one step of the value chain. Alberta is not achieving our strategic downstream targets which puts us at the mercy of the markets when it comes to oil prices and are therefore subject to a variety of factors out of our control. We are at risk of losing our future advantage if we don't act today. Critical risks that impact us include:

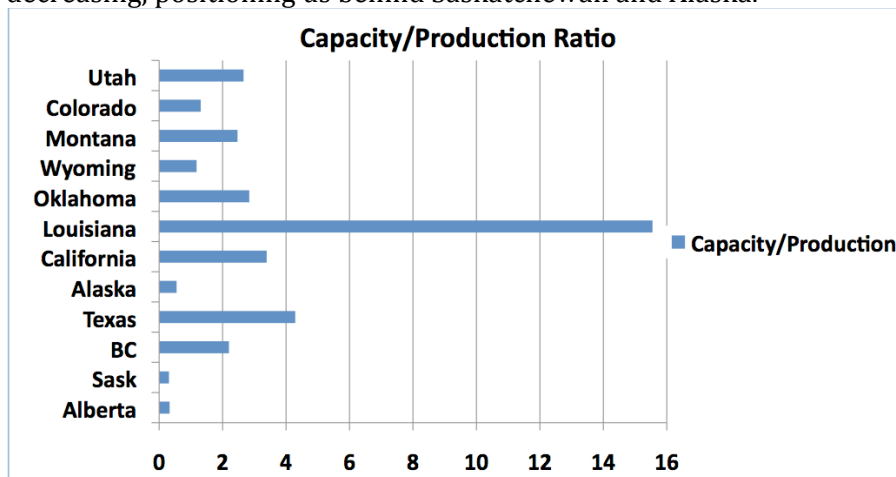
1. **Market volatility.** Selling one raw product to one major customer makes Alberta too vulnerable to market volatility. Without the diversification and hedge that value-add can bring we have no means of mitigating this, which results in unnecessary exposure to uncontrollable market tides.
2. **Fuel and feedstock shortages.** Alberta's farmers have experienced diesel shortages during the last three harvests! In addition, Alberta's petrochemical industry is at risk of running short of feedstock, while we export a rich feedstock (bitumen). Without having more influence on the full value chain we will face serious shortages that will negatively impact our economy.
3. **'Dirty Oil' implications.** Opinions on the oil sands are becoming increasingly entrenched due to misconceptions surrounding Alberta's 'dirty oil'. Alberta needs a strategy with more market choices to help mitigate this risk. Consider as well that without new value-add projects, we will not be able to leverage our CCS strategy and green our barrels or realize the benefits of enhanced oil recovery (EOR) which has the potential to bring in \$15-\$30 billion in additional royalties over the next 30 years.
4. **Growing foreign influence over Alberta's resource development.** China, Korea, Japan, India, Norway, middle east countries and other jurisdictions increasingly own a greater piece of Alberta's resource industry. While foreign investment is not only welcome, its critical, these sovereign wealth funds and companies are not always tied to traditional market drivers. Some will be strategically looking forward in order to secure *their* economic and energy future. This should be considered in light of Alberta's *own* economic and energy future and *our* ability to compete, build wealth and quality of life.

Taken together, all of these factors put Alberta in a vulnerable position. Although we should not expect to process all our own bitumen, adding maximum value to our bitumen would allow us to have more control over these critical risk factors.

# 1. Our Greatest Risk Is Doing Nothing: Continued

## *Untapped Potential - Alberta's Capacity and Production Lags.*

When looking at both crude production levels and capacity for crude refinement, Alberta is lagging behind other North American jurisdictions. For example, British Columbia, Montana, and Colorado have the capacity to refine almost twice as much crude as they produce. In comparison, Alberta has far less capacity to refine the crude it produces and Alberta's capacity/production ratio is decreasing, positioning us behind Saskatchewan and Alaska.

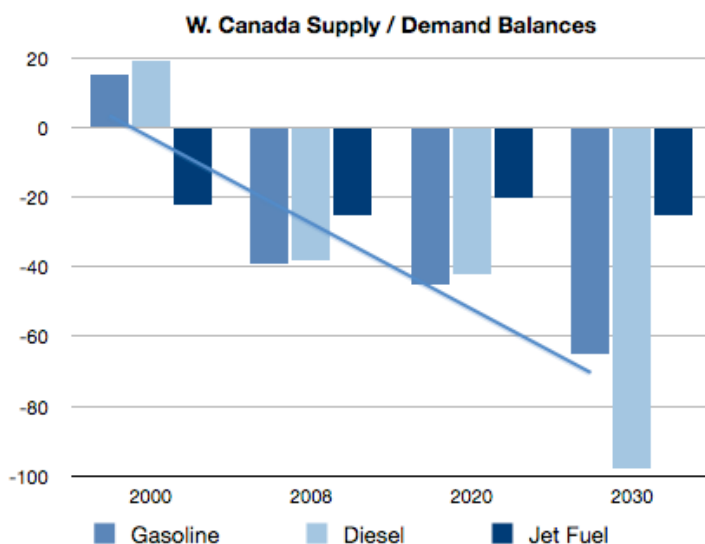


Sources: EIA 2009, Statistics Canada 2010 Projection

Saskatchewan: Coop Regina refinery working on a 50 mbd expansion ^ mostly gasoline production

Notes: because of U.S. EIA reporting, 1659 bbls of U.S. Federal Offshore production is not allocated to specific states.

This is at a time when Albertans experience annual constraint of diesel fuel and when projections show that without new refinery capacity, Western Canada's transportation fuel deficits could reach nearly 200 KB/D by 2030 as demonstrated below.



Units - ('000 B/D)

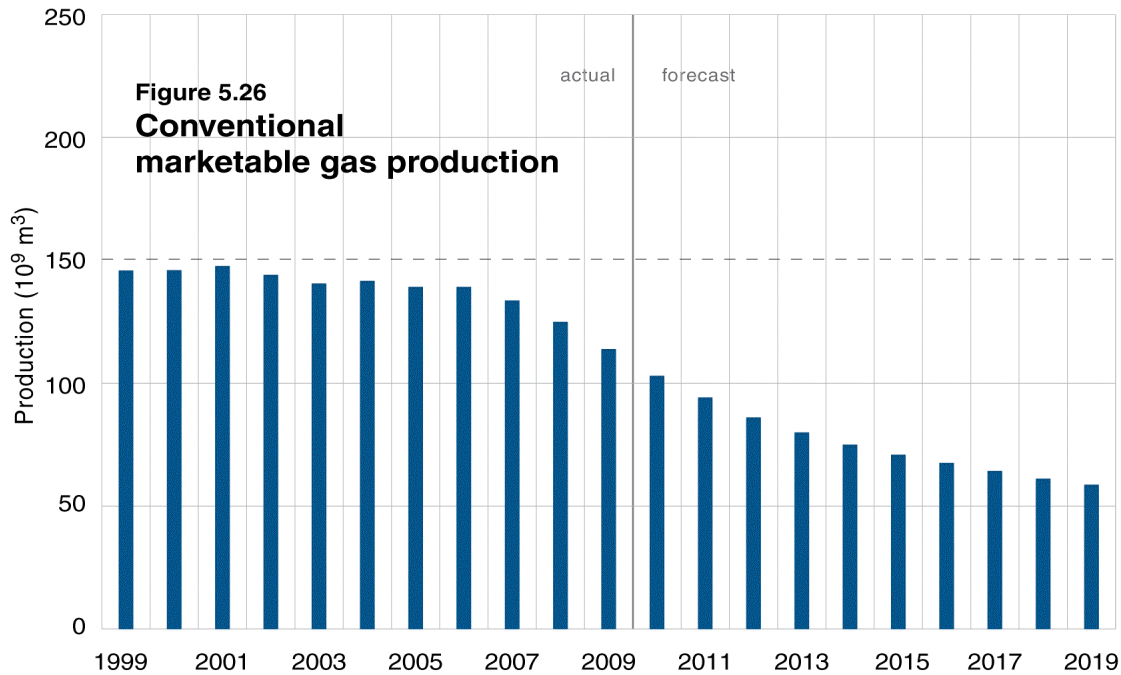
Source: Moncrieff Consulting, July 2010

# 1. Our Greatest Risk Is Doing Nothing: Continued

## *Alberta's Conventional Natural Gas Supply Is Dwindling.*

**“Alberta’s conventional natural gas supply will be declining over the next decade.** As indicated by the graph below, in 2019 marketable gas production is expected to be roughly one-third of what it was during the peak in 2001 due to of the age of the fields and the overall exhaustion of this resource.

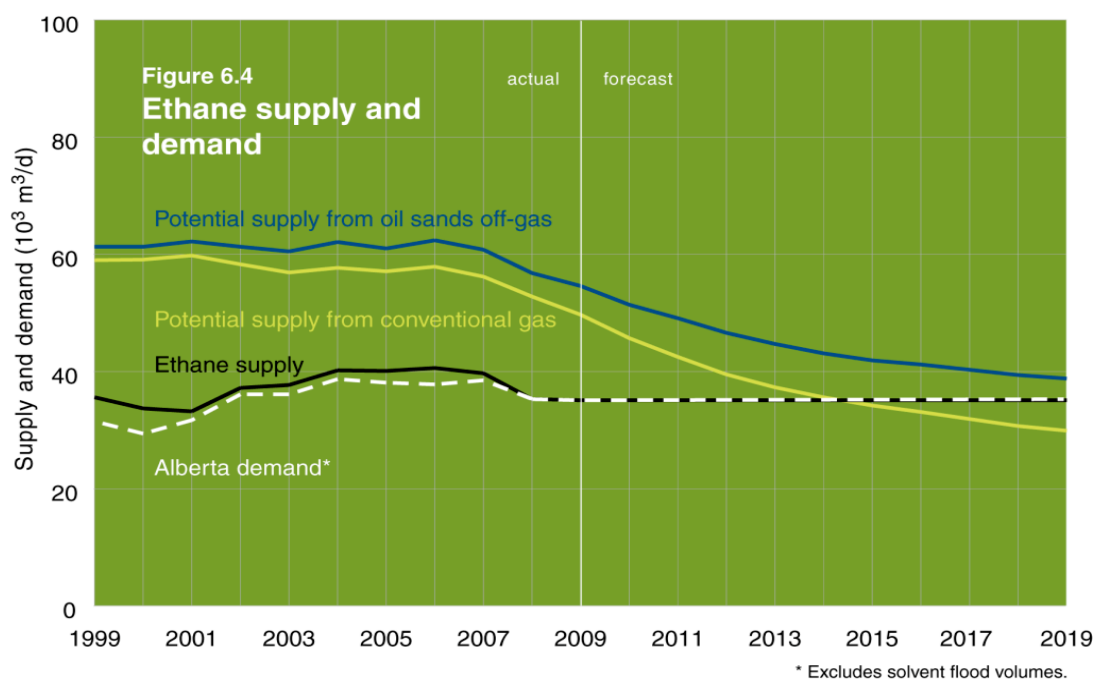
Source: ERCB Report, Alberta Energy Production Estimation, June, 2010



## 1. Our Greatest Risk Is Doing Nothing: Continued

### *Our Shifting Petrochemical Feedstock Supplies.*

**The reduction in conventional natural gas production will have a major effect on the supply of ethane, which is the main feedstock for Alberta’s petrochemical industry.** While we have new supplies of unconventional gas, such as coal bed methane and shale gas, these sources have little ethane and are not included in future projections for feedstocks. As a result of this decline, Alberta’s demand for ethane for the petrochemical sector is expected to exceed the supply by 2014. While some companies are making plans to import ethane into Alberta, it will put a financial strain on the industry and erode our competitiveness. This may lead to a rationalization of the industry unless a new source of feedstock can be found.

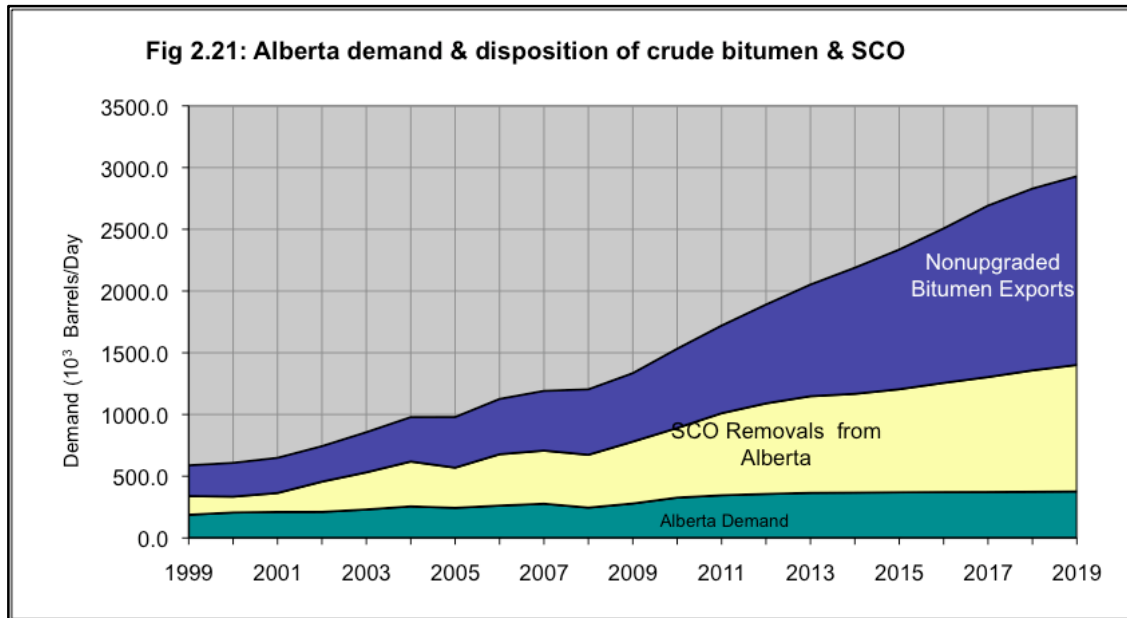


Source: ERCB Report, Alberta Energy Production Estimation, June, 2010

**A major new source of feedstock can be found in the “off-gases” produced from the upgrading of Alberta’s bitumen.** As the chart above shows, the potential of supply from “off-gases” combined with our conventional supply is projected to meet our demands. This means that by encouraging upgrading in Alberta we can sustain and even grow our petrochemical sector based upon the off-gas potential that exists. In fact, the estimates from the ERCB show a declining supply from off-gases, which grossly underestimates the volumes that would be available. An additional 600,000 bpd of upgrading capacity has the feedstock potential to double the size of the petrochemical industry in Alberta.

## 1. Our Greatest Risk Is Doing Nothing: Continued

*As Raw Bitumen Exports Increase, Our Potential Decreases.*



Source: ERCB Report, Alberta Energy Production Estimation, June, 2010

*ERCB estimates show that the amount of bitumen processed into synthetic crude within Alberta is decreasing from approximately 70% in 2008 to less than 50% over the next decade and falling dramatically. With the potential for the oil sands to realize production of 6,000,000 barrels per day over the next 3 decades **the consequences of this trend is significant and will cut deeply into our revenue, GDP and high value, knowledge-based job creation potential in the province.***

## 1. Our Greatest Risk Is Doing Nothing: Continued

### 'The Anti Value-Add Argument'

There are some who argue against adding value by upgrading in Alberta. Anti value-add arguments do not hold up under scrutiny or against existing research. The benefit of upgrading Alberta's resources outweighs the upfront risks. Here are some of the common arguments you might see publicized:

Risk	Misconception
<b>Government could lose money if they get involved in value-add projects in Alberta.</b>	<b>Not true.</b> The taxation alone related to a downstream barrel of oil captures more revenue than royalties today.
<b>We can't make money on 'the spread' (differential between raw bitumen and SCO).</b>	<b>Not true.</b> You don't make decisions to build upgraders on the spread in 2010 or 2009, two of the worst economic years in the last century. Investors know an upgrader is a 30-40+ year project affected by many factors. Factors including Alberta's practice of allowing transportation costs and diluent discounts as allowable royalty deductions. Some would argue this artificially inflates the spread for the more distant processing plants. <b>The spread is also a natural hedge for the day when bitumen prices (and royalties) per barrel decrease.</b>
<b>We should rely on the free market to correct itself</b>	<b>Not true.</b> Profits are greater elsewhere for large integrated producers and while this exists the large developing gap will not be corrected by the market. Government action is the only thing that will correct our diesel shortages, petrochemical feedstock shortages and build upgrades in the short term.
<b>There is no appetite in Alberta for upgraders.</b>	<b>Not true.</b> There is huge appetite for upgrading here. There is will, capacity and political support.
<b>The government has no business being in the energy business.</b>	<b>Not true.</b> We have always played a partnership role in facilitating energy development. This goes back to the earliest days of Suncor, Syncrude and other companies. We are also currently a shareholder in many major oil companies (over \$1 billion in shares) on behalf of Albertans through the Heritage Trust Fund.
<b>The Alberta government is 'intervening' in the free market and government involvement will distort the market.</b>	<b>Not true.</b> Albertans own Alberta's resources! We are simply <i>facilitating growth</i> . Our policy has always been to <b>shepherd the best outcome for our children and grandchildren.</b> In addition, increasingly, our industry investors are foreign governments and are motivated less by tradition 'market' drivers than by their strategic economic objectives. Alberta needs to use this same lens... just as we did 40 years ago.

## 2. The Benefits: Upgrading Alberta’s Future

***Our critical weaknesses can be overcome by increasing upgrading and refining capacity in Alberta.***

**The benefits of upgrading have wide-ranging strategic implications for Alberta.** It will help stabilize our economy by making us less vulnerable and more competitive. We will be able to diversify our markets, and expand our customer base and opportunities for new tax revenues. It will create new knowledge-based jobs and ultimately make us more profitable. Exporting raw bitumen alone could not create all of this value. Upgrading our future potential, profitability and opportunities can happen right now. Here are some of the major benefits of achieving the maximum bitumen value-add possible in Alberta.

Benefits in Brief	Positive Outcomes
<b>Upgrading and petrochemical development in the province allows for new taxation revenue streams.</b>	Upgraders mean more revenues in corporate, personal and property tax that will go to governments. These new revenue streams represent billions of dollars every year.
<b>By creating more market demand for bitumen, we can keep its price high</b>	Increased upgrading creates competition and helps to support higher bitumen prices. High prices equates to more Crown revenue for all our barrels through taxes and royalties.
<b>We have influence on more of the value chain, which means we can diversify our products and our customers.</b>	By having more products to sell, we have more possible markets to sell into. We spread the risk while maximizing our profitability.
<b>Albertan’s economy will not be constrained by restraint of transportation fuels</b>	Farmers and other Albertans will have a more reliable supply of diesel and Albertans will have best possible price at the pump.
<b>We create new feedstocks, with it more product potential, opportunity and revenues.</b>	We can secure a future for the higher value petrochemical industry – and billions of new revenue into Treasury.
<b>We will create new knowledge-based jobs and keep skilled workers in Alberta.</b>	Growing the downstream industry also means thousands of new jobs in construction, services, and maintenance sectors. It also creates more knowledge based jobs in the chemical manufacturing industry. This industry has the highest employment of university graduates next to the IT industry where 1/3 of employees have University degrees.
<b>We mitigate the risk of having one major trading partner.</b>	It’s bad business practice to have only one customer to rely on. Upgrading in Alberta means we can more easily trade our products with other partners.
<b>We mitigate our risk of foreign governments making decisions on how our resources get developed.</b>	A ‘made-in-Alberta’ solution with long-term Alberta contracts helps secure a strategic legacy for Albertans.
<b>We help facilitate increased pipeline capacity to the West Coast.</b>	A pipeline to the West Coast offers the benefit of proximity and new markets; it’s relatively close and offers huge Asian Pacific market potential.
<b>We green our barrels and increase royalties from EOR</b>	New projects will be tied to CCS strategies. This will allow the overall carbon footprint of oilsands barrels to be among the smallest on the market. It will also enable further revenue and jobs for Alberta from EOR
<b>We keep our commitments that have both economic and political importance.</b>	Value-add is part of our energy policy and oilsands strategy. It was part of our campaign platform in 2008 and are endorsed PC resolutions from 2008 and 2009.

## 2. The Benefits: Continued

**What's in a barrel of oil?** The revenue from a barrel of oil is much more than royalties. If strategic upgrading targets are not met we will be missing out on up to 48% of potential revenues. Below is a breakdown for every dollar in taxes received by all levels of government when a barrel of bitumen is processed domestically:



*The Canadian Energy Research Institute (CERI), Economic Impacts of the Petroleum Industry in Canada (2009)*

**Downstream revenues** includes corporate, personal and property taxes from upgrading, refining, and petrochemicals.

**Upstream revenues** include current revenues from taxes from oilsands mining and in-situ development.

**Royalties** are royalties from mining and in-situ.

## 2. The Benefits: Continued



We forgo this GDP when we forgo value add.

Today we realize this GDP.

### GDP CREATION

According to the CERI study, when a barrel is completely processed domestically, the upgrading stage of the value chain creates the most GDP outperforming the GDP created by any of the other stages (mining, in-situ, conventional production, refining or petrochemicals).

Here's the broader breakdown of the potential GDP created by upstream and downstream activity from a barrel of bitumen.



Employment potential unrealized

Today we create these jobs.

### JOB GROWTH

Alberta's greatest opportunity for quality employment also lies within our downstream potential. For every 100 potential jobs created by Alberta's oil industry, 57 of those (mostly knowledge-based) are created by upgrading, refining and petrochemicals (downstream)

*Source: The Canadian Energy Research Institute (CERI)*

### 3. The Urgency: Securing Our Economic Future

*The doors of opportunity are closing on Alberta as every day passes. The time to position our value-add potential is now.*

**Bitumen value adding Alberta needs to be fast-tracked.** As recently as June 2010, The Alberta Industrial Heartland Association was quoted as saying, "in order to meet Alberta's strategic objectives, **we need to have four additional upgrades running at 150,000 barrel per day capacity.**" As of today, none are under construction. If we are going to secure Alberta's future, we need to start now. Here are some of the critical reasons why:

**1. There is a lot of investment happening in extraction in Alberta, shaping the economic landscape around us.** Plans are being made, contracts are being drawn, pipelines planned and ownership is being decided, and we don't have three years to wait on a policy decision. We will have missed those windows of opportunities by then and they may not return for generations.

**2. Upgraders take time to negotiate, finance, approve, design, build, and start operating.** Assuming no delays, the window of opportunity is as follows: two years for company due diligence; two years for regulatory approvals; and three to four years for construction. If we start today, it will be 7-8 years (year 2017-18) before we have significant new capacity. In order to have upgraders running in the province by 2020, we need to get companies interested and engaged now.

**3. Heavy oil demand is growing. In order to be strategically placed at a time when construction costs are relatively low, we need to act now.** We need to secure and stage out upgrader development now for a systematic, managed rollout to avoid costly inflation that comes with too many projects commencing at once.

**4. As Alberta approaches oil sands production of 6 million bpd , there will likely be less excess upgrading and refining capacity in the US and our bitumen \$/b will drop.** Increasing capacity in Alberta mitigates this risk and will help keep our bitumen price (and royalties) as high as possible.

#### 4. Facilitating Value Add: Part of Alberta's History

*“Value-add upgrading is the most immediate, pressing policy decision of our government.”*

- **Mike Percy**, Dean of the School of Business, U of A, speaking to Industrial Heartland Mayors, February, 2010

**Alberta is widely recognized for its entrepreneurial, trailblazing spirit.** In the energy sector, the Alberta government has been a facilitator of this since it first partnered with oil and gas interests in the early 1970's in order to grow some of our best-known companies who are now the backbone of our economy here in Alberta and across the country. Companies such as Syncrude, Encana, Cenovus, Transcanada, Suncor and others, all **had their start in partnership** with government and would not have had such successful starts without Alberta's integral role in their development.

**What made these partnerships successful were two things:**

1. our early leadership and investment;
2. our eventual and timely exit.

**We have always been a catalyst, looking for ways to maximize value and realize potential.**

We understood that our role in these partnerships was to get an industry off the ground and allow it to become self-sustaining. We were **there to be a partner** and facilitate growth, **not to control operations**. . Our role is, and always has been, to develop and implement strategic economic policy. We have always looked to the future, imagined ways we could add value to industry through support of various kinds, and then got out of the way to let industry do what it does best.

Today, the opportunity exists for us to once again look to the future and find ways to nurture an industry and the future of this province for generations to come. Right now, we are seeing a dramatic erosion of bitumen upgrading in Alberta. Should this continue and we not change this trend, we will forfeit enormous opportunities for our children and grandchildren.

For the sake of short-term gain, are we divesting ourselves of our province's future wealth? Should we not put in motion a strategy that will bring more money from diverse sources into Treasury while ensuring a strong competitive and strategic position for our next generations? We can do all of this by achieving maximum bitumen value-add in the province of Alberta and diversifying our markets.

Albertans are the proud owners of arguably the world's largest hydrocarbon reserves. Just as we are now reaping the benefits of decisions made by the PC government decades ago, future generations of Albertans can reap the benefits of the decisions we make today on their behalf.

## 5. Conclusion: Value Add – Keeping Our Promise

*‘Keeping our promise’ means more than keeping our word or sticking to strategy. It also means ensuring our future promise is fulfilled for the next generation of Albertans.*

- **Consider that the real money is not just in selling the raw resource.** Royalties are only a part of the picture. **It’s what we leverage that raw resource into that creates new and sustainable economic opportunities for future Albertans.** There are incredible economic benefits from the jobs, as well as, corporate, personal and property taxes that can be generated out of upgrading activities alone.
- **We need to diversify our products to mitigate our current market risk. If Alberta has maximum participation of all levels of the bitumen value chain, we mitigate risk.** The way to do this is to upgrade two-thirds of our own resources. Bitumen Value add in Alberta offers choices, new revenue streams, new feedstocks and new stability against market volatility.
- **Diversifying our products means we can also diversify our customers.** Bitumen value add in Alberta means we can offer more marketable products to more customers around the world.
- **We need to ensure the future of Alberta is secured.** Downstream activity offers new, stable, knowledge based jobs, new economic opportunities, new products, security of supply and new sustainability that will last for generations. Our children and grandchildren will thank us.

Today we reap the rewards of an industry that did not exist in Alberta decades ago because of the wisdom of the people who came before us. Today we also have the vision to build a strategy that will provide for the future. The opportunity to act is in our hands. It’s up to us to ensure we secure a quality of life and a legacy for generations of Albertans who don’t yet have a voice.

## 6. Sources

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