

A photograph of an oil pumpjack in a field of wheat. The pumpjack is blue and yellow, and the wheat is golden. The sky is cloudy. The text is overlaid on a white-bordered box in the center of the image.

# **LEADERSHIP REPORT**

Canadian Oil Value, Liquidity and Hedging  
June 2017







# CANADIAN OIL LIQUIDITY, VALUE AND HEDGING

*A provincial issue with a national impact*

**ALBERTA** HAS  
LOST APPROXIMATELY  
**\$13 BILLION**  
SINCE 2014 FROM THE OIL DOWNTURN



Each year, Canada loses roughly **\$9 billion** from the discount to WTI not only because of its grade and landlocked position – it is an opaque and underdeveloped financial marketplace.

## Hedging

By implementing prudent hedging policies, the government could be a force of stability and opportunity – even in commodity down-cycles.

## Benefits

- 1 Generates revenue when it's needed most
- 2 Reduced margin of error in budget forecasts
- 3 Opportunity to create jobs through funded spending

## Viability

- 1 Used in many countries like Mexico and Brazil
- 2 Canadian banks would play a key role
- 3 Required hedging liquidity and logistics are feasible



**HEDGING AND DEVELOPING FINANCIAL ACCESS  
COULD IMPROVE THE VALUE OF CANADIAN OIL  
AND REDUCE VOLATILITY THROUGH IMPROVED  
LIQUIDITY, PRICE DISCOVERY AND AWARENESS**



## The 5 Step Plan

- 1 Assemble group of independent advisors
- 2 Seek government dialogue and forum
- 3 Review risks, sensitivities and baseload revenues
- 4 Develop hedging program policy, mandate & strategy
- 5 Provide the government with recommendations



At Auspice, we believe that if you have a view on oil, the best way to express that view is directly in oil.

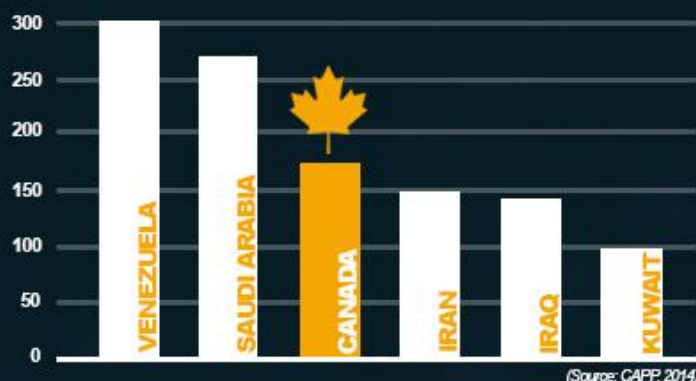
# THE IMPORTANCE OF CANADIAN CRUDE

Despite many believing that the majority of US oil imports come from the Middle East, Canada is actually the largest exporter of crude to the US.



In 2015, 43% of all US oil imports were of Canadian origin.

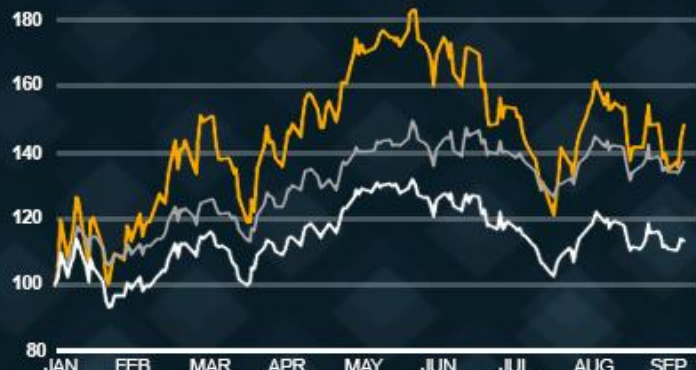
## CHART 1 - TOP OIL RESERVES



Canada ranks as the most socially progressive of the top global oil-producing nations and has the 3rd largest oil reserves in the world.

## CHART 2 - NORMALIZED RETURNS ON COMPETING ETFS

(Since Jan 2016)



■ Canadian Crude Oil ETF (CCX) ■ United States Oil Fund (USO) - Currency Adjusted ■ Horizons Nymex Crude Oil ETF (HUC)  
Source: Bloomberg

## ADVANTAGES

Canadian Crude is vital in meeting US demand and its discounted price creates an opportunity.

## LEVERAGE

Canadian Crude outperforms, trading higher and lower on a normalized return basis (see chart 2 & 5). If the differential remains at a similar level or narrows, the return from a long position on a Canadian barrel will be better than the return from an identical position in WTI in a rising crude oil environment.

## VOLATILITY

Canadian crude prices are more volatile which can create greater tactical trading opportunities.

## STABILITY

The differential between the CCI and WTI has become stable recently due to additional takeaway capacity and storage for Canadian oil.

## CURRENCY EXPOSURE

The Canadian economy is dependent on oil. As prices rise, the Canadian currency historically strengthens, further enhancing the return for oil investors.





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We have created this summary document in order to promote an important public discussion about the value of Canadian oil and hedging viability to share with corporate and government leadership partners. It is our goal to help all stakeholders understand the relevant issues and work collectively on an approach to maximize governmental and public buy-in. Together, we believe we can create change in two key areas:

### **1. Better Value for Canadian Oil**

- a. The current old-school and opaque structure of physical basis trading is undermining the value of our oil. Western Canada Select (WCS) is traded physically as a basis (or discount, e.g. -\$14) to WTI and a significant investor and financial market has not yet been developed. In an effort to change this, Auspice Capital Advisors has created a simple and understandable benchmark for Canadian heavy sour crude oil called the Canadian Crude Index (CCI™). Quoted as a fixed price, the CCI is expressed in US dollars per barrel (USD/bbl) and has been published by NYSE since 2014. There is one exchange traded fund (ETF) linked to it in Canada, and a US version will follow in 2017 with the help of United States Commodity Funds (USCF).
- b. We believe liquidity will improve with awareness and additional investment channels, creating greater access for global retail and institutional participants. The benefits of liquidity may include better price discovery (see definition in the appendix) and transparency, reduced volatility and an expanding roster of natural buyers, while making it easier to hedge Canadian oil, with the added benefit of reducing the discount applied to it.

## **2. Hedging Viability for the Province of Alberta**

- a. We have assembled a team of experts that will examine the viability of hedging in Alberta, and assess ways to reduce the political risk associated with implementing an appropriate policy. This group believes this strategy is not only viable, but achievable without undue market disruption.
- b. In order to hedge without creating price distortion, the market needs to be balanced in terms of buyers and sellers. The potential exists to create this liquidity with the CCI benchmark and retail tools created by industry experts, including Auspice. Commodity ETFs attract buyers as prices fall, which is a natural offset for producers (see Chart 8 to follow).
- c. Credit-worthy Canadian banks are already involved in all aspects of the CCI and ETF as well as related hedging and market making.

Our aim is to work with public and private sector partners to better understand the issues and to develop the best ways to implement enduring change.

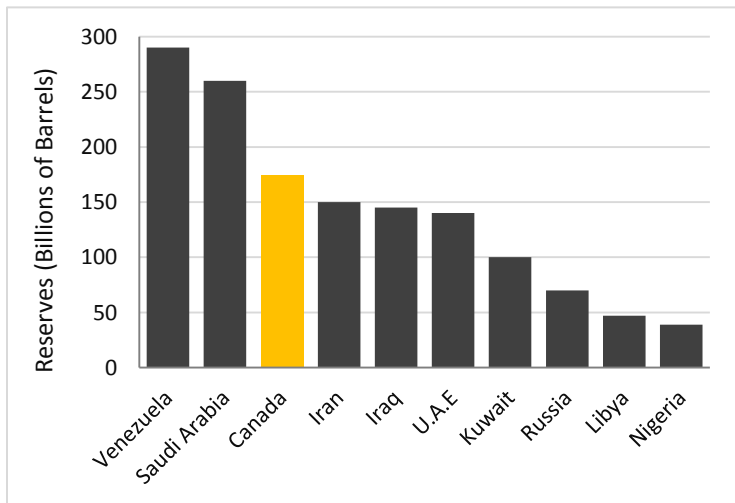
*The government and producer community should be excited. We have created a new benchmark for all to better understand our oil and gain investment access to it. Interest in our oil and our benchmark has begun to develop in the largest markets in the world, the United States and Asia.*



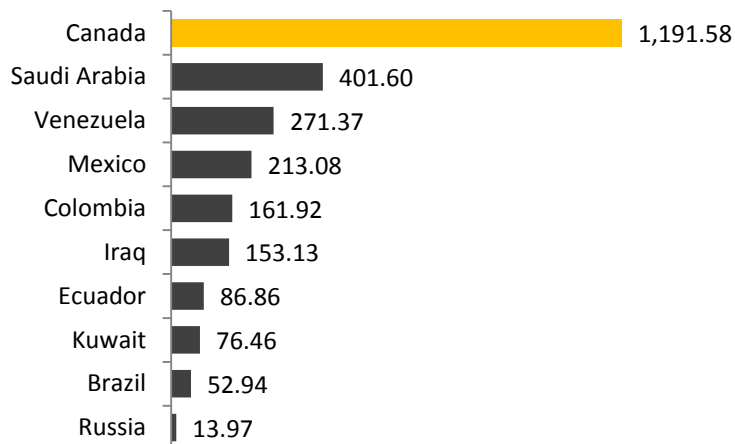
# BETTER VALUE

Oil, and the price performance of oil, matters greatly to our nation. Canada is the seventh largest oil producer globally, and has the third largest oil reserves in the world (Canadian Association of Petroleum Producers (CAPP), 2014, see Chart 1 below). Our country exports over three million barrels of oil per day to the United States, making us the largest single-country supplier to America, nearly tripling Saudi Arabia’s exports (its second largest supplier) and sending more south of the border than all OPEC members combined (see Chart 2 below).

**Chart 1: Top Oil Reserves by Country**



**Chart 2: US Oil Imports by Country (2016, Millions of Barrels)**

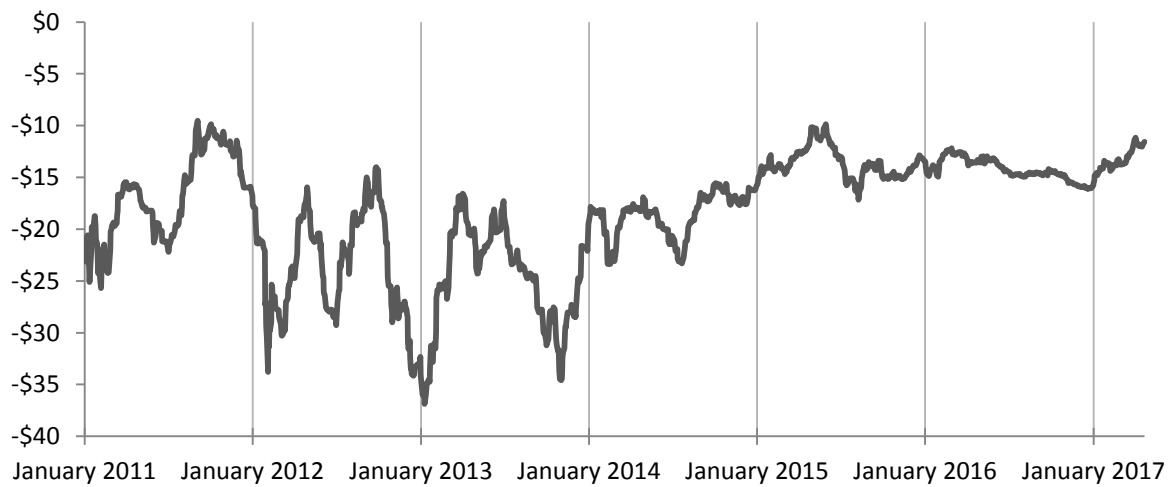




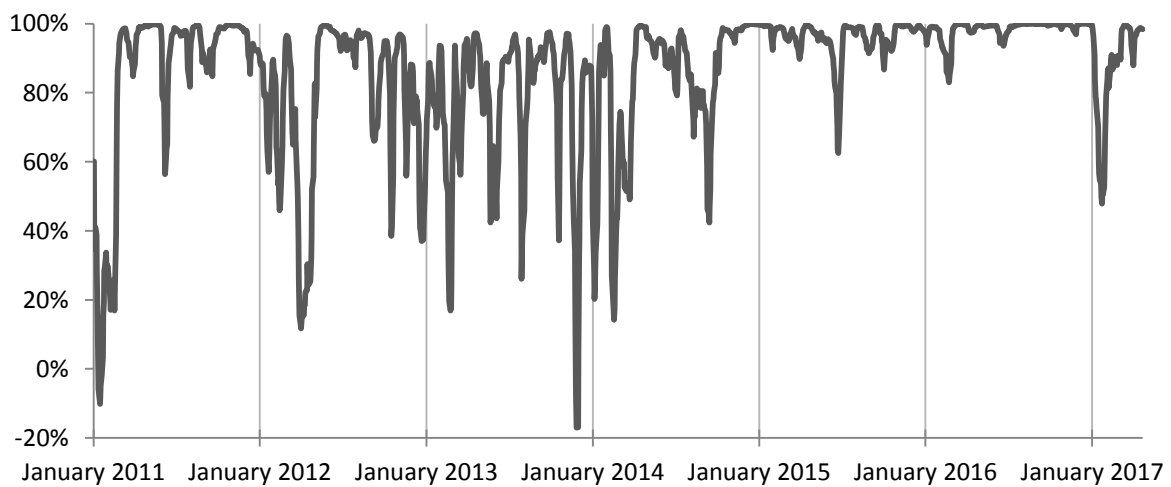
Typically, when referring to Canadian oil, media and market speculators alike quote the price and performance of WTI. Although it is generally referred to as a global indicator of the price of oil, WTI is an inaccurate benchmark for the price of crude oil produced in Canada. The predominant grade of oil we produce in Canada (heavy sour) is different than the grade of oil produced in the US (light sweet). Additionally, WTI does not reflect the volatility, risk and opportunity of the Canadian commodity.

While price movements usually resemble each other, they are unique. The discount for Canadian crude has averaged over \$19.00 (USD) since 2011 (see Chart 3 below). The correlation itself has also been historically volatile (see Chart 4) and may improve with liquidity, storage, and takeaway capacity.

**Chart 3: CCI Reference Price (CDNCRUDE) vs WTI Differential**



**Chart 4: CCI Correlation to WTI (One Month)**





The discount for Canadian crude can be explained by the following factors:

1. **Grade:** Canadian's heavy sour grade is often seen as a disadvantage, even though Mexico's Maya crude (also a heavy sour blend) often trades at par with WTI.
2. **Transportation costs:** Alberta's landlocked position often makes transport expensive without the use of additional infrastructure.
3. **Market access:** There are limited takeaway options within the physical wholesale market from Alberta's supply basin.
4. **Storage:** Storage has historically been limited, though it should be mentioned that it has expanded in recent years.
5. **Financial liquidity:** Financial participation in Canadian crude is critical to increasing the value of our oil.

Overall, we cannot do much about the first four factors, at least not in short order. While pricing of oil assets is typically governed by grade and transportation costs, this only holds true for mature markets where liquidity exists. Storage capacity is already improving, which provides producers with physical options and creates the indirect benefit of attracting market participation. As a result, the one aspect that we can truly affect and improve is liquidity. By some estimates, improved market access and participation would drastically improve pricing and narrow the differential between Canadian crude and Mexican Maya.

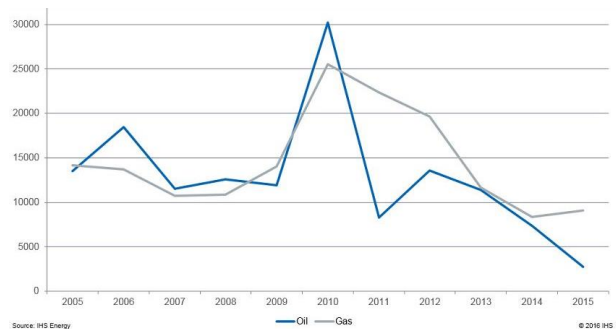
### ***So, how do we encourage financial liquidity?***

Liquidity refers to volume and market participation. While the solution for liquidity is largely stuck in a "chicken or egg" scenario, or in industry terms, "liquidity begets liquidity," it can actually come from a variety of sources. This includes the retail marketplace, institutional trading, hedge funds, pension plans and hedging activity.

Liquidity appears when there is awareness and the ability to match interested buyers and sellers with a common instrument. Given most investors will not invest in physical barrels, swaps, or even futures, ease of access is paramount and ETFs are a key part of this improvement.

If nothing is done and financial participation is not encouraged, the price and value we receive for our oil will remain constrained. A predominantly opaque and illiquid marketplace does not benefit Canada. Brokers and the sole buyer of our oil, the United States are the only ones that stand to gain from current market processes. Currently, Canada is home to one of the only growing oil broker markets globally, as most other countries have enough liquidity and competition within the space to curb this practice. While competition helps price discovery and promotes further market participation, it limits these parties' margins and flies in the face of their best interests. Thus, the question we have to ask ourselves is, do we want our oil to benefit all of Canada or simply our brokers and neighbours to the south? If you prefer the former, the answers lie in improved liquidity and market participation. Only through these two factors will we be able to improve the price performance of our commodity in short order.

The time to encourage liquidity is now. Since 2010, discoveries outside of North America have dropped dramatically, falling to their lowest level in over 65 years (see Chart 5). With only 2.8 billion barrels of oil equivalent (BOE) found outside of the continent annually, North America, and more specifically Canada, is poised to supply much of the world with crude oil over the long term as the supply gap reaches insurmountable levels. Thus, by encouraging more competition and interest in our oil today, we'll be ensuring that we receive the best price tomorrow when we are relied on globally.



**Chart 5: Conventional Oil Volumes Found Annually in North America**





# AWARENESS AND A NEW BENCHMARK

Due to a lack of a recognizable benchmark and limited general market awareness, most people do not understand the dominance of Canadian crude oil in North America. Although Canada is the largest supplier of oil to the United States, 75 per cent of Americans think the majority of US oil imports come from the Middle East (see Chart 6).

The US is the largest energy consumer in the world, and the bulk of their oil imports comes from the Western Hemisphere, with Canada leading by a wide margin (See Chart 7). Accordingly, we should be able to demand the best possible price for our oil.

Chart 6

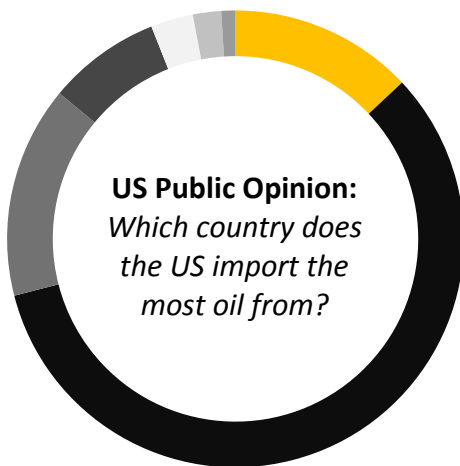
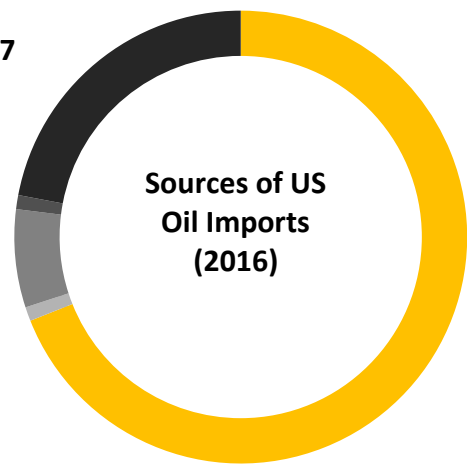


Chart 7



■ Canada ■ Saudi Arabia ■ Iraq ■ Venezuela ■ Mexico ■ Russia ■ Other

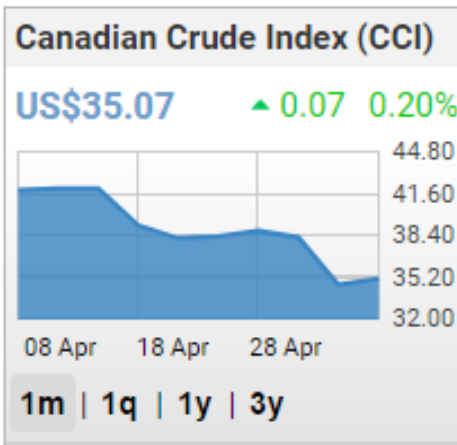
■ Western Hemisphere ■ Other ■ Africa ■ Europe ■ Persian Gulf



We believe in simplifying pricing for all global participants by providing a standalone Canadian oil reference price that is quoted in US dollars per barrel and is of equal importance when compared to other global benchmarks (WTI, Brent, Oman). Canadian crude needs to be expressed in terms of a fixed price – not a spread or differential – making it easily understood by everyone. In doing so, all stakeholders, including the provincial and federal governments, will be able to better understand the characteristics and performance of Canadian crude.

We need to encourage active financial market participation in conjunction with providing clarity on the physical movement of our oil. Key to this effort is promoting a simple and recognizable benchmark, such as the CCI.

By adopting such a benchmark, we expect to see market participation grow, providing a powerful underpinning to the price of our commodity and its trade support. The CCI is now available globally, allowing investors to track and speculate upon the price of the commodity in real time (see below).



**CCI™ = WTI - WCS (rolling three-month basis)**

May 16, 2017 close:

\$37.50 USD = \$49.28 - \$11.78 (note WCS on a discounted basis and negative)

January 20, 2016

\$15.76 USD = \$29.62-\$13.86

\*WTI-WCS lowest market close for 2016



# NEW LIQUIDITY

At Auspice, along with our collaborative partners at the National Bank of Canada (NBC), we believe that there is global interest in trading Canadian crude exposure beyond the physical wholesale marketplace. To that end, with an initial \$40 million of seed capital from NBC, we launched the Canadian Crude Index ETF (CCX-TSX) in May 2015, the only pure play in the Canadian crude oil commodity. The CCX tracks the Canadian Crude Index, which is calculated and published by the NYSE (part of the Intercontinental Exchange (ICE) – the largest exchange group in the world).

Global interest has now been confirmed. This same index and ETF structure has been licensed in the US to United States Commodity Funds (USCF), the market leader in commodity ETFs. USCF owns the largest crude oil ETF in the world, USO-NYSE. The USCF Canadian Crude Oil Index ETF (UCCO-NYSE) is in regulatory review and is slated to launch in 2017.

The historical benefits of ETF liquidity and market growth are important in this story. When looking at the more mature US oil market in relation to investor interest, and using it as a proxy for the potential success that Canada can achieve, we see that as the price of WTI fell, oil ETFs grew. This led to two main benefits: 1) it dampened the effects of declining oil prices, and 2) it created a natural buyer for a “long oil” producer community that needs to sell (see Chart 8 of the following page).



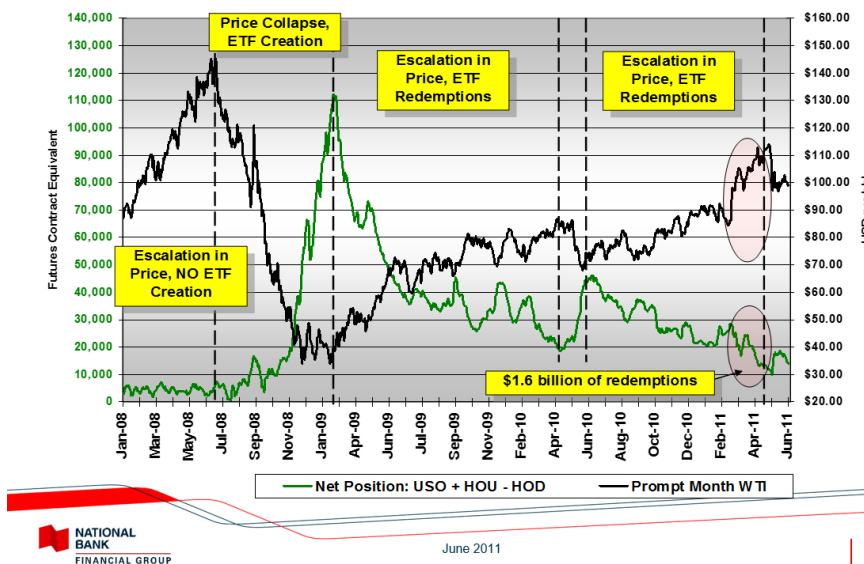
## Benefits of Liquidity

Essentially, by expanding market participation, liquidity potentially brings with it many benefits that make hedging easier:

1. Price discovery and transparency
2. Reduced volatility
3. Reduced discount (basis to WTI)
4. Natural buyers

No market has matured to provide true pricing without non-wholesale participants. By increasing liquidity and global market participation, true price discovery can occur – based principally on Canadian crude’s grade and transportation costs. In order to achieve this, a healthy market of buyers and sellers with a variety of non-wholesale motivations are required. It is as crucial, and as simple, as getting away from having only one buyer for your product. Liquidity is facilitated by the matching of buyers and sellers with different motivations and needs. By creating trading vehicles for investors and speculators, from both retail and institutional backgrounds, we are facilitating liquidity.

**Chart 8: ETF Equivalent Futures Contract Positions vs. WTI Price**  
(Total Crude Oil ETF Contracts versus Prompt WTI)



Market liquidity has an old rule of thumb: the 80/20 rule. It posits that 80 per cent of market liquidity comes from investors, speculators (non-wholesale participants), while 20 per cent comes from the wholesale community. This ratio is out of line in the current market. Instead, it is largely skewed toward the wholesale, physical marketplace.

### Volatility, volumes, and a reduced discount

Beyond price discovery, there are two other indirect positive outcomes of financial participation. First, increased market liquidity will likely reduce the volatility inherent in an immature market. This simply comes from increased volume and activity. While it would be difficult to quantify the

change, a reduction in Canadian oil volatility of 20-30% (relative) would be material, yet still remain more volatile than WTI and thus would encourage trading participation.

Liquidity is important for all assets, particularly commodities, as it grants participants the ability to buy and sell easily. This significantly helps to attract speculators and investors to the market. An illiquid market tends to be far more volatile than a liquid one.

In 2011, the G20 Study Group on Commodities sought to investigate the causes and consequences of commodity price fluctuations. Its report, issued in November of that year, highlighted the role of investors, in that *“greater investor participation can be expected to enhance the functioning of markets by adding depth and liquidity. This should help producers and consumers to hedge price fluctuation risks. Greater participation of financial investors can also aid the*

*development of long-term commodity futures, which would facilitate risk management and planning over longer time horizons. More generally, participation of well-informed financial investors may enhance the quality of price signals.”*

The report also noted that *“greater participation by financial investors in commodity futures markets can bring important economic benefits by improving market functioning. More specifically, markets become deeper to the extent that financial investors take offsetting positions to other market participants or engage in market making. Enhanced market liquidity can also help to accommodate the hedging needs of producers and reduce their hedging costs. Moreover, growing financial activity can promote the development of markets for longer-term futures, facilitating risk management and planning of commodity producers and consumers over longer time horizons.”*

Second, along with volume and transparency, liquidity brings in natural and speculative buyers. A healthy marketplace requires buyers and sellers. Given that the producer community is a natural seller, we critically need buyers to balance this out. Moreover, this liquidity may have the effect of reducing the discount – what a benefit!

Historically, buyers enter the market as prices fall, which provides offsetting liquidity when it is needed most. This in turn may cause the differential to narrow. While we cannot quantify how much, the simple truth is improved liquidity and market participation beyond wholesalers develops price discovery. This is the only way that Canadian crude will rise to a globally demanded level.

***Fact: The financial impact of the Canadian crude discount is significant. According to the 2016/17 Alberta budget, a \$10 narrowing of the discount is worth over \$700 million. Considering the Alberta marketplace for heavy sour crude is 1.75 million barrels per day, this number is actually closer to \$9 billion per year***

### **Will new market participants be buyers or sellers?**

While retail investors are naturally buyers and more comfortable being in long market positions versus short, the actual answer to the question is both. For many reasons, we believe natural buyers and sellers will gravitate to this market. This opinion has been seconded by one of the most successful companies in this space globally, USCF, who is licensing the CCI and ETF rights from Auspice to launch the ETF in the US market. This in turn may encourage more producers who are naturally long on the commodity, and sellers, to use the Canadian crude oil market to hedge versus using WTI.

*Overall, buyers will enter the Canadian crude market because:*

1. As the marginal barrel in North America, it is easier to see the theoretical low.
2. As a discounted barrel, the downside trading risk is limited.
3. Canadian crude has a history of moving higher and lower on a normalized basis, creating a material outperformance in price (see Chart 14).
4. The commodity’s volatility is higher by 20-40% in relative terms when compared to WTI.
5. It is natural for retail and institutional commodity investors to try to pick a bottom.

The more volume— especially from natural buyers— the less the impact on the market by its natural wholesale (producer sellers) participants. This facilitates hedging “in kind” over time. Furthermore, it is ideal for a Canadian producer to hedge with Canadian oil versus WTI given that it is the grade that they largely produce.

It would be in the best interest of the Alberta government and the producer community to encourage global awareness of the CCI and CCX in order to improve price discovery and liquidity around the commodity.

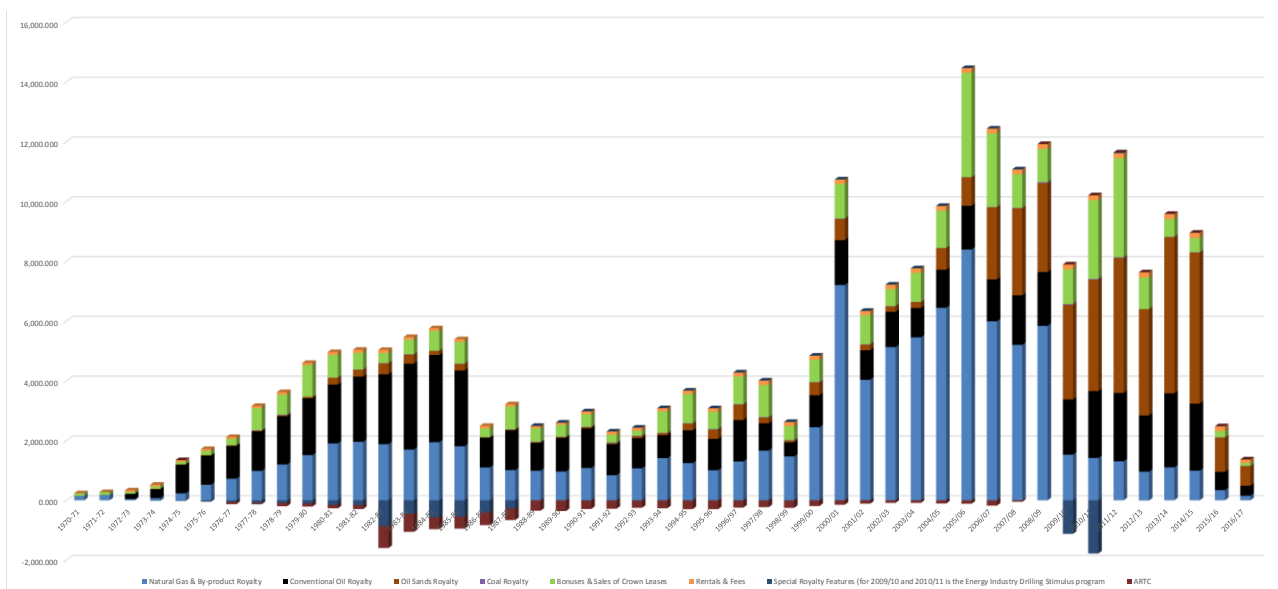




# HEDGING VIABILITY

While liquidity improvements may aid selling and hedging for our producer community, we have looked at hedging in isolation, specifically with respect to the Alberta government revenues received by oil royalties. In the current budget, revenues are forecasted to drop from \$9 billion in 2014-15 to \$1.4 billion in 2016-17, a level not seen in 40 years (see Chart 9)

**Chart 9: Alberta's Non-Renewable Resource Revenues**



Along with two respected experts, Greg Tisdale, the former CFO of Crescent Point Energy, and Erik Petursson, the former Manager of Financial Risk Management at ARC Resources Ltd., we have created this section of the document to focus on the viability of hedging oil in Alberta.

This group has expertise in risk management, designing hedging program principles and policies, resource market participation, and budget forecasting for private and public organizations dependent on energy revenues. We aim to explore a variety of risk management tools and alternatives, with the goal of developing recommendations that will help Alberta and Canada.

We understand the importance of Canadian oil within the context of a global marketplace. In review of the viability of a hedging program for Alberta, our expert group has determined that implementing such a program here is 100 per cent achievable.

### **Why Hedge?**

The benefits of a hedging program are clear. Hedging:

1. Reduces the margin of error in revenue and budget projections
2. Generates revenues when the economy needs the most support
3. Takes advantage of low price environments (e.g. focus on building infrastructure)
4. Offsets cash flow that could be used to create jobs during difficult times

By implementing prudent hedging policies, the Alberta government could be a force of stability and opportunity, even in commodity down-cycles.

Hedging oil revenues is an important contributor to good fiscal policy because it reduces the margin of error in budget projections and provides a stable source of revenues. As a result, the government would be in a better position to contribute to its economic health and viability. In periods of commodity price softness, a stable, hedged revenue stream for the government allows it to take advantage of lower labour and materials costs to pursue necessary infrastructure projects. To ignore hedging is to make the choice to not do anything to actively reduce risk. It is easy to do nothing.

### **Why Not Hedge?**

The reasons commonly cited to avoid hedging are not credible:

1. Lack of expertise
2. Political risk
3. Cost of hedging

We believe that we indeed have the skills required to effectively look at this issue and make real change. We have the expertise, the ability to design a cost effective program, and an opportunity to provide the government with support without placing additional political risk on their shoulders. Moreover, creating an independent body of experts and/or “Hedging Review Panel” could reduce this risk and burden.

From a public perspective, it is important to recognize there is a risk/reward trade-off implicit in hedging – while it reduces or repays the potential risk of a bad consequence, it may have an associated cost in that it can chip away at potential gains. As such, an appropriate public relations campaign should be designed and implemented to educate Albertans on the benefits and effects of a strong hedging program.



While hedging isn't free, there are solutions and structures to mitigate the expense of an effective program.

## Hedging Cost Benefit Table

	Direct	Indirect
Cost	<ul style="list-style-type: none"> <li>• Cost of premiums</li> <li>• Investment expertise</li> <li>• Bid-offer spread</li> </ul>	<ul style="list-style-type: none"> <li>• Liquidity (price) impact on market</li> <li>• Political risk</li> <li>• Impediment to producer abilities to hedge</li> </ul>
Benefit	<ul style="list-style-type: none"> <li>• Stable revenues</li> <li>• Gains at a time of low cost to build or enhance infrastructure</li> <li>• Reduction in revenue volatility</li> <li>• Government as a force of stability and opportunity</li> <li>• Reduction in the margin of error in revenue and budget projection</li> <li>• Protection of social programs</li> </ul>	<ul style="list-style-type: none"> <li>• Stronger overall economy</li> <li>• Jobs created from projects</li> <li>• Offset of transfer payments at critical time</li> <li>• Leadership by example with producers on hedging</li> </ul>



# WHO HEDGES?

Like Alberta, crude oil revenue historically covers about one-third of Mexico's budget, and in 2015, the country received a record payout from its hedges. The International Monetary Fund (IMF) estimates that inflows from the oil-price hedge provided the Mexican government with \$6.4 billion in revenue in 2015. These revenues are used to make budgetary commitments to Mexico's social programs and infrastructure development possible.

For the past ten years, Mexico's Ministry of Finance has employed an oil hedging program. The program locks in oil sales to shield against price declines through a series of hedges with financial institutions.

Mexico insured oil sales with a minimum price of \$76.40 per barrel from December 2014 to November 2015 before the commodity fell to an average price of \$46.61.<sup>1</sup> Through its hedging program, Mexico guaranteed sales at almost \$30 a barrel more than the average price in 2015. As a result of its foresight, Bloomberg presented Mexico with its "Oil Deal of the Year" Award.

Mexico's hedging agreement for 2017, which was completed in August 2016, guarantees a minimum price of \$42 a barrel. From 2001 to 2017, the country made a profit of \$2.4 billion; its hedges raked in \$14.1 billion in gains and paid out \$11.7 billion in fees to banks and brokers.<sup>2</sup>

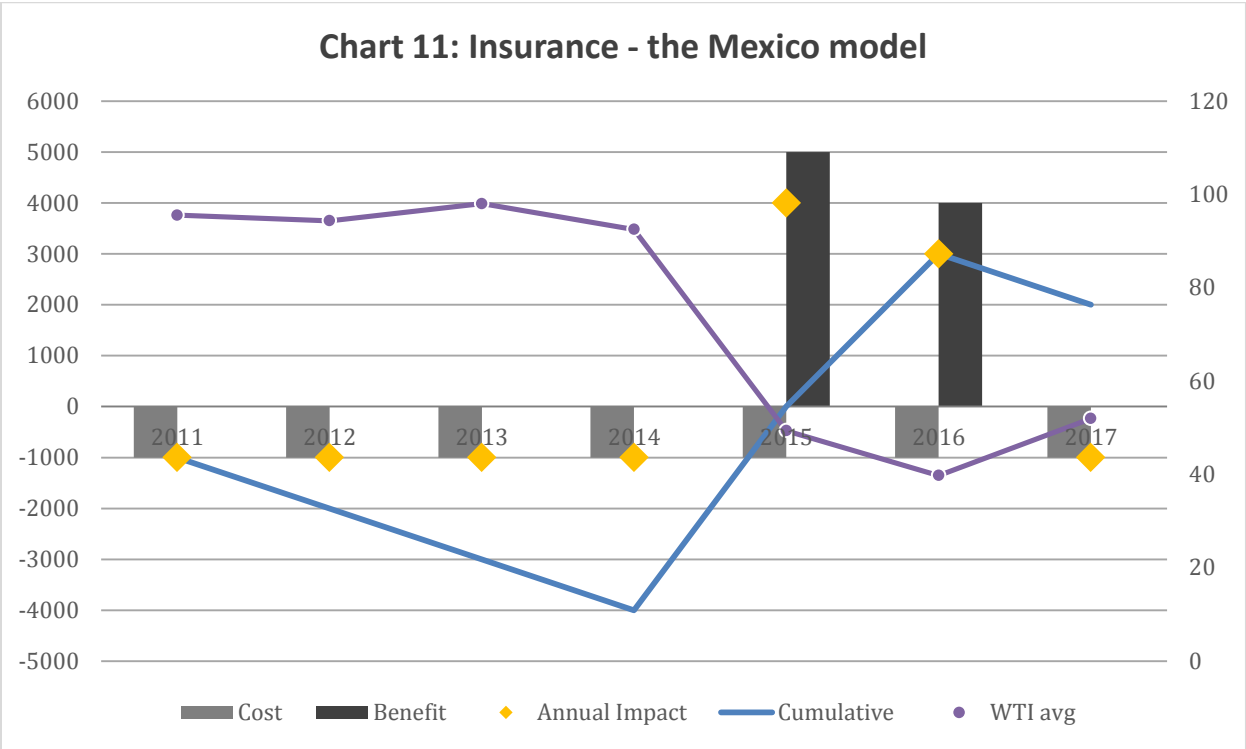
While we don't necessarily believe the strategy of buying puts is the most cost-effective measure, it is clear that doing something is better than nothing. The benefits of hedging come at the right time when the drag on the high-priced oil environment is modest.

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<sup>1</sup> Bloomberg, "Oil Deal of the Year: Mexico Set for \$6 Billion Windfall", 2016

<sup>2</sup> Bloomberg, "Uncovering the Secret History of Wall Street's Largest Oil Trade", 2017





Other nations and states have used hedging in various ways. Since the Gulf War, Qatar, Ecuador, Brazil, Texas and Chile have used the markets to hedge the risk of volatile oil prices. Most recently both Saudi Arabia and Russia stated they are looking at developing programs. Even oil consumer nations have used hedging; recently Uruguay contracted to hedge the risk of oil rising above \$55 per barrel with the World Bank for the next 12 months, with the hedge backed by a pool of private sector banks.

On the other hand, Norway does not hedge its oil and gas in the traditional sense. The Government Pension Fund of Norway established the "Oil Fund" to save oil revenues for the future and prevent too much capital from flowing into the country causing excessive inflation. The fund invests globally and is the largest sovereign wealth fund in the world.



# THE HEDGE

While financial liquidity is less than ideal, it is improving. We believe that creditworthy counterparties such as the Canadian banks will be able to create the hedges that most accurately reflect Canadian crude market exposure. Their participation has been confirmed already in the backing of the Canadian Crude Index ETF. To be clear: we are not advocating the ETF is the correct hedging tool – it is not.

***Proof: Our experience at Auspice lends proof to this. Instead of creating the underlying exposure for the CCX ETF, we gain the exposure for the fund via a swap structure from an “A” credit Canadian bank (DBRS reference). This same Canadian bank has also signed on to do this in the much larger US market for our US product.***

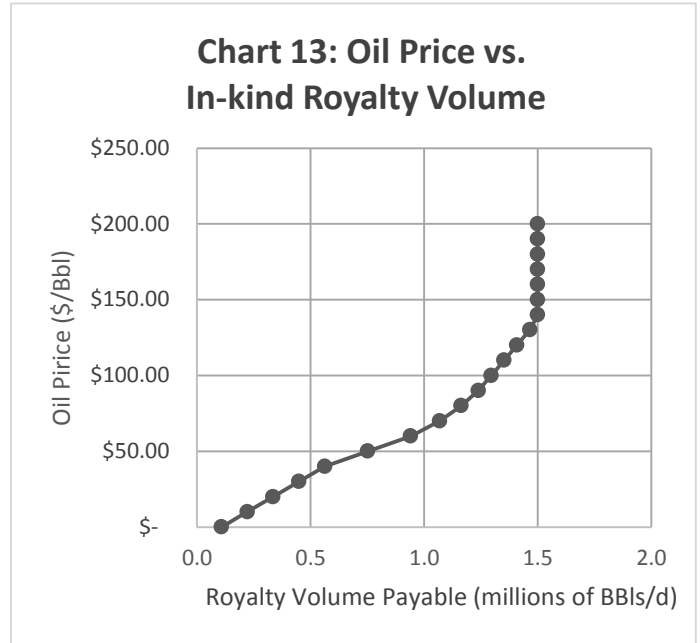
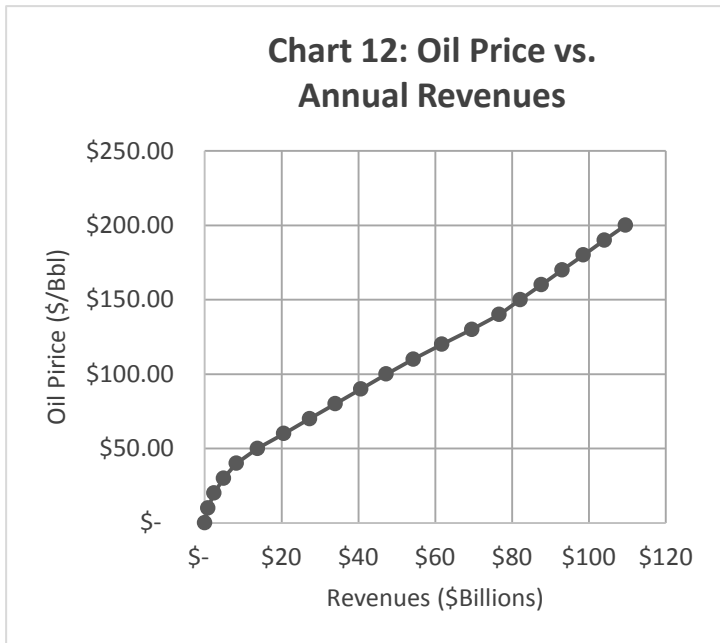
The sophisticated bank player who not only trades Canadian oil physically and financially, but also provides liquidity to a retail ETF product (in Canada and the US) ends up being the ideal partner for hedging. We have that partner.

### ***Capacity and the Royalty Framework***

For Alberta and any producer, we believe in hedging revenue or exposure, not barrels. While the province’s output is approximately three million barrels per day, that is not the exposure the province should be looking to hedge. We are looking to hedge the volumes that represent a portion of the royalty revenues gained from oil production depending on the price environment (see Chart 12 below). This is important to note because the royalty rate framework is a sliding scale, and the province is very sensitive to decreasing prices; not only does the province get a lower price, they get less of it (see Chart 13 below).



Given the province takes oil royalties “in-kind,” it experiences a heightened sensitivity to lower prices and as such, there is an even greater need to hedge at lower prices.



Additionally, the charts above demonstrate that protecting the downside can be done quite easily given that the province receives substantially more barrels in a high-priced environment. Most of the downside can easily be covered by selling (or saving) some upside, given there is so much of it.

The provincial exposure in a low price band is modest while revenues are critically important (see Chart 13 above). For example, below \$50, the province’s exposure is approximately 600,000 barrels per day. If a hedging strategy was designed to hedge even 50% of that – protecting critical revenues at a low price – we are looking at approximately 300,000 barrels. While not an inconsequential amount, it is definitely achievable without undue market distortion, especially if liquidity develops and a natural buyer emerges. As previously stated, this is an important distinction seeing as the province earns substantially more barrels in a high price environment, which is a much harder hedge in terms of volume. However, this is not critical to the hedge strategy to begin with.

Per the previous section on “Better Value” (for Canadian oil), we believe that as the Canadian oil market continues to develop and becomes more active, growing awareness, transparency, participation, and liquidity will reach ideal levels to offset exposure.

While it is true that Alberta already has a contingency in place to protect against downside risk, the current program, called the Heritage Savings Trust Fund (HSTF), is fraught with a number of issues that dampen its effectiveness – especially in low-priced environments. Though the HSTF does appear to be a well defined contribution scheme, it lacks rules-based policies that govern when the funds are to be used. This can lead to complete drawdowns given that the funds can be tapped in high-priced environments, leaving the province sapped in tough times.

## “Right-side risk”

The concept of “right-side risk” recognizes that historically, given that oil is marketed in US dollars, we often have the benefit of a weakening Canadian dollar to offset the loss from declining commodity prices. While there are many examples of this, we believe these are distinct risks that should be managed independently in order to avoid compounding risk, as right side risk doesn’t always exist.

Offsetting this, the basis discount of Canadian oil has often been assumed to widen as the price rallies. However, the last two years have illustrated this is not always the case, as the basis narrowed while prices climbed. We believe this may have stemmed from increased US refinery demand given that Canadian crude is the cheapest heavy-sour grade of oil available in North America. As it stands, Canada already supplies nearly 100% of US Petroleum Administration for Defense Districts (PADD 2) heavy oil refinery demand, which is largely stable and insulated from current commodity price trends.

### Chart 14: Higher Highs and Lower Lows



This illustrates that Canadian oil and its producers will suffer more in weak price environments than WTI, underscoring a greater sensitivity that should be managed, as shown in Chart 14.

### Volatility

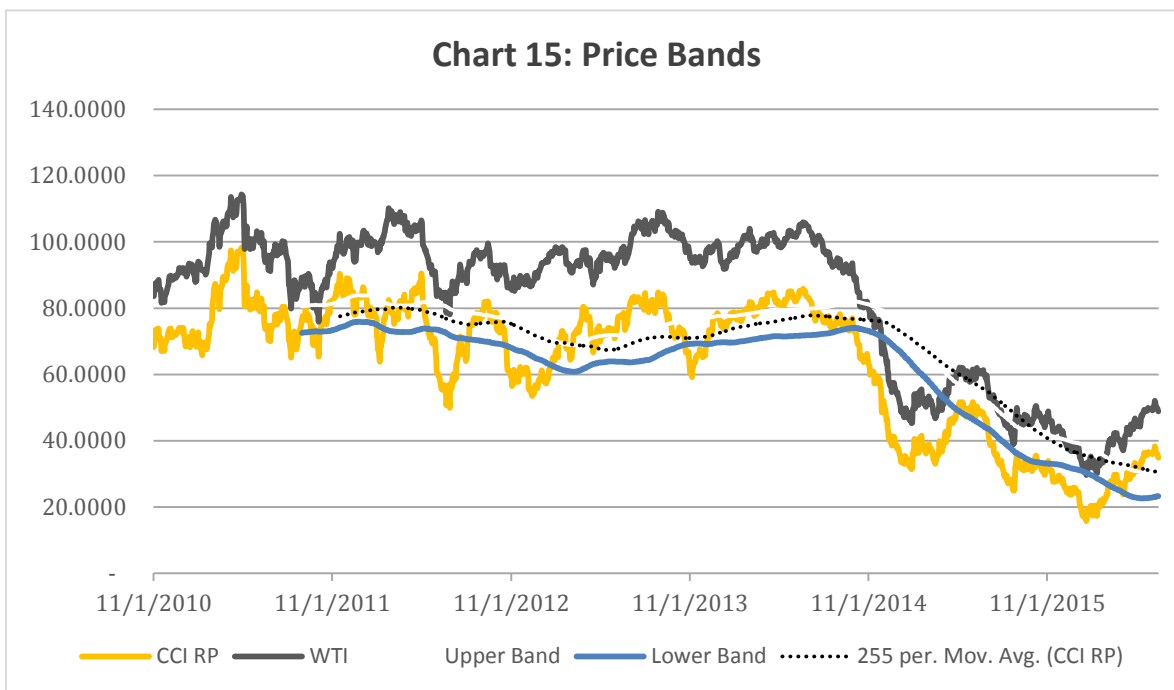
Given that Canadian crude is the marginal barrel in North America and is wholly exported to the US, it is a highly volatile commodity. Not only does it trade at a discount to WTI, but the price return is also more volatile than its counterpart. In general, it trades higher and lower on a normalized basis and will generally outperform in bull and bear markets (see Chart 14, noting the CCI (green) as a proxy for Canadian Oil).

While this is opportunistic for market speculators and investors, it really highlights the importance for producers and the government to protect themselves from downside risk.

### Strategy

It is commonplace for energy producers to lock in “price bands” in order to reduce their sensitivity to prices without purely paying premiums outright. Price bands inherently reduce revenue volatility. While this may cut off a little bit of upside, given the percentage of overall exposure, it will not be overly burdensome.



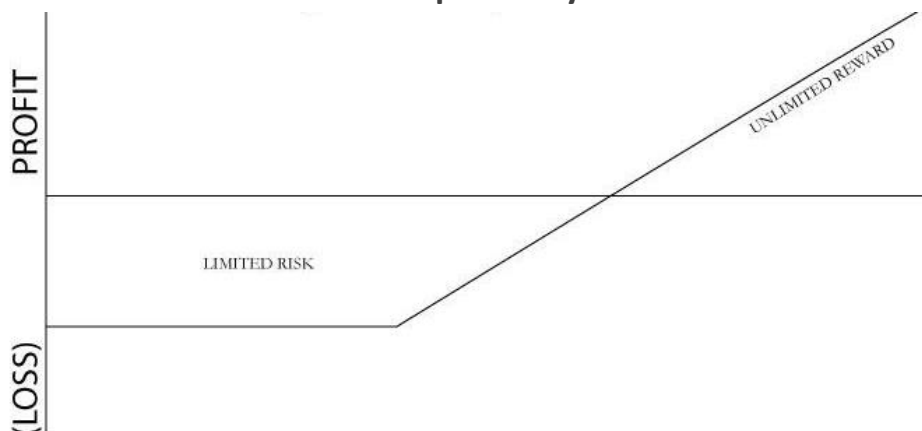


This example in Chart 15 shows that not only can one lock in price bands, mitigating some of the downside price in CCI, but it also demonstrates that the lower band may even eclipse WTI at times. This is but one of the many methods available and we believe we can suggest an innovative approach that best fits the situation in Alberta.

### Policy Driven Hedging

We believe a solution that is put forward should combine a number of risk management tools, financial instruments and rules-based policies to ensure that downside risk is limited. With these stipulations in place, we believe that a strong option lies within synthetic hedging, which combines the benefits of typical hedging methods of price bands, insurance and self-insurance, yet is more akin to buying puts without spending premiums. As illustrated in Chart 16, the province retains the upside in a higher price environment while limiting the downside risk of lower prices. Essentially, under this strategy, when oil prices climb over a target level (e.g. \$80/bbl), the government would move a fixed percentage of earned royalty revenue into a distinct managed Hedging Contingency Fund (HCF) where revenues are invested in extremely low-risk, liquid holdings. If oil prices were to fall below a critical threshold (e.g. \$50/bbl), this capital would shift to the government’s general ledger for hedging purposes using rules-based policies. It is like owning the downside protection of a put option as Mexico uses, without the capital outlay and inherent liquidity concerns. In using this method, Alberta can effectively hedge oil revenues in lower priced environments without having to justify premiums, by using a rules-based methodology enforced by policy. This is the area of expertise our team can help with.

**Chart 16: Option Payoff Curve**





# POLICY AND TOOLS

Given the lengthy period of budget deficits forecasted, and the potential for weaker economic activity and continued revenue dependence on volatile oil royalties, the time to advocate for change is now.

We have put a plan together:

## Five step plan

1. Assemble the group of independent advisors and Hedging Review Panel (**partially completed**)
2. Seek government dialogue and forum
3. Review provincial risks, sensitivities and baseload revenues
4. Develop hedging program principles and policy, mandate, strategy and execution
5. Provide recommendations to the Alberta government



Once we review provincial risks, sensitivities and baseload revenues, this process will start with policy. Before execution, developing a hedging program's principles and policies are critical. The experts we have assembled have done this successfully in the past. Once this step is articulated, we can liaise with the right governmental bodies to discuss mandate, strategy, and execution.

From a strategic perspective, there are many choices governments can consider, including strategic reserves, pipeline diversification, self-insurance, and financial hedging. A number of these tools are already being considered.

Given our experience however, we will focus on financial hedging.

To this end, we will explore a variety of methods, including creating new tools to better align with the principles, policies and mandate of the hedging program. This group has a history of being creative and innovative, and we look forward to helping with this problem.

As citizens of Alberta, we are willing to step up and help.



# THE TEAM



**TIM PICKERING**  
Founder, President and CIO  
Auspice Capital Advisors

Tim leads strategic decision making and the vision for Auspice Capital Advisors' diverse suite of award winning rules-based quantitative investment strategies.

Tim believes that in the future, non-correlated alternative investments will be a core holding in all portfolios, regardless of investor size or sophistication. Alternatives will no longer be viewed as risky, but as conservative and prudent, given the measurable value to investment portfolios. He is passionate about creating innovative investment strategies and products that the market needs with distribution through reputable partners at a fair price.

In 2015, Tim was selected by Alberta Venture Magazine, one of Alberta's most widely respected business publications, as one of Alberta's 50 most influential people.

Prior to forming Auspice, Tim was VP of Trading at Shell (North America). He began his career at TD Securities (Toronto) in their elite trading development program ultimately holding the Senior PM position for the Energy Derivatives portfolio. Outside of Auspice, Tim has been involved in grain farming in Western Canada. Through the founding of Auspice, Tim ties together a career in commodity and financial risk and portfolio management that has spanned institutional experience along with entrepreneurial vision.





**GREG TISDALE**  
Chief Executive Officer  
Enercapita

Greg is the former Chief Financial Officer of Crescent Point Energy, a position he held for the past twelve years and was part of the executive team that grew from a junior oil and gas company to one of the largest independent oil companies in North America.

Greg has over 25 years of experience in the energy industry working with several respected companies including Crescent Point, Direct Energy, Altagas Services and Shell Trading. In addition, Greg has been a Director of several public and non for profit entities.

Greg is a Chartered Accountant and holds a Bachelor of Commerce degree (with distinction) from the University of Alberta.



**ERIK PETURSSON**  
Former Manager, Financial Risk Management  
ARC Resources

Erik is the former Manager of Financial Risk with ARC Resources Ltd. and Chair of Canada's National Team Athlete Association.

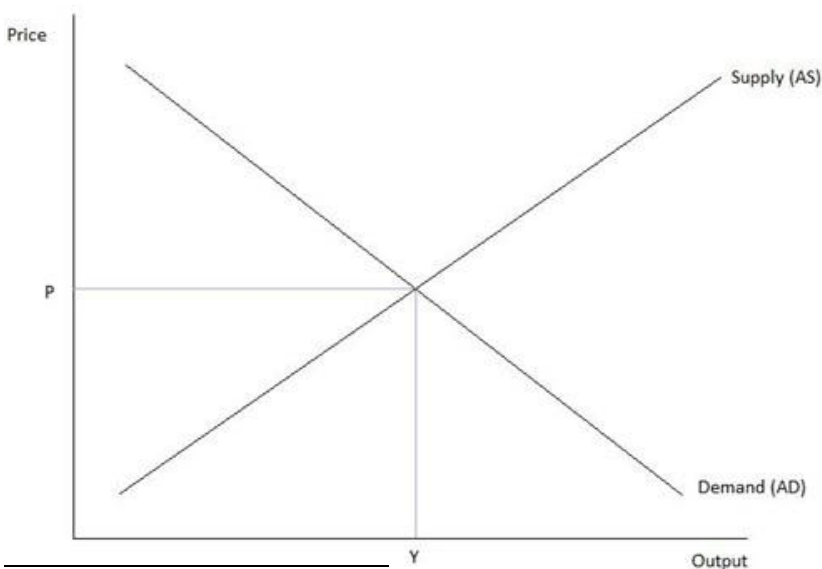
Bringing together a passion for public policy and financial markets, Erik has a track record of bringing together solutions and strategic execution to create long-term value and mitigate risk to maximize value for stakeholders in complex environments.

Erik attained both an MBA and BSc from Louisiana State University.



# DEFINITIONS

**Price discovery**<sup>3</sup> refers to the act of determining the proper price of a security, commodity, or good or service by studying market supply and demand and other factors associated with transactions. In a simple sense, price discovery involves finding where supply and demand meet. As you may recall from Economics 101, the market price is the price at that intersection of supply and demand.



Though analysts and economists work hard to determine the exact shapes and locations of demand and supply curves, in reality it's virtually impossible to know these things with certainty. (This is also why so much research attempts to explain what exactly causes securities prices to change.) Nevertheless, the interaction of supply and demand lies at the heart of price discovery. However, proper price discovery also depends on the number, size, location, and competitiveness of buyers and sellers, as well as the behavior of the buyers and sellers. The amount, timeliness, and reliability of market information and price reporting are also crucial. In turn, individual transaction prices reflect a number of factors, but

<sup>3</sup> Complete definition sourced in its entirety from Investing Answers website at [investinganswers.com/financial-dictionary/economics/price-discovery-3069](https://investinganswers.com/financial-dictionary/economics/price-discovery-3069)

they usually revolve around a general market price at any given point in time. *Price discovery* is what gets a specific buyer and specific seller to move from establishing a general price to agreeing on a specific price for their transaction, based on the size of the transaction, location of the transaction, cost of the transaction, and many other factors. It is a dynamic process, and in a way, it is the true mission of any market and any exchange.

**Market liquidity** is a market's ability to purchase or sell an asset without causing drastic change in the asset's price. Speculators and market makers are key contributors to the liquidity of a market, or asset. Buying or selling an asset easily without disrupting price in a market creates the conditions necessary for a liquid asset. Physical commodity trading generally occurs between producers, traders and the ultimate consumers in most commodity markets. However, it is in the derivative markets where speculators, investors, arbitrageurs and other interested parties bring liquidity to these assets.

**WTI** or West Texas Intermediate is also known as Texas light sweet. It is a grade of crude oil used as a benchmark in oil pricing. This grade is described as light because of its relatively low density, and sweet because of its low sulfur content.

**WCS** or Western Canadian Select is one of North America's largest heavy crude oil streams. It is a heavy blended crude oil composed mostly of bitumen blended with sweet synthetic and condensate diluents. WCS is the benchmark for emerging heavy, high TAN (acidic) crudes is one of many petroleum products from the Western Canadian Sedimentary Basin oil sands. WCS was launched in December 2004.

**CCI or** The Canadian Crude Index TM (CCITM) represents a simple, transparent and liquid benchmark price for oil that is produced in Canada. The current global benchmarks are not representative of actual Canadian crude oil prices. The CCITM is a benchmark price on which products can be created to track the actual price of Canadian crude. Prior to this it was almost impossible for a retail investor to get this type of exposure.