

November-06-2019

## October 2019 in Review

### HIGHLIGHTS IN THIS ISSUE:

- The improved WCS differential resulting from curtailment has returned to more typical levels of ~US\$-22/bbl (Page 2 & 5)
- A look into West Coast Canada tanker traffic (Page 8)
- Check out our updated Oil Sands interactive map [here!](#)
- Viking and Alberta Montney licensing up month-over-month (Page 11 & 13)
- Duvernay West Shale Basin surpasses the 100 Mboe/d mark for the first time (Page 14)

### DEALS ANNOUNCED IN OCTOBER<sup>(1)</sup>:

- Painted Pony's sale of Northeast BC Montney assets to an undisclosed buyer for C\$45MM

## Key Industry Indicators

Updated to market close on

November 5<sup>th</sup>, 2019

Edmonton Mixed Sweet (C\$/bbl)<sup>(2)</sup>

Western Canadian Select (C\$/bbl)<sup>(2)</sup>

AECO (C\$/GJ)<sup>(2)</sup>

US\$/C\$<sup>(2)</sup>

Monthly A&D Transaction Value (\$MM)<sup>(1)(3)</sup>

Monthly A&D Transaction Count<sup>(1)</sup>

Canadian Rig Count

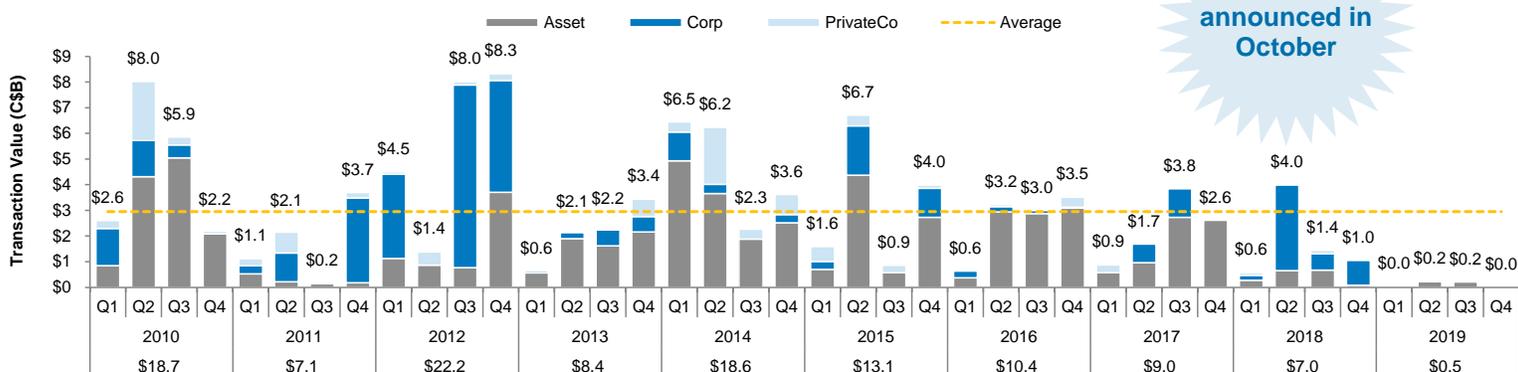
Canadian Oil/Cond Production (MMbbl/d)\*

Canadian Gas Production (Bcf/d)\*

Canadian Gas Storage (Bcf)

	Current Value	Previous Month Value	Monthly Change Percent	Direction
Edmonton Mixed Sweet (C\$/bbl) <sup>(2)</sup>	\$65.12	\$63.28	2.9%	↑
Western Canadian Select (C\$/bbl) <sup>(2)</sup>	\$46.36	\$47.74	(2.9%)	↓
AECO (C\$/GJ) <sup>(2)</sup>	\$2.47	\$1.98	24.7%	↑
US\$/C\$ <sup>(2)</sup>	\$0.7599	\$0.7560	0.5%	↑
Monthly A&D Transaction Value (\$MM) <sup>(1)(3)</sup>	\$45.0	\$212.0	(78.8%)	↓
Monthly A&D Transaction Count <sup>(1)</sup>	1	1	--	--
Canadian Rig Count	139	111	25.2%	↑
Canadian Oil/Cond Production (MMbbl/d)*	2.7	2.7	0.5%	↑
Canadian Gas Production (Bcf/d)*	17.9	17.9	(0.0%)	↓
Canadian Gas Storage (Bcf)	609.9	577.6	5.6%	↑

## Quarterly Deal Activity (Producing Assets Only)<sup>(3)</sup>



Source: BMO Capital Markets. \*All production throughout this document is sourced from geoSCOUT, only includes BC/AB/SK/MB and does not include oil sands mining. Production volumes are raw.

1. Deals larger than C\$20MM; transactions are reported based on announcement/disclosure dates.

2. Current prices as of November 5<sup>th</sup>, 2019 close. Previous month prices as of October 9<sup>th</sup>, 2019 close.

3. Chart excludes joint ventures, oil sands transactions, and notable transactions including: CNOOC-Nexen (C\$17.9B); Repsol-Talisman (C\$15.9B); CNRL-Shell (C\$12.6B); Cenovus-ConocoPhillips (C\$17.7B); Pengrowth's disposition announced on October 18, 2017; Aspenleaf-NEP (announced on August 31, 2018); Pacific Oil-Canbriam (announced on May 13, 2019); CNRL-Devon C\$3.78B (announced May 29, 2019).

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## Commodities

### CRUDE

- Prompt WTI averaged just above \$54/bbl for October. Saudi Arabia was able to manage their delivery commitments, leaving the market impact of the Iranian attack as just a blip on trading screens. Mid-month crude rallied on the back of stronger than anticipated fundamentals as we saw a larger than expected crude draw, multi-decade high in gasoline demand, and a significant drop in imports. The prompt peaked at \$56.66/bbl and exited the month around \$54/bbl
- It was not a boring month for Western Canadian oil markets (we will skip our election commentary, you're welcome) and go straight to late month headlines. The first being the unfortunate news of a Keystone Pipeline spill in South Dakota. The 590 Mbb/d line (YTD has run 94% heavy grades) was shut from Hardisty to Steele City and does not have a return-to-service date. You may recall the last major leak on this line was in November 2017, which resulted in a two week outage, followed by operations running at reduced rates through May 2018. The other market mover was the Alberta Government's relaxing of production curtailments under the condition that all extra barrels produced were moved on rail. The WCS curve re-priced to rail economics, with the front months also pricing in the impact of the spill, resulting in December 2019 WCS pricing as wide as \$-22/bbl to start November
- We continue to keep an eye on the condensate market as the macro picture suggests Alberta could be short given the roll back of government curtailments, ConocoPhillip's Surmont facility switching from SCO to condensate blending, and lower than anticipated liquids production. Pentane at Edmonton opened the month trading \$-4.50/bbl under WTI and closed at -\$2.50/bbl

### NATURAL GAS

- Prompt NYMEX was trading in and around the \$2.30/MMBTU mark for most of October until weather forecasts changed through the final week of the month. Residential and commercial demand picked up across the lower 48 increasing loads and supporting front month pricing leading to highs of \$2.73/MMBTU. While current weather systems cast a positive outlook, the fundamentals are unfortunately more bearish
- October saw Northeastern production hit records highs of 33.75 Bcf or 35% of US production. On a more worrisome note for Western Canadian producers, the Bakken is also hitting production highs of 2.23 Bcf/d, which can back Alberta flows out Northern Border
- The TSP (Temporary Service Protocol) change that was announced last month served its purpose by reconnecting the Alberta gas market to the Alberta storage market. Pricing has rebounded given the limited inventory balances of -70 Bcf YoY as we move into winter
- In contrast, Dawn markets are weakening given full storage (+15 Bcf y/y) and inability to export due to the glut of gas in the Northeast US. As is normal for this time of year, cold weather will be the key demand driver to keep pricing supported

## Equity Markets

- The Canadian new issue market raised gross proceeds of approximately 2.0B in October 2019 with no transactions in the energy space

## Debt Markets

- The High Yield primary market saw muted activity this last week of October as we saw 5 issuers pricing 5 tranches to raise \$4.6B in total proceeds
- Leveraged Loan volume was moderate this week, as we saw 16 issuers allocate 18 tranches for \$8.3B of new issue institutional volume
- The C\$ HY Index tightened ~20 bps from 5.22% to 5.02% in October. When compared to the beginning of 2019, the index has tightened 146 bps
- The US HY Energy Index widened 60 bps and the broader US HY Index remained flat in October

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## The 10 Most Recent Transactions Over \$20 Million<sup>(1)</sup>

Ann'd Date	Buyer	Seller	Enterprise Value	Parameters			Metrics		WCSB Region
				Prod.	% Gas	P+P	Production	P+P	
			(C\$ MM)	(boe/d)	(%)	(Mboe)	(EV\$/boe/d)	(EV\$/boe)	
18-Oct-19	Undisclosed	Painted Pony (NE BC Montney Assets)	\$45	n.a.	n.a.	n.a.	n.a.	n.a.	Northeast BC
3-Sep-19	Undisclosed	Crescent Point (SE SK Assets)	\$212	7,000	15%	49,200	\$30,286	\$4.31	Area IV
28-Jun-19	Freehold	Surge (AB and SK Royalty Assets)	\$29	214	6%	n.a.	\$135,981	n.a.	Other
26-Jun-19	Pieridae Energy	Shell Canada (Alberta Foothills Assets)	\$190	28,623	69%	119,957	\$6,638	\$1.58	Foothills
29-May-19	CNRL	Devon Canada	\$3,775	122,800	0%	879,000	\$30,741	\$4.29	Fort McMurray
12-Mar-19	Undisclosed	Surge (NW AB, Doe Creek Assets)	\$29	450	n.a.	n.a.	\$63,667	n.a.	Grande Prairie
14-Nov-18	Birchcliff	ORLEN Upstream (Pouce Coupe Assets)	\$39	700	86%	--	\$55,714	n.a.	PRA / Slave Lake
30-Oct-18	Pipestone	Blackbird	\$247	1,148	45%	59,099	\$215,262	\$4.18	Grande Prairie
17-Oct-18	Enercapita	Venturion (Boundary Lake Assets)	\$48	1,300	27%	6,900	\$36,923	\$6.96	Northeast BC
10-Oct-18	IPC	BlackPearl	\$712	11,250	1%	162,434	\$63,310	\$4.38	Area I
<b>Average / Total (Ex. Royalty) 9 Transactions (6 Oil, 3 Gas)</b>			<b>\$5,297</b>	<b>173,272</b>	<b>35%</b>	<b>1,276,589</b>	<b>\$62,818</b>	<b>\$4.28</b>	
<b>Oil Weighted</b>			<b>\$4,815</b>	<b>143,500</b>	<b>26%</b>	<b>1,097,534</b>	<b>\$46,773</b>	<b>\$4.99</b>	
<b>Gas Weighted</b>			<b>\$482</b>	<b>29,771</b>	<b>57%</b>	<b>179,056</b>	<b>\$110,950</b>	<b>\$2.88</b>	

## Oil Sands Transactions (2016 – Present)

Date	Acquiror	Target	Type	EV	Parameters			Metrics	
					Prod.	% Gas	P+P	EV / Prod.	EV / P+P
				(C\$MM)	(boe/d)	(%)	(Mboe)	(C\$/boe/d)	(C\$/boe)
29-May-19	CNRL	Devon Canada	SAGD <sup>(2)</sup>	\$3,775	122,800	--	879,000	\$30,741	\$4.29
10-Oct-18	IPC	BlackPearl	SAGD	\$712	11,250	1%	162,434	\$63,310	\$4.38
31-Aug-18	CNRL	Joslyn Oil Sands Project	Mining	\$225	n.a.	n.a.	n.a.	n.a.	n.a.
26-Jul-18	CNRL	Laricina	SAGD	\$67	n.a.	n.a.	389,000	n.a.	\$0.17
12-Feb-18	Suncor	Mocal Energy (5% Syncrude W.I.)	Mining	\$921	16,226	--	122,441	\$56,749	\$7.52
3-Jan-18	Suncor	Total E&P Canada (3.31% Fort Hills W.I.)	Mining	\$453	6,545	--	94,804	\$69,211	\$4.78
3-Jan-18	Teck	Total E&P Canada (1.30% Fort Hills W.I.)	Mining	\$179	2,571	--	37,234	\$69,633	\$4.81
29-Mar-17	Cenovus	ConocoPhillips (FCCL and Deep Basin Assets)	SAGD	\$17,730	284,396	31%	3,965,833	\$62,341	\$4.47
9-Mar-17	CNRL	Shell & Marathon (70% AOSP W.I.)	Mining	\$12,592	201,800	--	n.a.	\$62,397	n.a.
9-Mar-17	Shell	Marathon (10% AOSP W.I.)	Mining	\$1,683	26,857	--	n.a.	\$62,660	n.a.
14-Dec-16	Athabasca	Statoil ASA (Leismer, Corner)	SAGD	\$578	24,000	--	856,000	\$24,083	\$0.68
<b>Average / Total</b>			<b>11 Transactions</b>	<b>\$38,914</b>	<b>696,446</b>	<b>4%</b>	<b>6,506,747</b>	<b>\$55,681</b>	<b>\$3.89</b>
<b>Median</b>				<b>\$712</b>	<b>24,000</b>	<b>--</b>	<b>275,717</b>	<b>\$62,397</b>	<b>\$4.43</b>

## Royalty Transactions (2016 – Present)

Ann'd Date	Buyer	Seller	Enterprise Value	Parameters		Metrics		Commentary
				Prod.	% Gas	Production		
			(C\$ MM)	(boe/d)	(%)	(EV\$/boe/d)		
28-Jun-19	Freehold	Surge (AB and SK Royalty Assets)	\$29	214	6%	\$135,981		Gross overriding royalty on central & northern AB, SW SK assets
28-Feb-18	Freehold	Cardinal (Various Royalties)	\$24	110	n.a.	\$218,182		Gross overriding royalty on the Mitsue Gilwood Unit
27-Feb-18	PrairieSky	Undisclosed (AB Viking Royalty Assets)	\$46	300	54%	\$153,333		Producing gross overriding royalty acquired
27-Feb-18	PrairieSky	Undisclosed (Clearwater Royalty Assets)	\$33	n.a.	0%	n.a.		Non-producing gross overriding royalty acquired
30-Jan-18	Burgess	Connacher (Royalty Assets)	\$44	n.a.	0%	n.a.		Sliding scale royalty on all lands containing bitumen
20-Dec-17	Freehold	Bonterra (Pembina GORR)	\$52	210	26%	\$247,619		2% gross overriding royalty on its Pembina Cardium pool
10-Nov-17	Undisclosed	Obsidian (Eastern Alberta Royalty)	\$40	181	38%	\$220,994		Royalty interest in Eastern Alberta
2-Oct-17	Franco-Nevada	Osum Oil Sands (Royalty Assets)	\$93	310	0%	\$298,387		4% gross overriding royalty interest on its Orion Project
2-Mar-17	Freehold	Undisclosed (Royalty Assets)	\$34	185	9%	\$183,784		32,000 acres in the Dodsland Viking
9-Feb-17	Burgess	Athabasca (Royalty Assets)	\$90	--	0%	n.a.		Upsized: Includes Leismer and Corner lease
16-Dec-16	Undisclosed	Cavalier (Royalty Assets)	\$100	--	n.a.	n.a.		Sliding scale (0-20%) starting at US\$50/bbl WCS
14-Dec-16	PrairieSky	Pengrowth (Royalty Assets)	\$250	608	0%	\$411,455		4% royalty on Lindbergh properties, including future development
14-Dec-16	Burgess	Athabasca (Royalty Assets)	\$50	--	0%	n.a.		Upsized: Modified sliding scale and starting point
1-Dec-16	PrairieSky	BlackPearl / Other (Royalty Assets)	\$117	460	17%	\$255,000		Acquired a combined 3.95% royalty interest at Onion Lake
3-Nov-16	Burgess	Athabasca (Royalty Assets)	\$129	n.a.	0%	n.a.		Upsized: Sliding scale (0-12%) starting at US\$75/bbl WTI
27-Jun-16	PrairieSky	Pine Cliff (Royalty Assets)	\$25	n.a.	n.a.	n.a.		99,930 net fee title acres
20-Jun-16	Burgess	Athabasca (Royalty Assets)	\$129	--	0%	n.a.		Sliding scale (0-6%) starting at US\$75/bbl WTI
2-May-16	Freehold	Husky (Royalty Assets)	\$165	1,700	70%	\$97,059		Acquired >2MM net acres across Western Canada
<b>Average / Total</b>			<b>18 Transactions</b>	<b>\$1,449</b>	<b>4,278</b>	<b>15%</b>	<b>\$222,179</b>	

Note: Transactions that occurred after the month being covered in this report are not included  
Source: BMO Transaction Database

 Denotes current month transaction

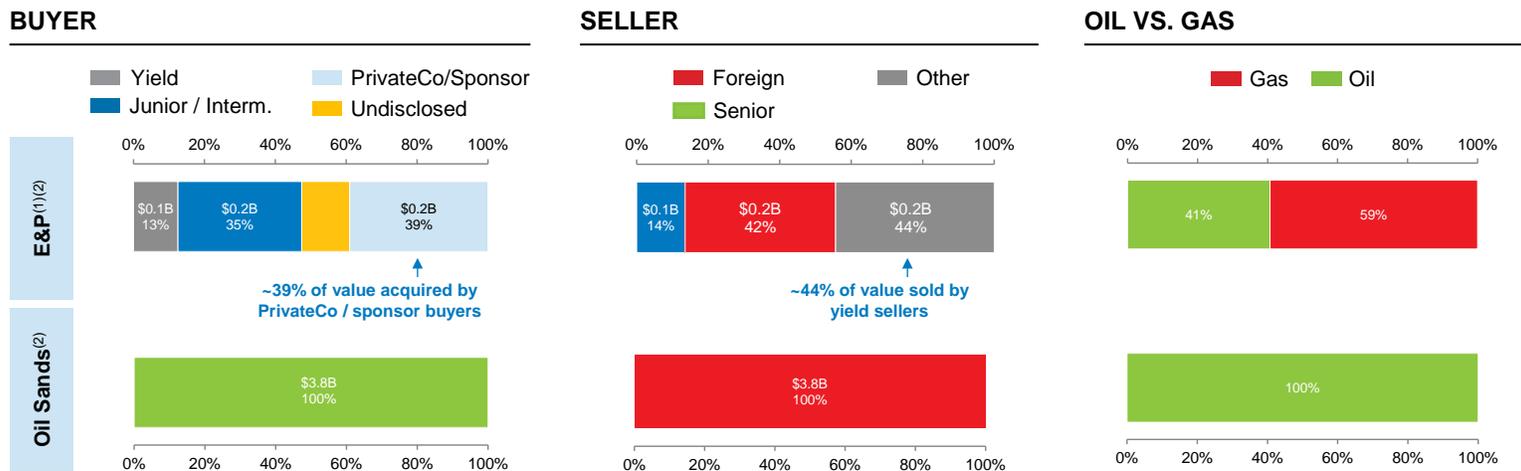
 = BMO Capital Markets provided transaction advisory services

 = BMO Capital Markets provided acquisition financing or related services

1. Excludes Pacific Oil's acquisition of Canbriam announced on May 13, 2019 (no transaction value disclosed) and Karve's acquisition of High Ground (no transaction value disclosed).
2. CNRL also acquired Devon's Bonnyville heavy oil assets (20,100 bbl/d) as part of the transaction.

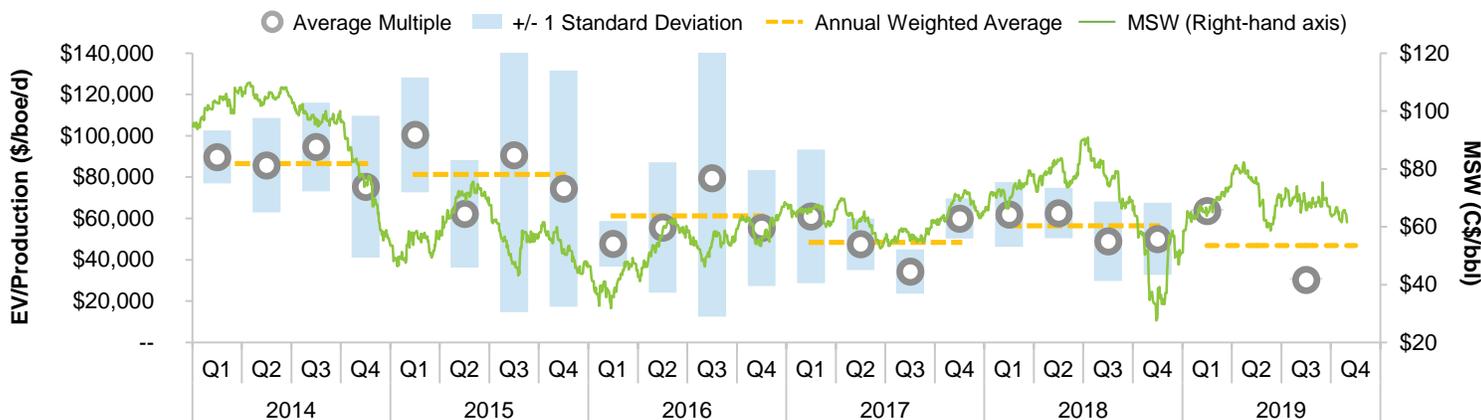
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## LTM Transaction Breakdown (By Deal Value)

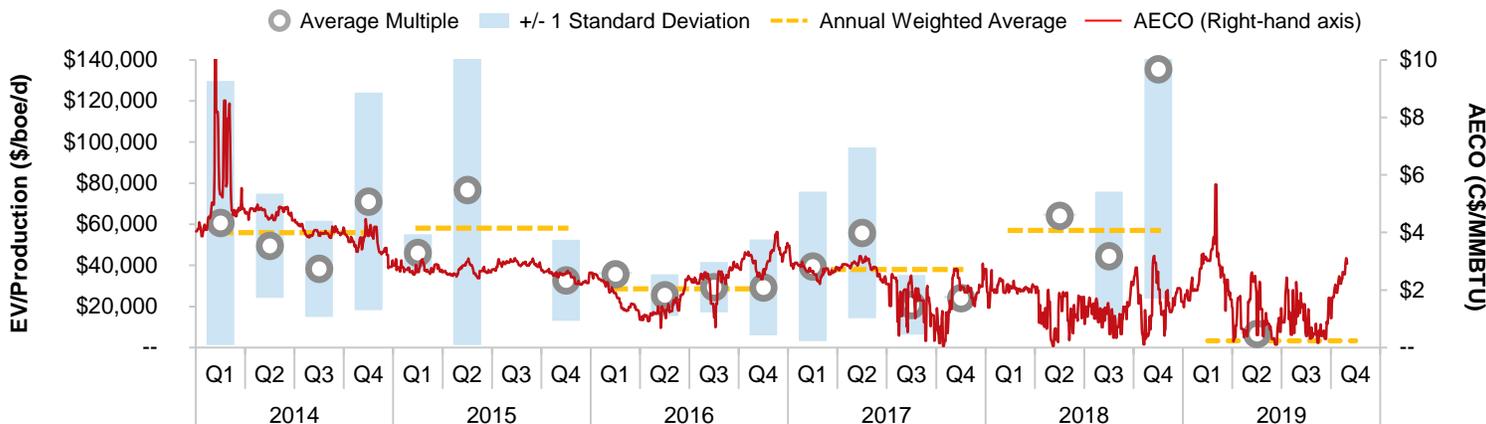


## A&D Valuation Trends<sup>(1,2,3)</sup>

### OIL-WEIGHTED TRANSACTIONS



### GAS-WEIGHTED TRANSACTIONS



Source: BMO Transaction Database

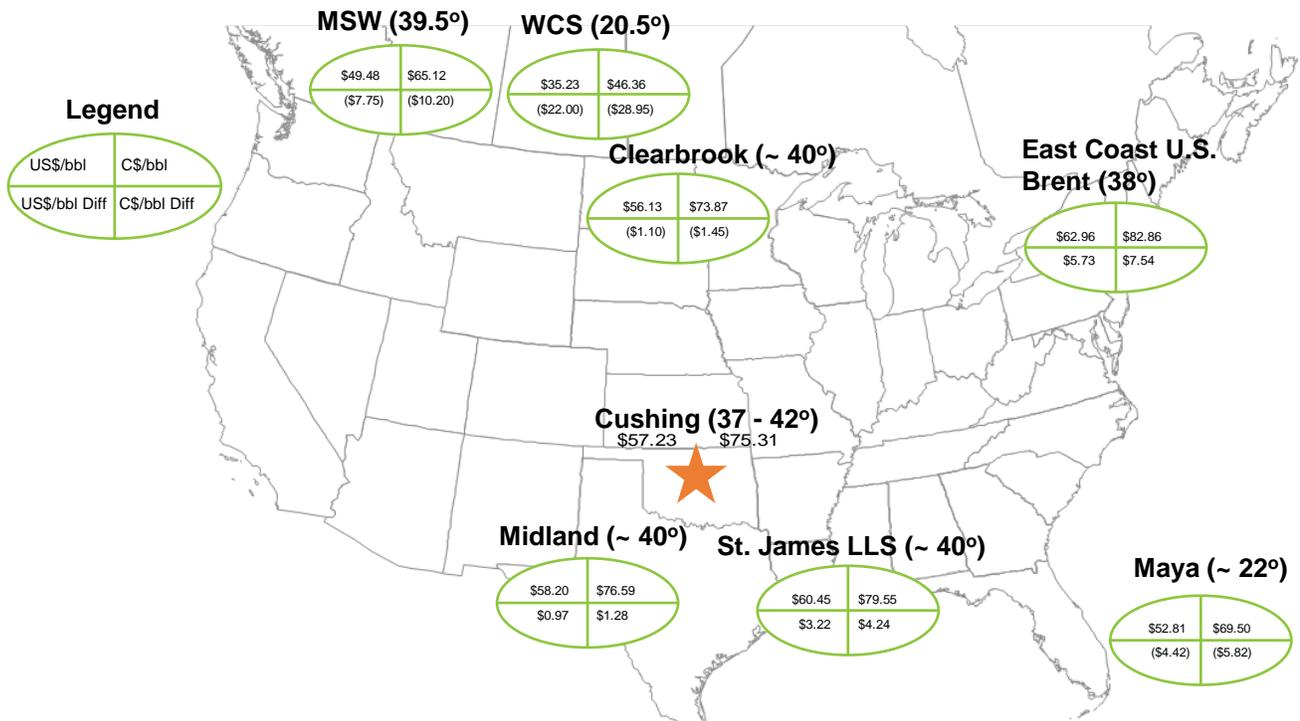
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- 2017; Aspenleaf-NEP (announced on August 31, 2018); Pacific Oil-Canbriam (announced on May 13, 2019); CNRL-Devon C\$3.78B (announced May 29, 2019). Excludes royalty transactions.

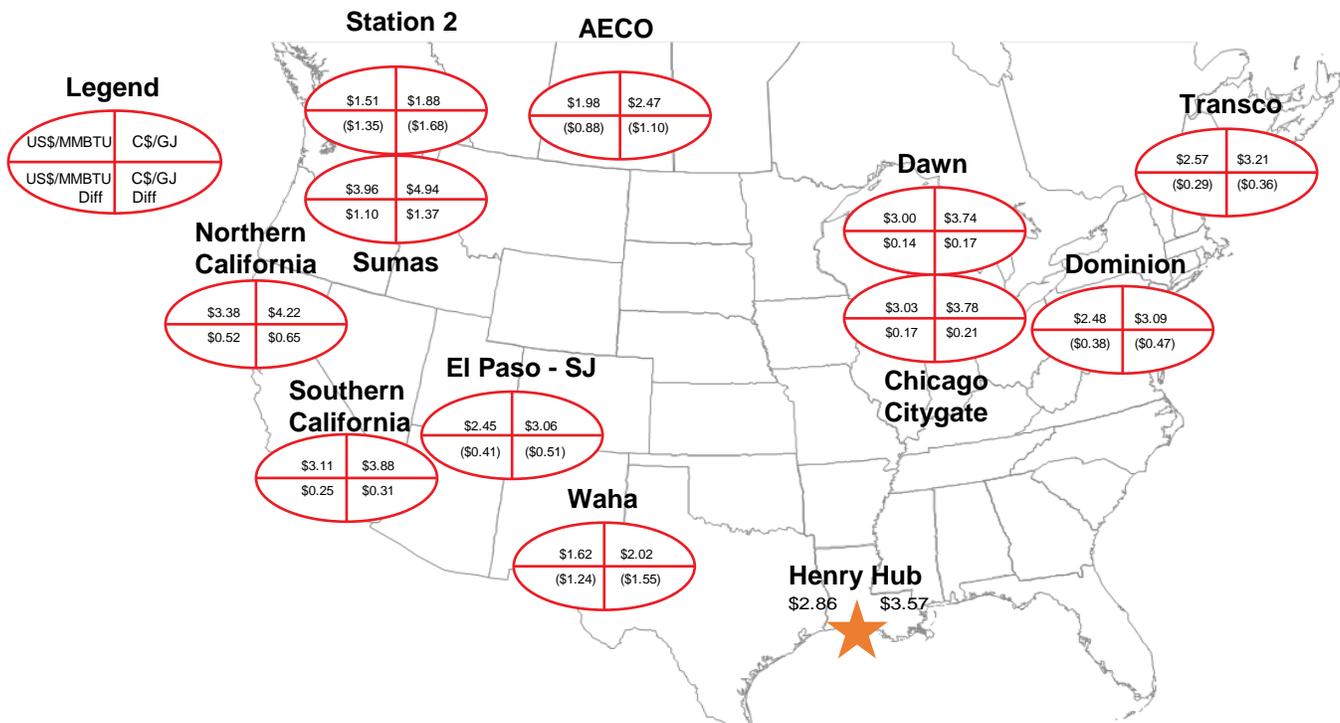
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## Commodity Prices – November 5<sup>th</sup>, 2019

OIL PRICING & DIFFERENTIALS TO CUSHING WTI (US\$ / BBL) – OIL API GRAVITY IN PARENTHESIS



NATURAL GAS PRICING & DIFFERENTIALS TO HENRY HUB (US\$ / MMBTU | C\$ / GJ)

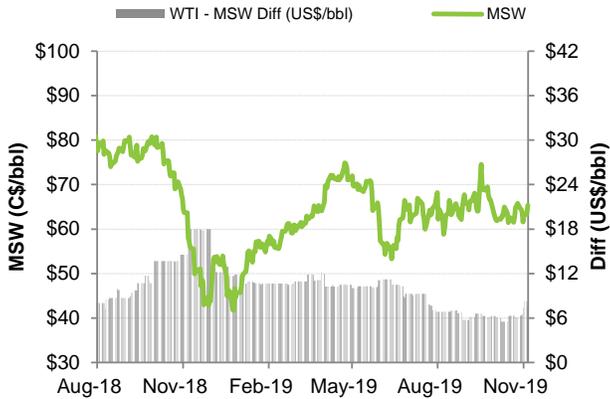


Source: BMO Commodity Products Group, Bloomberg – Prompt Pricing  
US\$/C\$ spot rate of 1.3160 used for all conversions from Bloomberg as of November 5th, 2019.

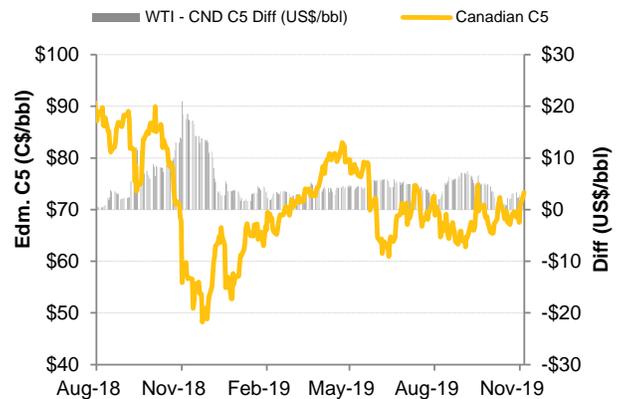
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## Oil/Liquids Fundamentals

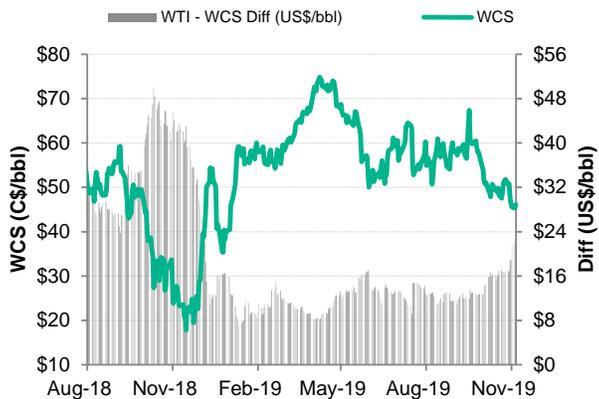
### EDMONTON MIXED SWEET / WTI HISTORICAL



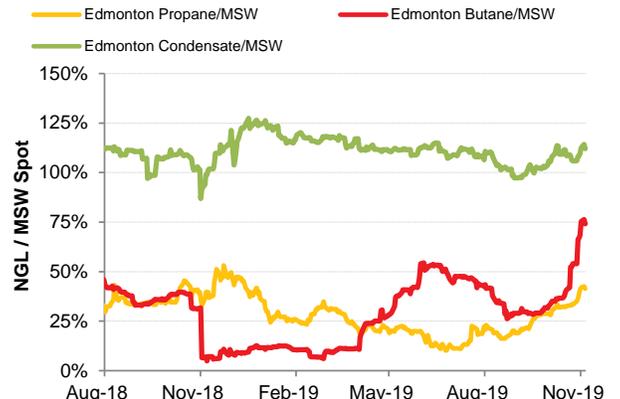
### CANADIAN CONDENSATE / WTI HISTORICAL



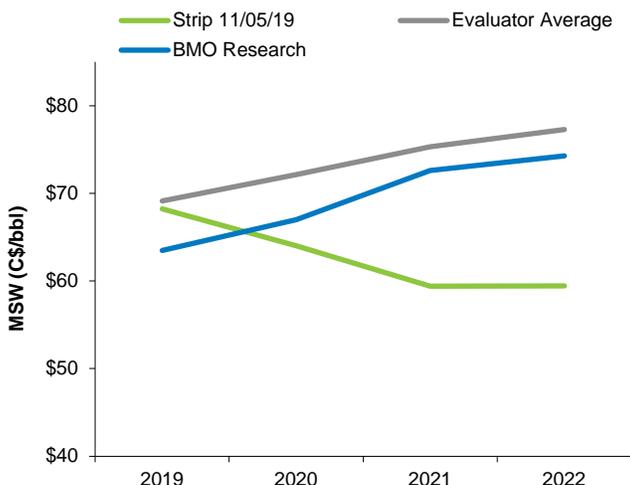
### WESTERN CANADIAN SELECT / WTI HISTORICAL



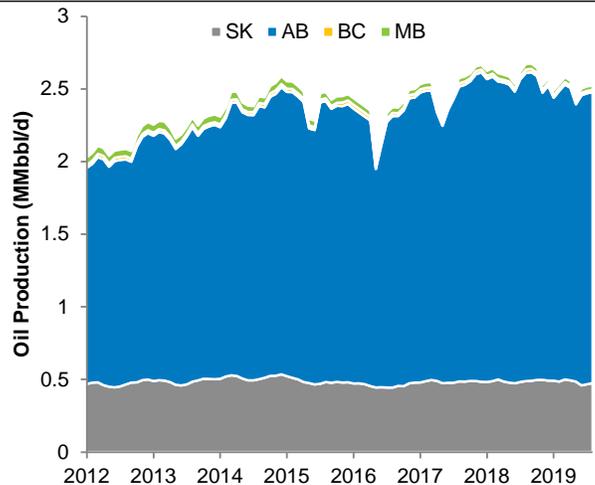
### NGL AS A PERCENTAGE OF MSW<sup>(1)</sup>



### EDMONTON OIL PRICE FORECASTS



### WCSB OIL PRODUCTION<sup>(2)</sup>



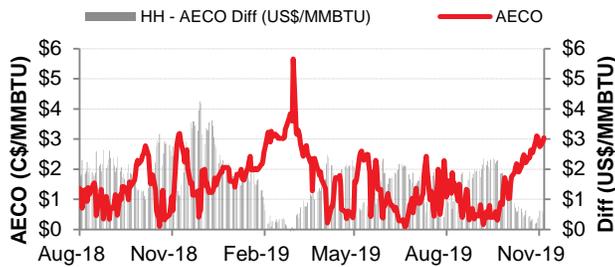
Source: geoSCOUT, BMO Capital Markets, Bloomberg  
Note: Evaluator Average Forecast - averaged Q4 2019 forecasts of GLJ, Sproule, McDaniel, and AJM2.  
Deloitte, BMO Research Average as of October 10, 2019.

1. Prices reported according to Bloomberg.  
This page does not include oil sands mining or Northwest Territories well production.

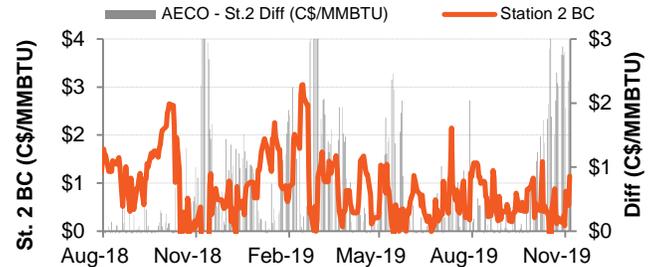
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## Natural Gas Fundamentals

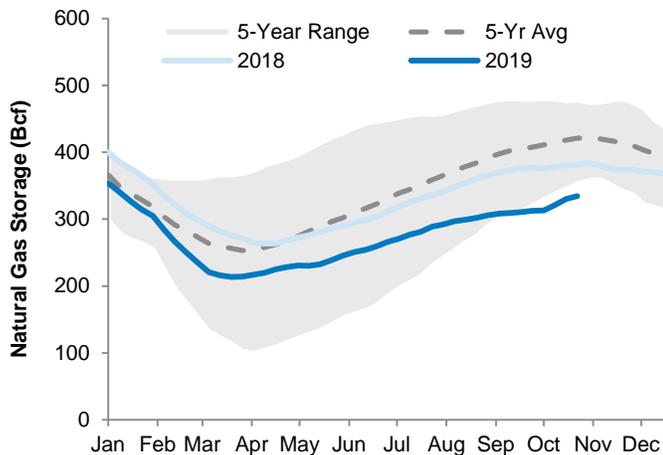
### AECO / NYMEX HISTORICAL



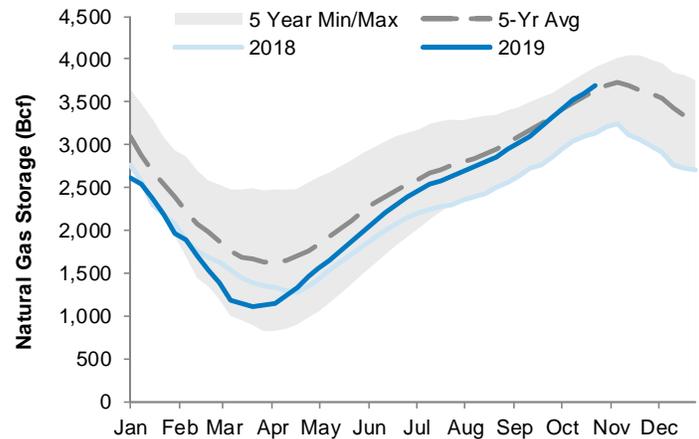
### STATION 2/ AECO HISTORICAL



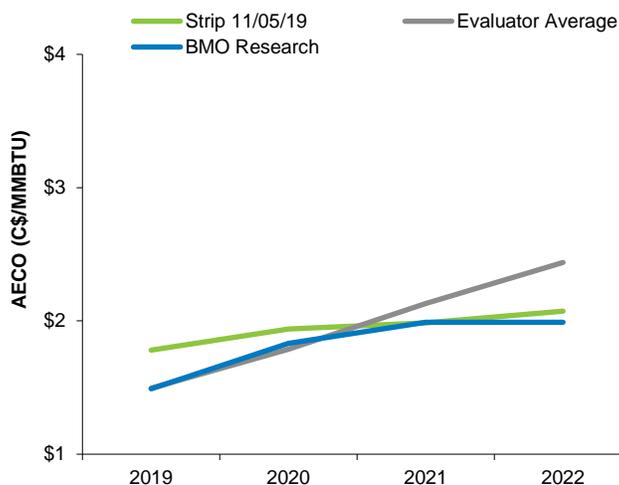
### WESTERN CANADA GAS STORAGE



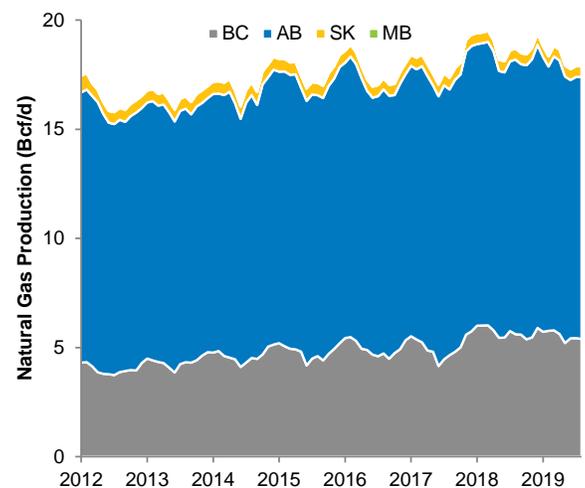
### US NATURAL GAS STORAGE



### AECO GAS PRICE FORECASTS



### WCSB GAS PRODUCTION<sup>(1)</sup>



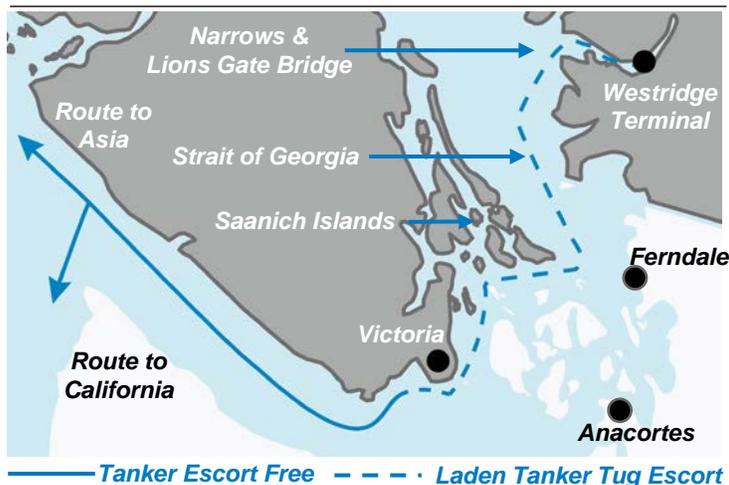
Source: geoSCOUT, BMO Capital Markets, Bloomberg, NGX  
Note: Evaluator Average Forecast - averaged Q4 2019 forecasts of GLJ, Sproule, McDaniel and AJM  
Deloitte, BMO Research Average as of October 10, 2019.

1. This page does not include Northwest Territories well production.

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## West Coast Canada Tanker Traffic

### TANKER SHIPPING ROUTE (2)



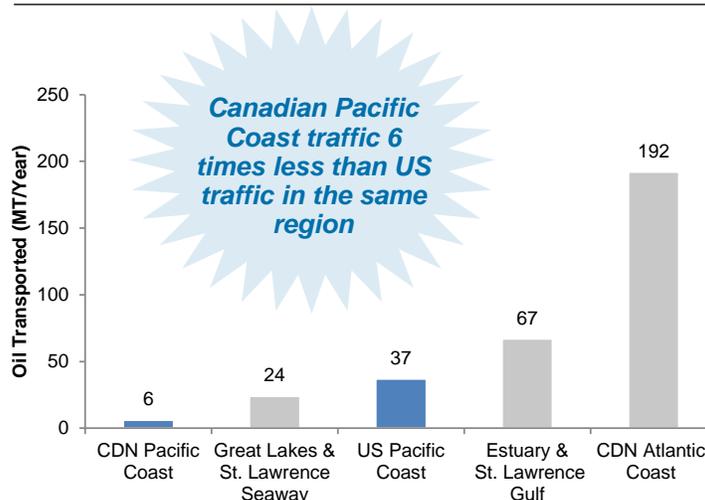
### PORT OF VANCOUVER SHIPPING PROCESS(2)

- Crude oil laden tankers travelling from the Port of Vancouver must be escorted by tug boats with two Canadian pilots on board the tanker vessel
  - The escort is from the Port through the Second Narrows, Strait of Georgia, Saanich Gulf Islands to Victoria where the pilots and tug boats leave the vessel
- Largest tanker the Port of Vancouver is able to handle, due to depth and other restrictions, is the Aframax with a restricted maximum load of 96,000 DWT
- All oil tanker traffic activity is collectively monitored and regulated by Transport Canada, Canadian Coast Guard, Pacific Pilotage Authority and the Port of Vancouver

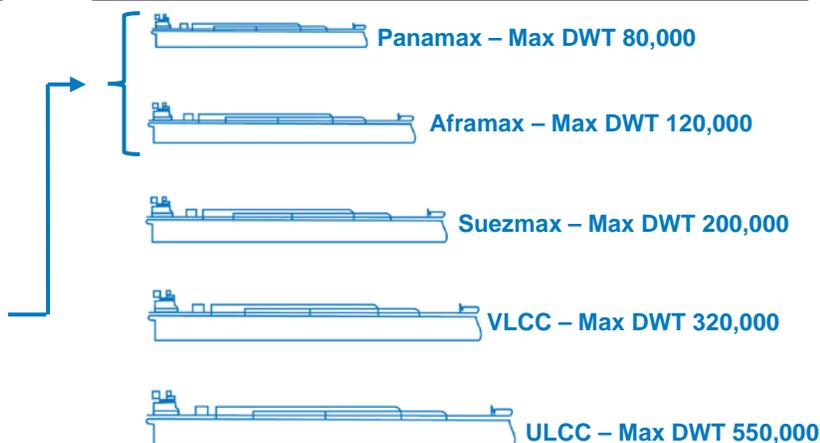
### PORT OF VANCOUVER SHIPPING STATISTICS(2,3)

- Crude oil tankers travelling through the Port of Vancouver currently range from 30-50 per year (~2% of vessel traffic)
- The Trans Mountain Expansion Project will increase crude oil tanker traffic to 288 vessels per year (~12% of vessel traffic)
- Comparatively, the Port of Rotterdam (Netherlands) is similar in size (land and water) to the Port of Vancouver and receives 8,200 tankers annually – 28 times more than the Port of Vancouver would receive with the Trans Mountain expansion

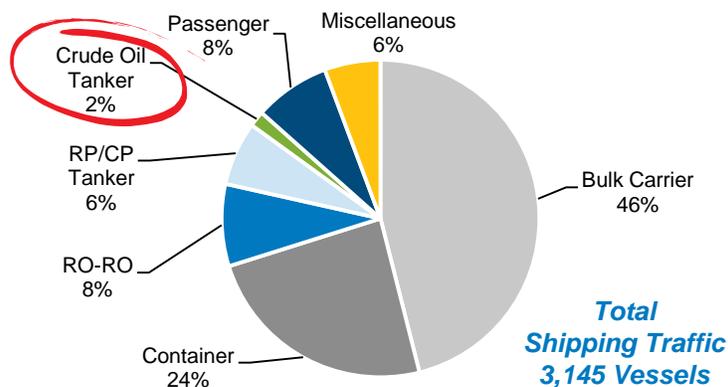
### OIL SHIPMENTS IN CANADIAN WATERS BY REGION(1)



### OIL TANKER VESSEL SIZES(4)



### PORT OF VANCOUVER SHIPPING TRAFFIC - 2018(2)



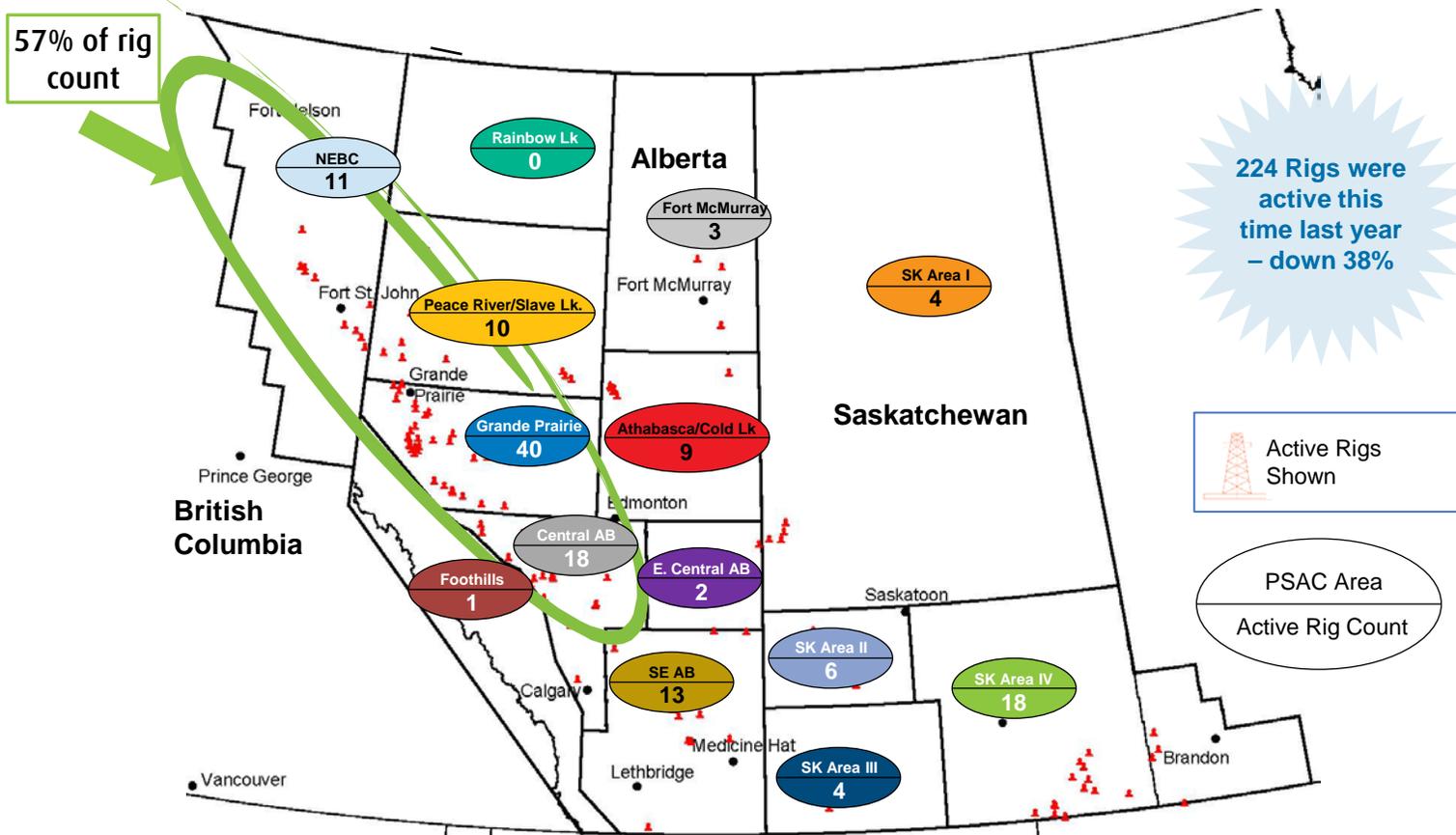
Source: BMO Capital Markets.  
 Note: RORO – Roll-on/Roll-off, RP – Refined Products, CP – Chemical Products, DWT – Dead Weight Ton,  
 MT – Million tons  
 1. Transport Canada

2. Port of Vancouver  
 3. Trans Mountain Corporation  
 4. ClearSeas

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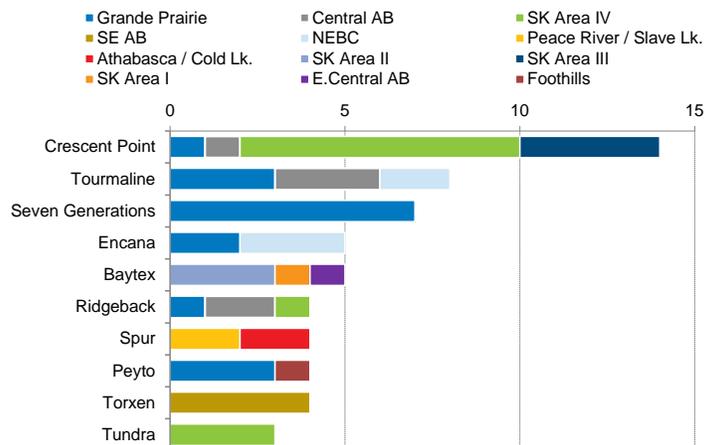
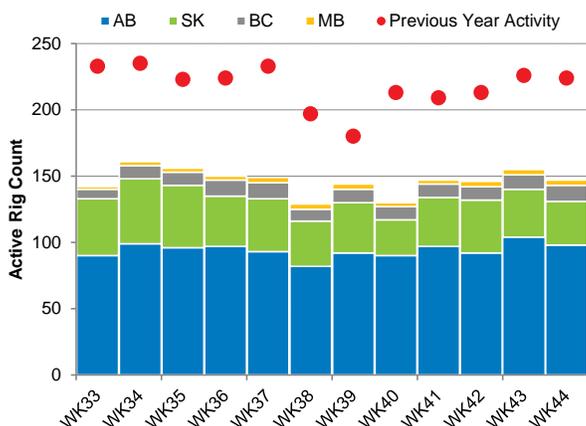
## Rig Analysis

ACTIVE RIG COUNT BY AREA – 139 ACTIVE RIGS<sup>(1)</sup> IN THE WEEK ENDING November 1, 2019



WEEKLY RIG COUNT BY PROVINCE<sup>(2)</sup>

TOP OPERATORS BY RIG COUNT<sup>(1)</sup>



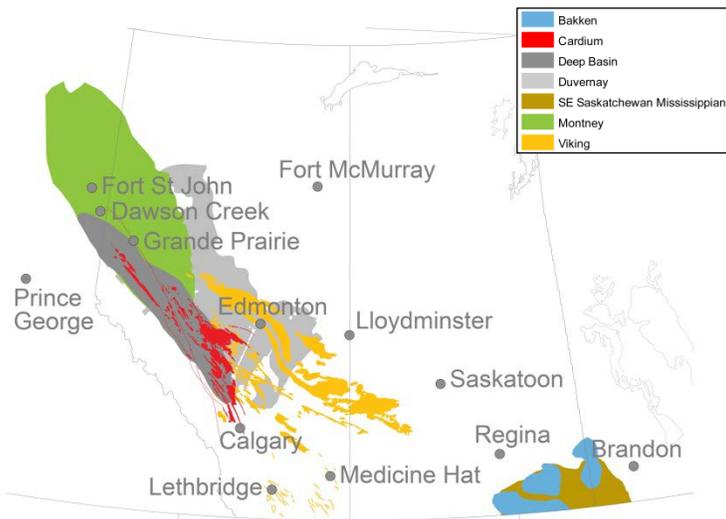
Source: DOB, BMO Capital Markets

1. Based on DOB Weekly Drilling Report ending on November 1, 2019  
 2. Based on DOB Rig Activity ending on October 29, 2019.

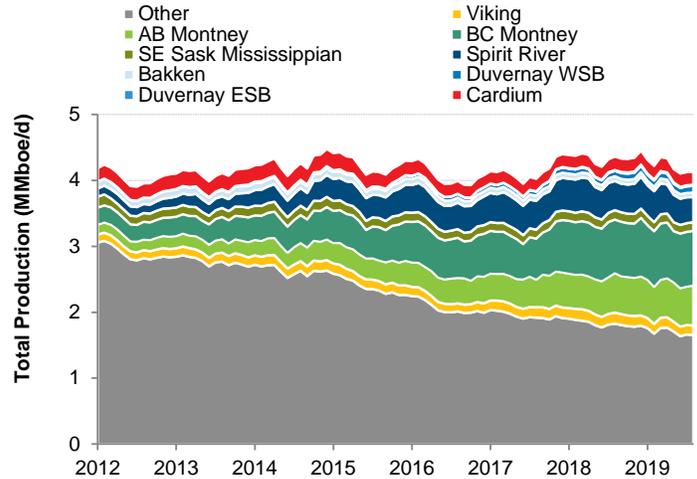
November-06-2019

## WCSB Key Play Activity

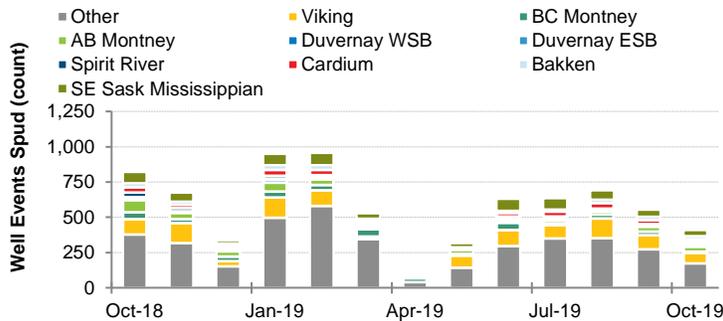
### LOCATOR MAP



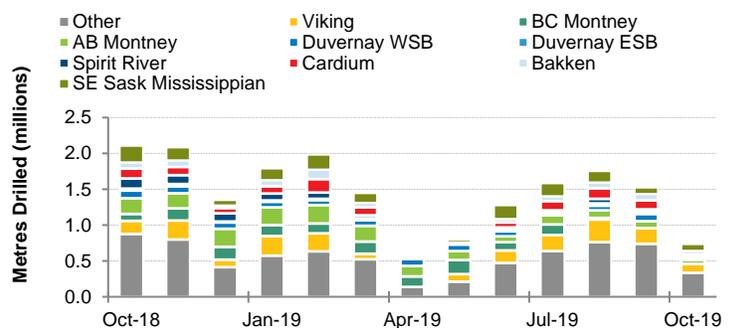
### PRODUCTION BY PLAY<sup>(1)</sup>



### WELLS SPUD BY PLAY<sup>(1)</sup>



### METRES DRILLED BY PLAY LTM<sup>(1)</sup>



## PLAY SUMMARY – WELLS SPUD AND TOTAL PRODUCTION

	Wells Spud			Oil and Raw Gas Production				
	Oct-19 (well count)	vs. Oct-18 (%)	Direction	Aug-19 (boe/d)	vs. Jul-19 (%)	vs. Jun-19 (%)	vs. Aug-18 (%)	Direction
Viking	75	(31%)	↓	145,758	2%	0%	(13%)	↓
BC Montney	10	(80%)	↓	828,908	0%	0%	2%	↑
AB Montney	35	(59%)	↓	606,015	4%	4%	1%	↑
Duvernay WSB	19	36%	↑	105,376	6%	11%	29%	↑
Duvernay ESB	3	(63%)	↓	16,163	(6%)	(6%)	24%	↑
Spirit River	14	(55%)	↓	379,694	(3%)	(4%)	(14%)	↓
Cardium	18	(53%)	↓	196,871	(0%)	(2%)	(3%)	↓
Bakken	22	(24%)	↓	65,121	(1%)	(5%)	(9%)	↓
SE Sask Mississippian	40	(49%)	↓	133,402	1%	1%	(7%)	↓
Sub-Total	236	(47%)	↓	2,477,308	1%	0%	(2%)	↓
Other	172	(54%)	↓	1,653,334	(1%)	1%	(9%)	↓
<b>Total</b>	<b>408</b>	<b>(50%)</b>	<b>↓</b>	<b>4,130,642</b>	<b>0.1%</b>	<b>0.7%</b>	<b>(5.4%)</b>	<b>↓</b>

For use on pages 11-19, we define the following well classifications:

Location and Drilling wells defined as wells licensed or licensed and spud in the last twelve months (LTM), with no rig release date on record. Standing wells are defined as wells that have not produced but have a rig release date within the LTM. All wells with no production and a rig release prior to January 2012 are not shown. All wells with no production in LTM not shown. As of the August 2018 Market Monitor, thermal production in Saskatchewan is now excluded from the "Other" play category. Production volumes are raw.

Source: BMO Capital Markets, geoSCOUT, GeoEdges

Note: This page does not include mining or thermal production or conventional wells from the Northwest Territories.

Production as of August 2019. Spud and license data as of November 1, 2019.

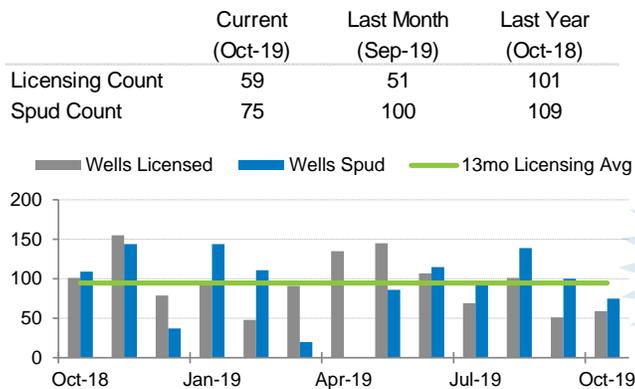
1. LTM is 13 month rolling window.

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## Viking Snapshot

Last Announced Deal: July 2019<sup>(4)</sup>

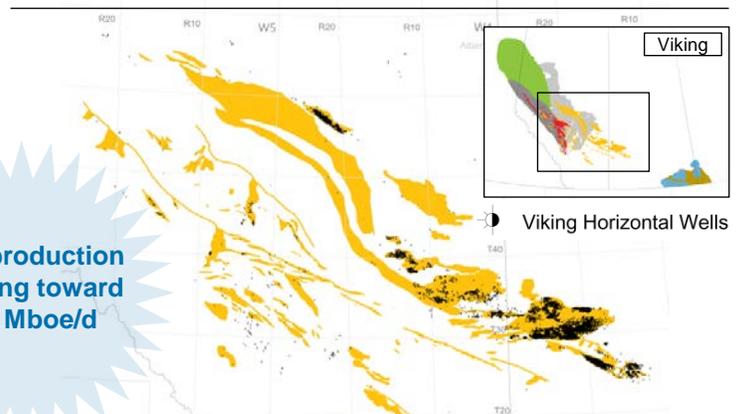
### ACTIVITY



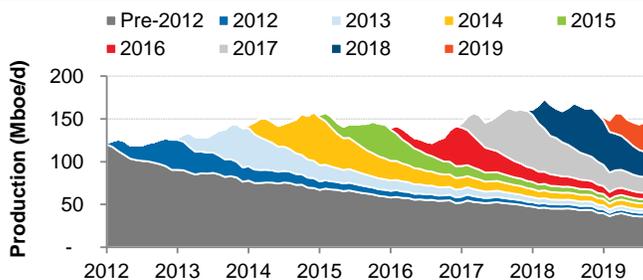
Play production growing toward 150 Mboe/d

## Key Industry Indicators

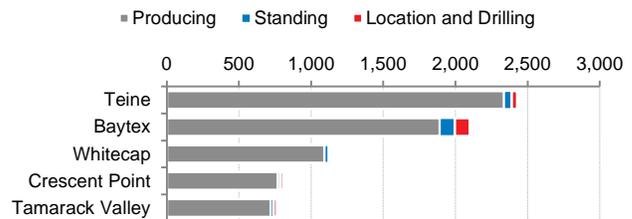
### ACTIVITY OVERVIEW MAP



### PRODUCTION BY DRILLING YEAR



### TOP 5 OPERATORS BY HORIZONTAL WELL COUNT<sup>(1)</sup>



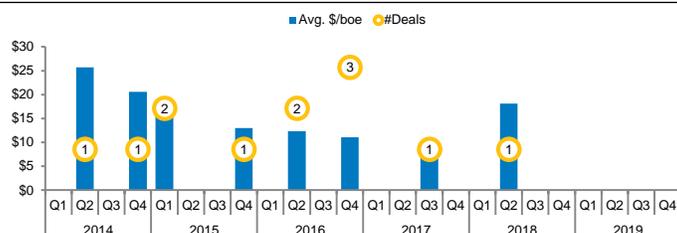
### TRANSACTION ACTIVITY (2016 TO PRESENT)<sup>(2)</sup>

Announce Date	Acquiror	Target	Corp/Asset	Enterprise Value (CSMM)	Parameters				Metrics		
					Prod. (boe/d)	%Gas (%)	P+P (Mboe)	RLI (P+P) (Years)	EV/boe/d (C\$/boe/d)	EV/2P (C\$/boe)	EV/DACF (x)
18-Jun-18	Baytex	Raging River <sup>(3)</sup>	Corp	\$1,935	24,118	7%	106,652	12.1	\$80,246	\$18.15	4.9x
15-Aug-17	Karve Energy	Apache (Alberta Viking Assets)	Asset	\$118	6,500	57%	16,800	7.1	\$18,154	\$7.02	4.6x
13-Dec-16	Steelhead	Toro	Corp	\$40	658	40%	4,647	19.3	\$60,000	\$8.50	n/mf
28-Nov-16	Raging River	Northern Blizzard (Viking Assets)	Asset	\$58	620	3%	5,800	25.6	\$93,548	\$10.00	6.1x
2-Nov-16	Tamarack Valley	Spur (Viking)	PrivateCo	\$388	6,250	48%	26,500	11.6	\$62,150	\$14.66	6.0x
20-Jul-16	Raging River	Rock (Forgans Lands)	Asset	\$25	100	0%	n.a.	n.a.	\$251,000	n.a.	n.a.
10-Jun-16	Teine Energy	Penn West (Viking Assets)	Asset	\$975	16,300	9%	53,200	8.9	\$59,816	\$18.33	12.9x
31-May-16	Raging River	Rock Energy	Corp	\$109	2,550	5%	17,077	18.3	\$42,745	\$6.38	6.6x
10-May-16	NAL Resources	Husky (Viking) <sup>(3)</sup>	Asset	\$102	1,470	45%	n.a.	n.a.	\$69,388	n.a.	n.a.
<b>Average - Viking</b>				<b>\$417</b>	<b>6,507</b>	<b>24%</b>	<b>32,954</b>	<b>14.7</b>	<b>\$81,894</b>	<b>\$11.86</b>	<b>6.8x</b>
<b>Median - Viking</b>				<b>\$109</b>	<b>2,550</b>	<b>9%</b>	<b>17,077</b>	<b>12.1</b>	<b>\$62,150</b>	<b>\$10.00</b>	<b>6.0x</b>

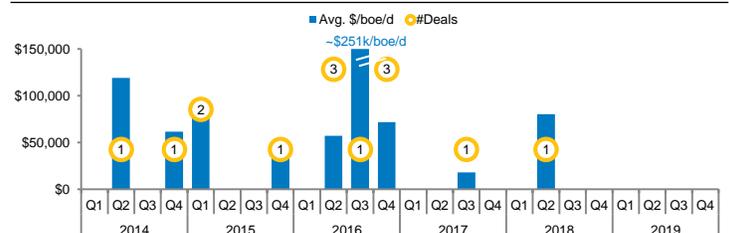
### ROYALTY

27-Feb-18	PrairieSky	Undisclosed (AB Viking Royalty Assets)	Asset	\$46	300	54%	n.a.	n.a.	\$153,333	n.a.	n.a.
2-Mar-17	Freehold	Undisclosed (Royalty Assets)	Asset	\$34	185	9%	n.a.	n.a.	\$183,784	n.a.	n.a.

### TRANSACTION 2P RESERVES MULTIPLES (\$/BOE)



### TRANSACTION PRODUCTION MULTIPLES (\$/BOE/D)



11 Source: BMO Capital Markets, Bloomberg, geoSCOUT, GeoEdges  
Note: Production as of August 2019. Spud and license data as of November 1, 2019.  
1. As defined on page 10.

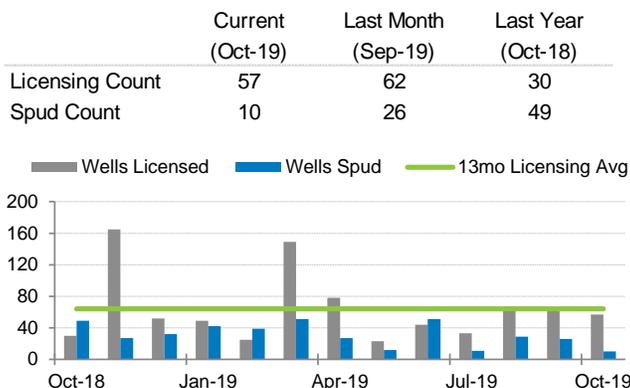
2. Excludes royalty transactions.  
3. Deal metrics shown include entire corporate transaction, not just the Viking assets.  
4. Karve's acquisition of High Ground for an undisclosed amount.

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## BC Montney Snapshot

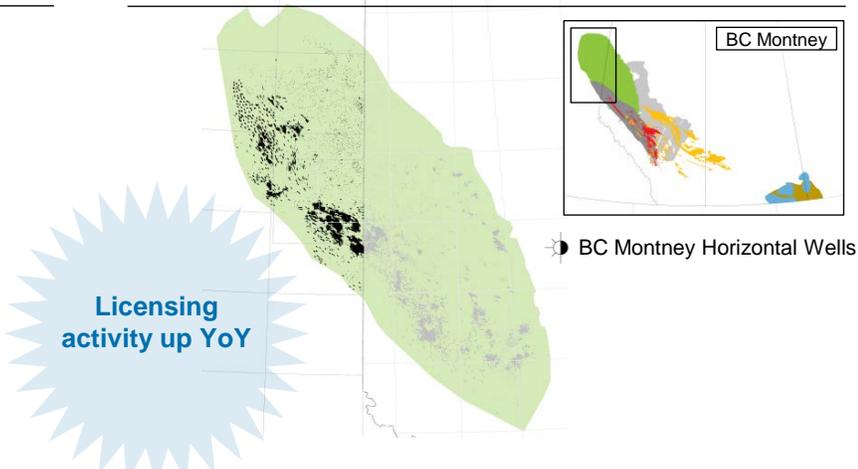
Last Announced Deal: \$45MM in October 2019

### ACTIVITY

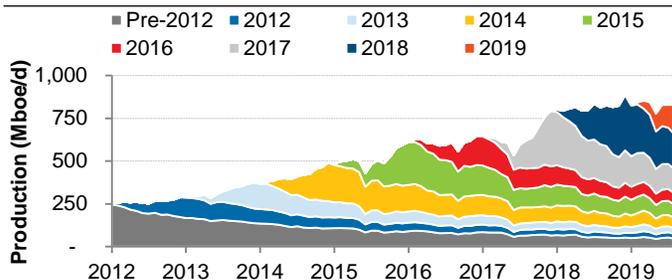


## Key Industry Indicators

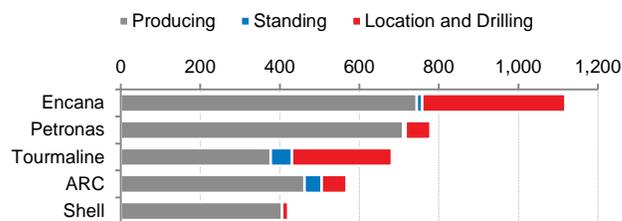
### ACTIVITY OVERVIEW MAP



### PRODUCTION BY DRILLING YEAR



### TOP 5 OPERATORS BY HORIZONTAL WELL COUNT<sup>(1)</sup>



### TRANSACTION ACTIVITY (2016 TO PRESENT)<sup>(2)</sup>

Announce Date	Acquirer	Vendor	Corp/Asset	Enterprise Value (C\$MM)	Parameters				Metrics		
					Prod. (boe/d)	%Gas (%)	P+P (Mboe)	RLI (P+P) (Years)	EV/boe/d (C\$/boe/d)	EV/2P (C\$/boe)	EV/DACF (x)
18-Oct-19	Undisclosed	Painted Pony (NE BC Montney)	Asset	\$45	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
31-Jul-18	Undisclosed	Canbriam (NE BC Montney)	Asset	\$50	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
8-May-17	Primavera	Crew (Goose Assets)	Asset	\$49	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
23-Mar-17	ConocoPhillips	Pengrowth (Bernadet)	Asset	\$92	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
15-Mar-17	Painted Pony	UGR	PrivateCo	\$296	8,500	99%	325,100	104.8	\$34,856	\$0.91	9.7x
20-Oct-16	Tourmaline	Shell (Deep Basin / Montney)	Asset	\$1,369	24,850	85%	473,500	52.2	\$55,091	\$2.89	n.a.
<b>Average - BC Montney</b>				<b>\$317</b>	<b>16,675</b>	<b>92%</b>	<b>399,300</b>	<b>78.5</b>	<b>\$44,974</b>	<b>\$1.90</b>	<b>9.7x</b>
<b>Median - BC Montney</b>				<b>\$71</b>	<b>16,675</b>	<b>92%</b>	<b>399,300</b>	<b>78.5</b>	<b>\$44,974</b>	<b>\$1.90</b>	<b>9.7x</b>

### TRANSACTION 2P RESERVES MULTIPLES (\$/BOE)



### TRANSACTION PRODUCTION MULTIPLES (\$/BOE/D)

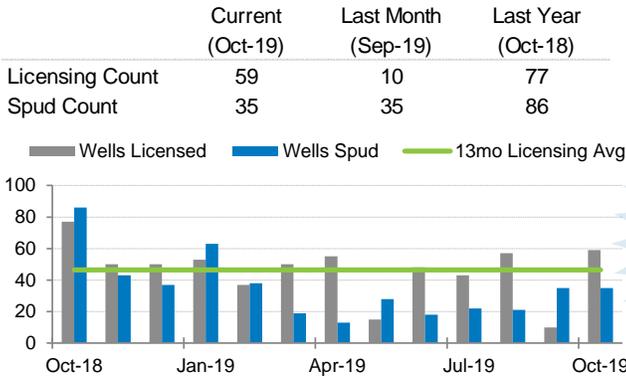


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## AB Montney Snapshot

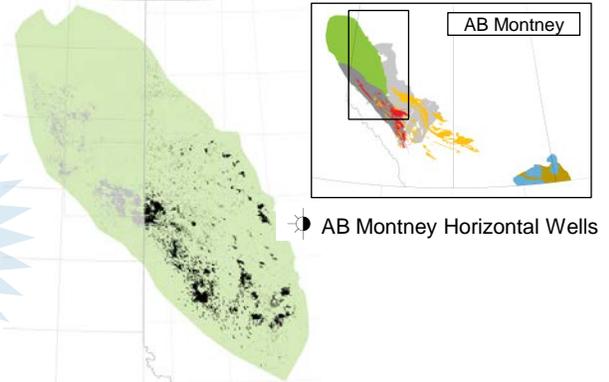
Last Announced Deal: \$39MM in November 2018

### ACTIVITY

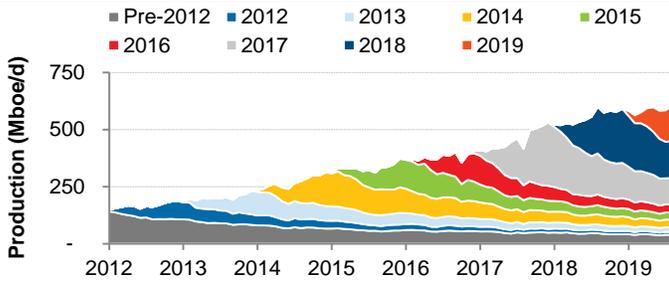


## Key Industry Indicators

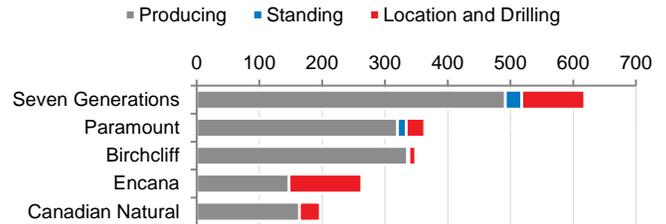
### ACTIVITY OVERVIEW MAP



### PRODUCTION BY DRILLING YEAR



### TOP 5 OPERATORS BY HORIZONTAL WELL COUNT<sup>(1)</sup>



### TRANSACTION ACTIVITY (2016 TO PRESENT)

Announce Date	Acquirer	Vendor	Corp/Asset	Enterprise Value (C\$MM)	Parameters				Metrics		
					Prod. (boe/d)	%Gas (%)	P+P (Mboe)	RLI (P+P) (Years)	EV/boe/d (C\$/boe/d)	EV/2P (C\$/boe)	EV/DACF (x)
14-Nov-18	Birchcliff	ORLEN (Pouce Coupe Assets)	Asset	\$39	700	86%	--	n.a.	\$55,714	n.a.	n.a.
30-Oct-18	Pipestone	Blackbird	Corp	\$247	1,148	45%	59,099	141.0	\$215,262	\$4.18	19.7x
10-Sep-18	Velvet	Iron Bridge	Corp	\$142	2,314	70%	26,113	30.9	\$61,379	\$5.44	14.5x
9-Aug-18	NuVista	Cenovus (Pipestone Partnership)	Asset	\$625	9,600	54%	156,888	44.8	\$65,104	\$3.98	9.9x
14-Jun-18	Strath	Paramount (Resthaven/Jayar)	Corp	\$340	5,300	64%	8,100	4.2	\$64,151	\$41.98	n.a.
1-Sep-17	Tangle Creek	RMP (Waskahigan)	Asset	\$80	3,215	70%	23,000	19.6	\$24,883	\$3.48	n.a.
6-Jul-17	Paramount	Trilogy <sup>(2)</sup>	Corp	\$1,109	25,133	62%	165,059	18.0	\$44,112	\$6.72	6.3x
1-May-17	Undisclosed	Trilogy (Valhalla)	Asset	\$50	1,100	84%	5,500	13.7	\$45,455	\$9.09	n.a.
1-May-17	Undisclosed	Paramount (Valhalla)	Asset	\$150	1,400	88%	n.a.	n.a.	\$107,143	n.a.	n.a.
5-Apr-17	Leucrotta	Undisclosed (Mica/Doe)	Asset	\$36	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
4-Jan-17	Undisclosed	Kelt (Karr Assets)	Asset	\$100	1,303	50%	12,700	26.7	\$76,746	\$7.87	n.a.
31-Oct-16	Enerplus	RMP (Ante Creek Assets)	Asset	\$114	4,300	55%	10,001	6.4	\$26,581	\$11.43	n.a.
6-Jul-16	Seven Generations	Paramount (Musreau Assets)	Asset	\$1,897	30,000	44%	293,000	26.8	\$63,219	\$6.47	n.a.
21-Jun-16	Birchcliff	Encana (Gordondale Assets)	Asset	\$625	26,000	59%	191,133	20.1	\$24,038	\$3.27	n.a.
16-Mar-16	Enercapita	Surge (Sunset Assets)	Asset	\$28	700	n.a.	n.a.	n.a.	\$40,000	n.a.	n.a.
<b>Average - AB Montney</b>				<b>\$372</b>	<b>8,015</b>	<b>64%</b>	<b>79,216</b>	<b>32.0</b>	<b>\$65,271</b>	<b>\$9.45</b>	<b>12.6x</b>
<b>Median - AB Montney</b>				<b>\$142</b>	<b>2,764</b>	<b>62%</b>	<b>24,557</b>	<b>20.1</b>	<b>\$58,547</b>	<b>\$6.47</b>	<b>12.2x</b>

### TRANSACTION 2P RESERVES MULTIPLES (\$/BOE)



### TRANSACTION PRODUCTION MULTIPLES (\$/BOE/D)



Source: BMO Capital Markets, Bloomberg, geoSCOUT, GeoEdges  
 Note: Production as of August 2019. Spud and license data as of November 1, 2019.

1. As defined on page 10.  
 2. Reflects full corporate transaction.

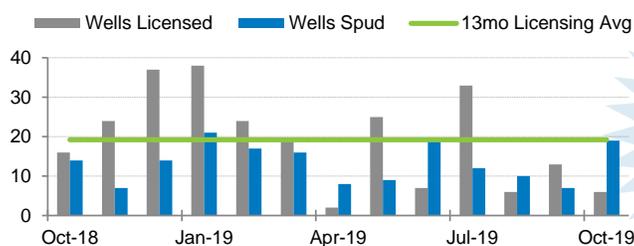
November-06-2019

## Duvernay West Shale Basin Snapshot Key Industry Indicators

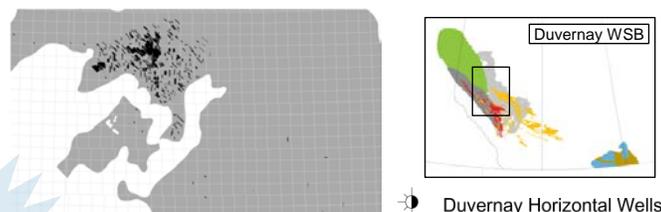
Last Announced Deal: \$1.1B in July 2017<sup>(3)</sup>

### ACTIVITY

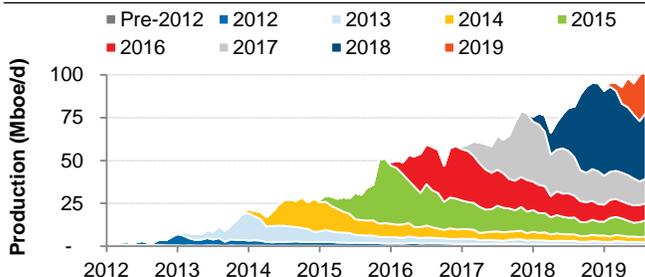
	Current (Oct-19)	Last Month (Sep-19)	Last Year (Oct-18)
Licensing Count	6	13	16
Spud Count	19	7	14



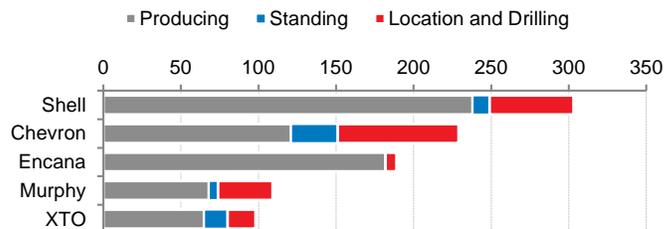
### ACTIVITY OVERVIEW MAP



### PRODUCTION BY DRILLING YEAR



### TOP 5 OPERATORS BY HORIZONTAL WELL COUNT<sup>(1)</sup>



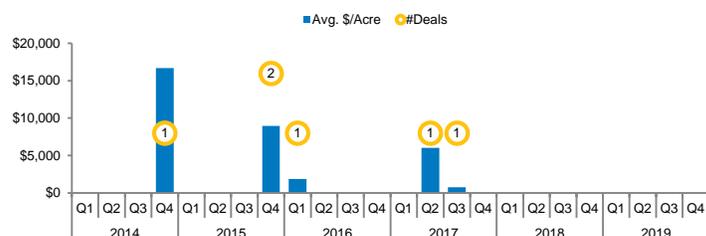
### TRANSACTION ACTIVITY (2012 TO PRESENT)

Announce Date	Acquirer	Vendor	Compensation		Interest (%)	Parameters			Metrics (Adjusted) <sup>(2)</sup>	
			Upfront (\$MM)	Total (\$MM)		Acres	Production (mcf/d)	Resource (tcf)	Acreage (CS/Acre)	Resource (CS/Mcfe)
6-Jul-17	Paramount	Trilogy <sup>(3)</sup>	n.a.	n.a.	100%	118,000	n.a.	n.a.	n.a.	n.a.
25-May-17	XTO	Trilogy	\$60	\$60	100%	6,240	3,840	n.a.	\$6,026	n.a.
27-Jan-16	Murphy Oil	Athabasca	\$250	\$475	61%	158,000	28,440	1.00	\$1,877	\$0.30
7-Dec-15	XTO	Yoho	\$50	\$50	100%	10,290	5,340	n.a.	\$1,832	n.a.
19-Nov-15	Undisclosed	Trilogy	\$113	\$113	100%	5,760	3,480	n.a.	\$16,055	n.a.
6-Oct-14	KUFPEC	Chevron	<\$1,678	\$1,678 <sup>(4)</sup>	30%	99,000	4,590	n.a.	\$16,678	n.a.
1-Aug-13	Chevron	Alta Energy	\$900	\$900	100%	67,900	--	n.a.	\$13,255	n.a.
13-Dec-12	PetroChina	Encana	\$1,180	\$2,180	50%	222,055	--	6.74	\$9,817	\$0.32
<b>Average - Duvernay</b>			<b>\$604</b>	<b>\$779</b>		<b>85,906</b>	<b>6,527</b>	<b>3.87</b>	<b>\$9,363</b>	<b>\$0.31</b>
<b>Median - Duvernay</b>			<b>\$250</b>	<b>\$475</b>		<b>83,450</b>	<b>3,840</b>	<b>3.87</b>	<b>\$9,817</b>	<b>\$0.31</b>

### TRANSACTION MULTIPLES (\$/MCFE)



### TRANSACTION ACREAGE MULTIPLES (\$/ACRE)



Source: BMO Capital Markets, Bloomberg, geoSCOUT, GeoEdges  
 Note: Production as of August 2019. Spud and license data as of November 1, 2019.  
 1. As defined on page 10.  
 2. Production multiple adjusted assuming \$30,000/boe/d.

3. Paramount's acquisition of Trilogy is a corporate transaction.  
 4. Transaction value includes a carry of a portion of Chevron Canada's share of the joint venture's future capital costs; amount unknown.

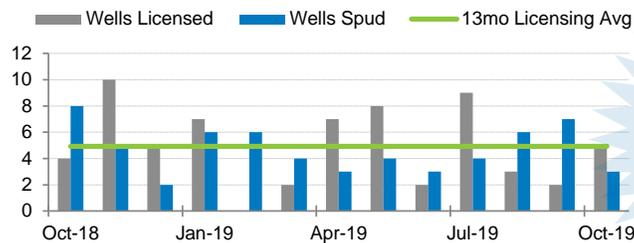
November-06-2019

## East Shale Basin Snapshot

Last Announced Deal: August 2018

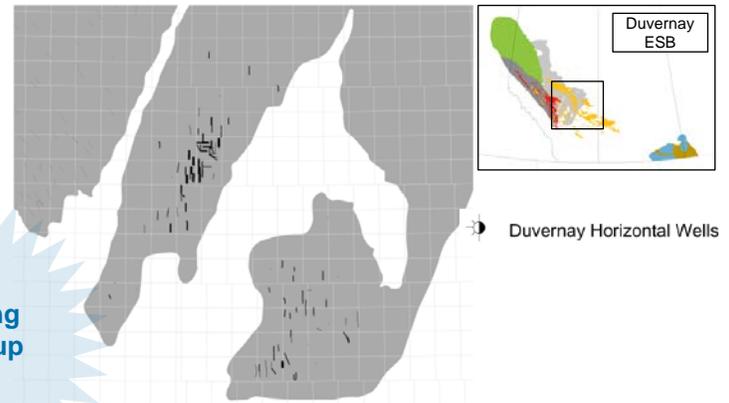
### ACTIVITY

	Current (Oct-19)	Last Month (Sep-19)	Last Year (Oct-18)
Licensing Count	5	2	4
Spud Count	3	7	8

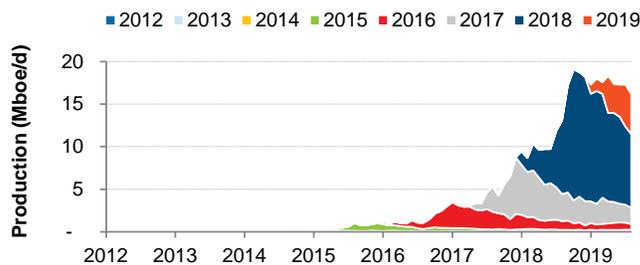


## Key Industry Indicators

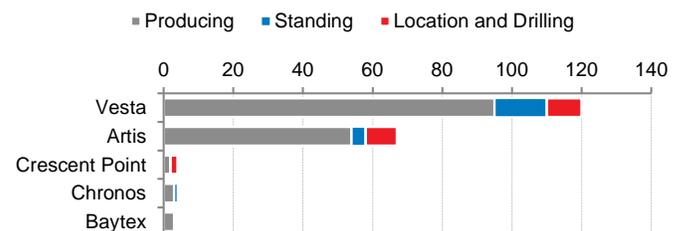
### ACTIVITY OVERVIEW MAP



### PRODUCTION BY DRILLING YEAR



### TOP 5 OPERATORS BY HORIZONTAL WELL COUNT<sup>(1)</sup>



### TRANSACTION ACTIVITY (2018 – PRESENT)<sup>(2,3)</sup>

Announce Date	Acquiror	Vendor	Compensation			Parameters			Metrics (Adjusted)	
			Upfront (\$MM)	Total (\$MM)	Interest (%)	Acres	Production (mcf/d)	Resource (tcf)	Acreage (C\$/Acre)	Resource (C\$/Mcf)
29-Aug-18	Kiwetinohek	Journey (JV)	n.a.	n.a.	n.a.	89,600	n.a.	n.a.	n.a.	n.a.
18-Jun-18	Baytex	Raging River (Corporate)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
<b>Average - Duvernay</b>			<b>n.a.</b>	<b>n.a.</b>	<b>n.a.</b>	<b>89,600</b>	<b>n.a.</b>	<b>n.a.</b>	<b>n.a.</b>	<b>n.a.</b>
<b>Median - Duvernay</b>			<b>n.a.</b>	<b>n.a.</b>	<b>n.a.</b>	<b>89,600</b>	<b>n.a.</b>	<b>n.a.</b>	<b>n.a.</b>	<b>n.a.</b>

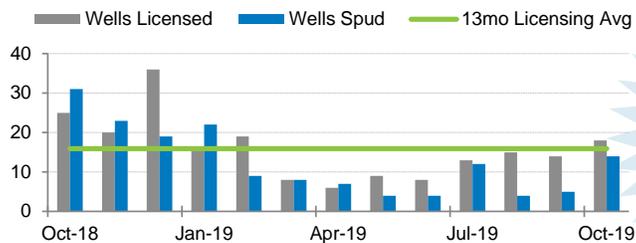
November-06-2019

## Spirit River Snapshot

Last Announced Deal: \$17.7B in March 2017<sup>(2)</sup>

### ACTIVITY

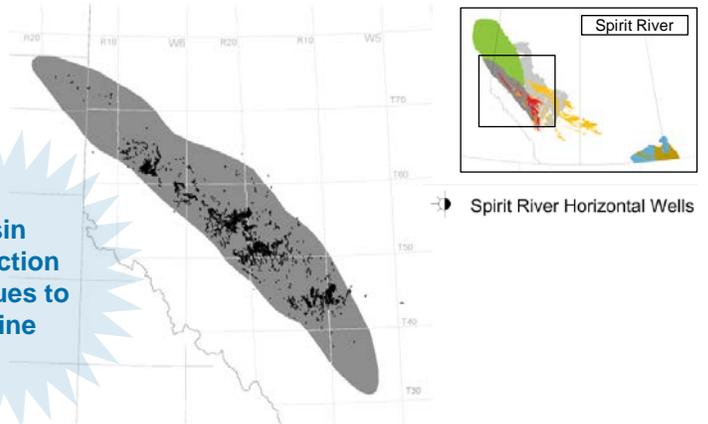
	Current (Oct-19)	Last Month (Sep-19)	Last Year (Oct-18)
Licensing Count	18	14	25
Spud Count	14	5	31



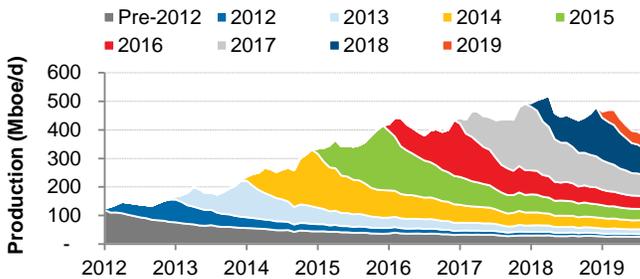
**Basin production continues to decline**

## Key Industry Indicators

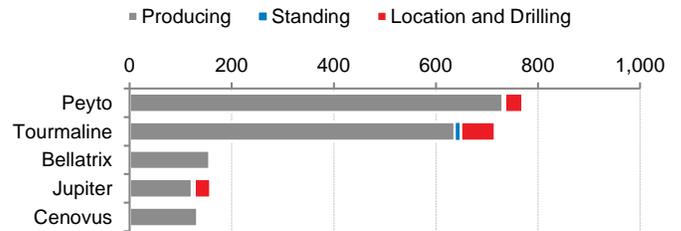
### ACTIVITY OVERVIEW MAP



### PRODUCTION BY DRILLING YEAR



### TOP 5 OPERATORS BY HORIZONTAL WELL COUNT<sup>(1)</sup>



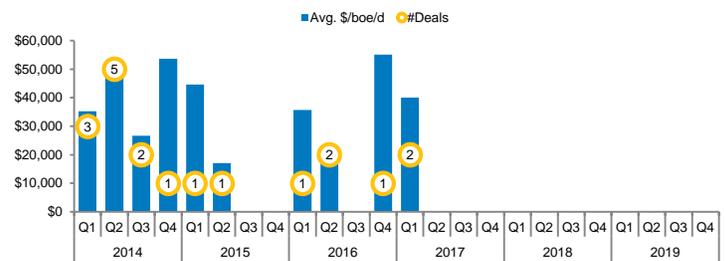
### TRANSACTION ACTIVITY (2016 TO PRESENT)

Announce Date	Acquiror	Vendor	Corp/Asset	Enterprise Value (\$CMM)	Parameters				Metrics		
					Prod. (boe/d)	%Gas (%)	P+P (Mboe)	RLI (P+P) (Years)	EV/boe/d (\$/boe/d)	EV/2P (\$/boe)	EV/DACF (x)
29-Mar-17	Cenovus <sup>(2)</sup>	ConocoPhillips (FCCL & D. Basin Assets)	Asset	\$17,730	284,396	31%	3,965,833	38.2	\$62,341	\$4.47	9.8x
20-Oct-16	Tourmaline	Shell (Deep Basin & Gundy Montney)	Asset	\$1,369	24,850	85%	473,500	52.2	\$55,091	\$2.89	n.a.
16-Jun-16	Bellatrix	Grafton (Ferrier Assets)	Asset	\$29	2,000	79%	n.a.	n.a.	\$14,599	n.a.	n.a.
13-Jun-16	Undisclosed	NuVista (Cretaceous Wapiti)	Asset	\$70	3,200	73%	21,700	18.6	\$21,875	\$3.23	n.a.
11-Jan-16	Tourmaline / Undisc.	Enerplus (Deep Basin Assets)	Asset	\$193	5,400	98%	n.a.	n.a.	\$35,741	n.a.	n.a.
<b>Average - Spirit River</b>				<b>\$3,878</b>	<b>63,969</b>	<b>73%</b>	<b>1,487,011</b>	<b>36.3</b>	<b>\$37,929</b>	<b>\$3.53</b>	<b>9.8x</b>
<b>Median - Spirit River</b>				<b>\$193</b>	<b>5,400</b>	<b>79%</b>	<b>473,500</b>	<b>38.2</b>	<b>\$35,741</b>	<b>\$3.23</b>	<b>9.8x</b>

### TRANSACTION 2P RESERVES MULTIPLES (\$/BOE)



### TRANSACTION PRODUCTION MULTIPLES (\$/BOE/D)



Source: BMO Capital Markets, Bloomberg, geoSCOUT, GeoEdges  
Note: Production as of August 2019. Spud and license data as of November 1, 2019.  
1. As defined on page 10.

2. Deal metrics shown include entire transaction (including non-Spirit River assets, which are significant).

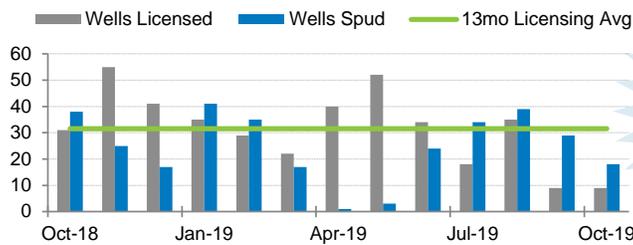
November-06-2019

## Cardium Snapshot

Last Announced Deal: \$52MM GORR in Dec 2017

### ACTIVITY

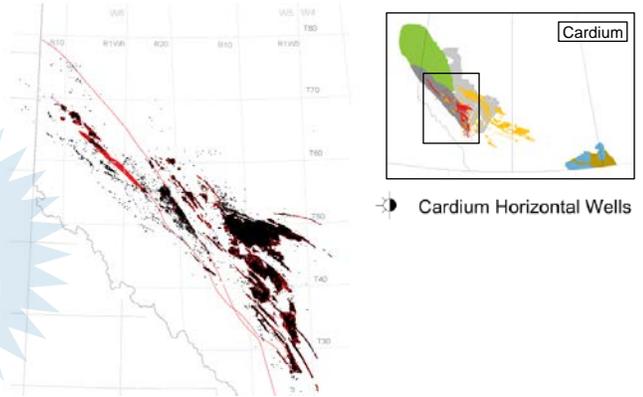
	Current (Oct-19)	Last Month (Sep-19)	Last Year (Oct-18)
Licensing Count	9	9	31
Spud Count	18	29	38



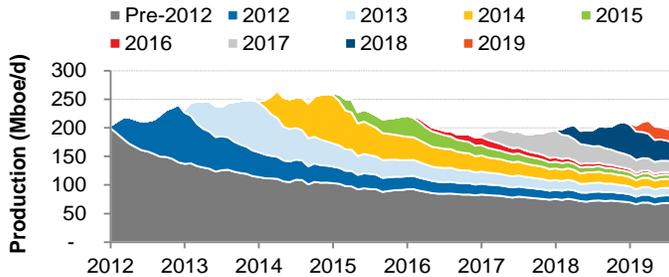
Production holding flat ~200 Mboe/d

## Key Industry Indicators

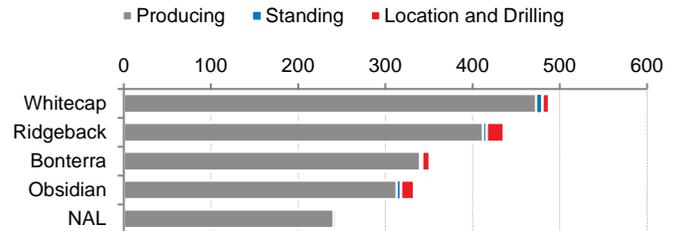
### ACTIVITY OVERVIEW MAP



### PRODUCTION BY DRILLING YEAR



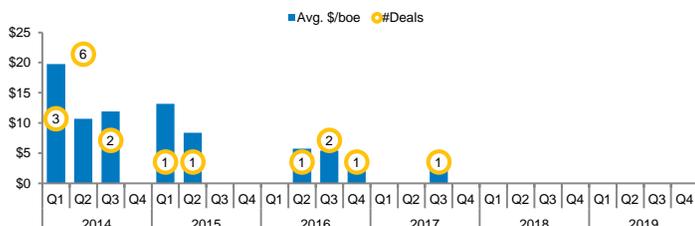
### TOP 5 OPERATORS BY HORIZONTAL WELL COUNT<sup>(1)</sup>



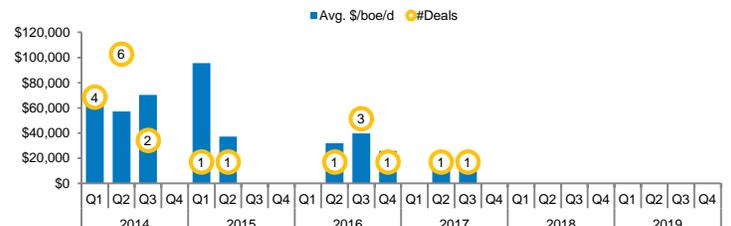
### TRANSACTION ACTIVITY<sup>(2)(3)</sup> (2016 TO PRESENT)

Announce Date	Acquirer	Vendor	Corp/Asset	Enterprise Value (C\$MM)	Parameters				Metrics		
					Prod. (boe/d)	%Gas (%)	P+P (Mboe)	RLI (P+P) (Years)	EV/boe/d (C\$/boe/d)	EV/2P (C\$/boe)	EV/DACF (x)
11-Jul-17	NAL Resources	Pengrowth (Olds/Garrington Assets)	Asset	\$300	13,875	n.a.	78,000	15.4	\$21,622	\$3.85	n.a.
14-Jun-17	Undisclosed	Bellatrix (Strachan Assets)	Asset	\$35	1,750	70%	n.a.	n.a.	\$19,714	n.a.	n.a.
5-Dec-16	TransGlobe	Bellatrix (Harmattan Assets)	Asset	\$80	3,104	43%	21,300	18.8	\$25,773	\$3.76	n.a.
19-Sep-16	InPlay	Bellatrix (Pembina Assets)	Asset	\$47	900	25%	7,900	24.0	\$51,782	\$5.90	n.a.
19-Sep-16	InPlay	Anderson	Corp	\$33	1,659	58%	6,517	10.8	\$19,640	\$5.00	6.5x
28-Jul-16	ARC Resources	Husky & Penn West (Pembina)	Asset	\$148	3,083	15%	n.a.	n.a.	\$48,000	n.a.	n.a.
7-Jun-16	Gear Energy	Striker	Corp	\$64	2,000	40%	11,068	15.2	\$31,850	\$5.76	13.8x
<b>Average - Cardium</b>				<b>\$101</b>	<b>3,767</b>	<b>42%</b>	<b>24,957</b>	<b>16.8</b>	<b>\$31,197</b>	<b>\$4.85</b>	<b>10.1x</b>
<b>Median - Cardium</b>				<b>\$64</b>	<b>2,000</b>	<b>42%</b>	<b>11,068</b>	<b>15.4</b>	<b>\$25,773</b>	<b>\$5.00</b>	<b>10.1x</b>

### TRANSACTION 2P RESERVES MULTIPLES (\$/BOE)



### TRANSACTION PRODUCTION MULTIPLES (\$/BOE/D)



Source: BMO Capital Markets, Bloomberg, geoSCOUT, GeoEdges  
 Note: Production as of August 2019. Spud and license data as of November 1, 2019.  
 1. As defined on page 10.

2. Does not include the take-private of Lightstream (now called Ridgeback).  
 3. Does not include royalty transactions.

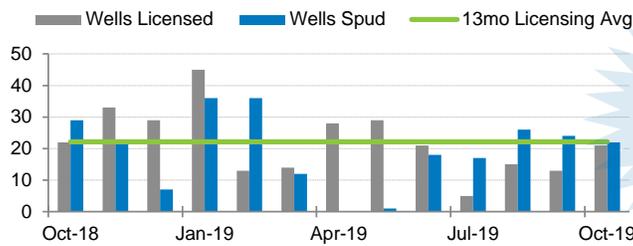
November-06-2019

## Bakken Snapshot<sup>(1)</sup>

Last Announced Deal: \$70MM in July 2018

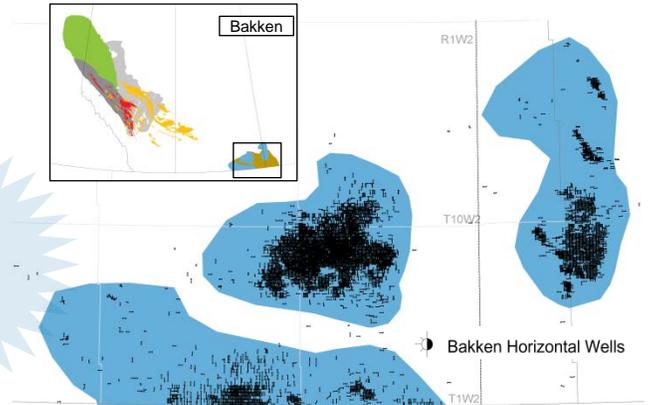
### ACTIVITY

	Current (Oct-19)	Last Month (Sep-19)	Last Year (Oct-18)
Licensing Count	21	13	22
Spud Count	22	24	29

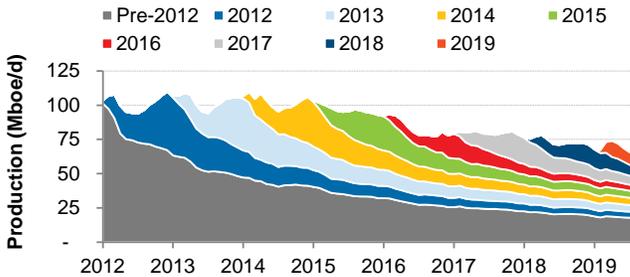


## Key Industry Indicators

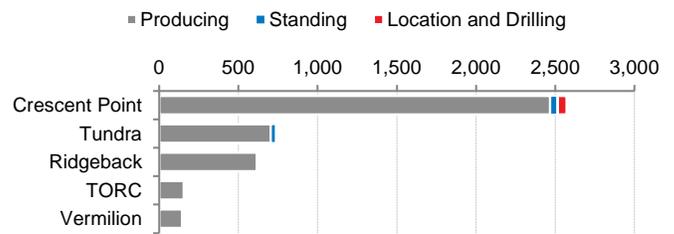
### ACTIVITY OVERVIEW MAP



### PRODUCTION BY DRILLING YEAR



### TOP 5 OPERATORS BY HORIZONTAL WELL COUNT<sup>(2)(3)</sup>



### TRANSACTION ACTIVITY<sup>(4)</sup> (2012 TO PRESENT)

Announce Date	Acquiror	Vendor	Corp/Asset	Enterprise Value (C\$MM)	Parameters				Metrics		
					Prod. (boe/d)	%Gas (%)	P+P (Mboe)	RLI (P+P) (Years)	EV/boe/d (C\$/boe/d)	EV/2P (C\$/boe)	EV/DACF (x)
23-Jul-18	Gear	Steppe	PrivateCo	\$70	1,175	1%	n.a.	n.a.	\$59,915	n.a.	2.9x
15-Jan-18	Vermilion	Red River	PrivateCo	\$91	1,150	0%	6,700	16.0	\$78,957	\$13.55	4.2x
23-Apr-14	Crescent Point	CanEra	PrivateCo	\$1,113	10,000	4%	52,100	14.3	\$111,340	\$21.37	4.8x
14-Mar-12	Crescent Point	Reliable	Corp	\$107	1,100	0%	4,100	10.2	\$97,378	\$26.13	4.1x
16-Feb-12	Crescent Point	PetroBakken (Bakken Assets)	Asset	\$427	2,900	10%	12,600	11.9	\$147,241	\$33.89	6.4x
<b>Average - Bakken</b>				<b>\$362</b>	<b>3,265</b>	<b>3%</b>	<b>18,875</b>	<b>13.1</b>	<b>\$98,966</b>	<b>\$23.73</b>	<b>4.5x</b>
<b>Median - Bakken</b>				<b>\$107</b>	<b>1,175</b>	<b>1%</b>	<b>9,650</b>	<b>13.1</b>	<b>\$97,378</b>	<b>\$23.75</b>	<b>4.2x</b>

### TRANSACTION 2P RESERVES MULTIPLES (\$/BOE)



### TRANSACTION PRODUCTION MULTIPLES (\$/BOE/D)



Source: BMO Capital Markets, Bloomberg, geoSCOUT, GeoEdges  
 Note: Production as of August 2019. Spud and license data as of November 1, 2019.  
 1. The Torquay and Three Forks are included as part of the Bakken sub-group.  
 2. In Manitoba, licensing may not specify target formation, and as a result wells will be correctly

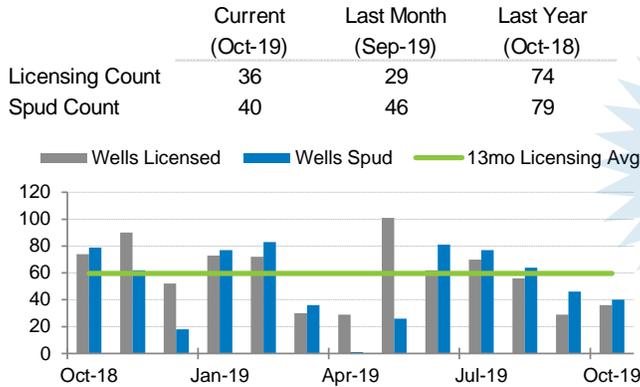
categorized after they are drilled.  
 3. As defined on page 10.  
 4. Does not include the take-private of Lightstream (now called Ridgeback).

November-06-2019

## SE Mississippian Snapshot

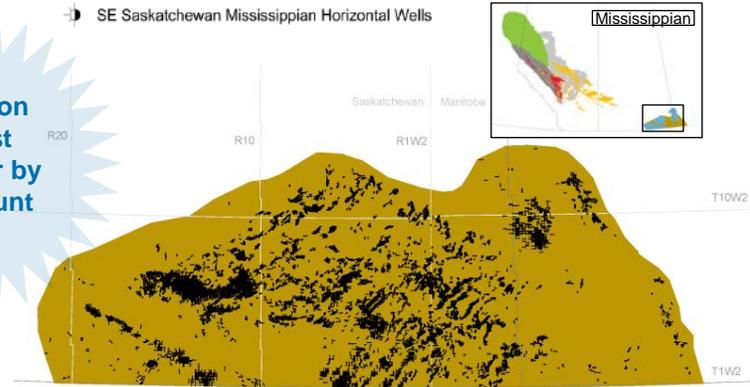
Last Announced Deal: \$212MM in September 2019

### ACTIVITY

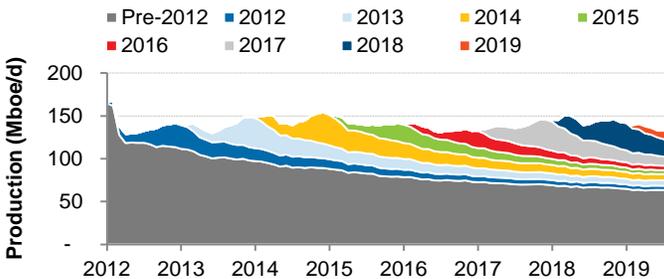


## Key Industry Indicators

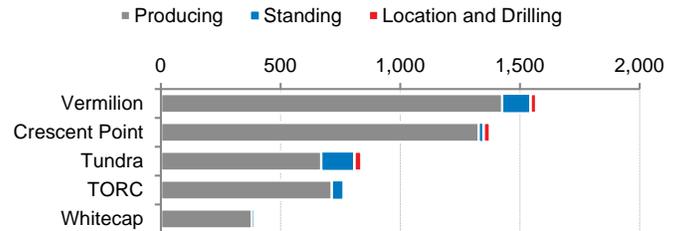
### ACTIVITY OVERVIEW MAP



### PRODUCTION BY DRILLING YEAR



### TOP 5 OPERATORS BY HORIZONTAL WELL COUNT<sup>(1,2)</sup>



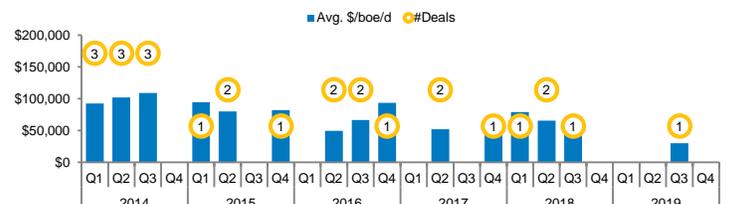
### TRANSACTION ACTIVITY (2016 TO PRESENT)

Announce Date	Acquirer	Vendor	Corp/Asset	Enterprise Value (C\$MM)	Parameters				Metrics		
					Prod. (boe/d)	%Gas (%)	P+P (Mboe)	RLI (P+P) (Years)	EV/boe/d (C\$/boe/d)	EV/2P (C\$/boe/d)	EV/DACF (x)
3-Sep-19	Undisclosed	Crescent Point (SE SK Assets)	Asset	\$212	7,000	15%	49,200	19.3	\$30,286	\$4.31	4.5x
8-Aug-18	TORC	Villanova 4	PrivateCo	\$62	1,000	20%	4,000	11.0	\$61,642	\$15.41	n.a.
8-May-18	TORC	Crescent Point (SE SK Assets)	Asset	\$225	3,200	n.a.	15,500	13.3	\$70,281	\$14.51	n.a.
16-Apr-18	Vermilion	Spartan	Corp	\$1,396	23,000	9%	113,485	13.5	\$60,684	\$12.30	4.3x
13-Nov-17	Whitecap	Cenovus (Weyburn Unit)	Asset	\$940	14,800	0%	121,409	22.5	\$63,514	\$7.74	6.7x
1-Jun-17	Cardinal	Apache (SE SK & House Mountain Assets)	Asset	\$330	5,000	0%	28,600	15.7	\$66,000	\$11.54	6.0x
10-May-17	Undisclosed	Freehold (SE Sask Assets)	Asset	\$29	750	44%	n.a.	n.a.	\$38,533	n.a.	n.a.
17-Nov-16	Spartan	ARC (SE Sask Assets)	Asset	\$700	7,500	2%	39,300	14.4	\$93,333	\$17.81	8.2x
3-Aug-16	Spartan	Kinwest (SE Sask Assets)	Asset	\$24	450	7%	n.a.	n.a.	\$53,333	n.a.	n.a.
25-Jul-16	TORC	Zargon (SE Sask Assets)	Asset	\$96	1,200	4%	n.a.	n.a.	\$79,583	n.a.	n.a.
29-Jun-16	Spartan	Halo / Other (SE Sask Assets)	Asset	\$62	1,500	1%	7,176	13.1	\$41,467	\$8.67	5.7x
19-May-16	Spartan	Wyatt Oil + Gas	PrivateCo	\$77	1,330	24%	14,629	30.1	\$57,895	\$5.26	6.8x
<b>Average - SE Sask</b>				<b>\$346</b>	<b>5,561</b>	<b>11%</b>	<b>43,700</b>	<b>17.0</b>	<b>\$59,713</b>	<b>\$10.84</b>	<b>6.0x</b>
<b>Median - SE Sask</b>				<b>\$154</b>	<b>2,350</b>	<b>7%</b>	<b>28,600</b>	<b>14.4</b>	<b>\$61,163</b>	<b>\$11.54</b>	<b>6.0x</b>

### TRANSACTION 2P RESERVES MULTIPLES (\$/BOE)



### TRANSACTION PRODUCTION MULTIPLES (\$/BOE/D)



Source: BMO Capital Markets, Bloomberg, geoSCOUT, GeoEdges  
Note: Production as of August 2019. Spud and license data as of November 1, 2019.  
1. As defined on page 10.

2. In Manitoba, licensing may not specify target formation, and as a result wells will be correctly categorized after they are drilled.

November-06-2019

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# Daily Market Summary Report

Commodities | Fixed Income, Currencies and Commodities

November 5, 2019

## Natural Gas Commentary

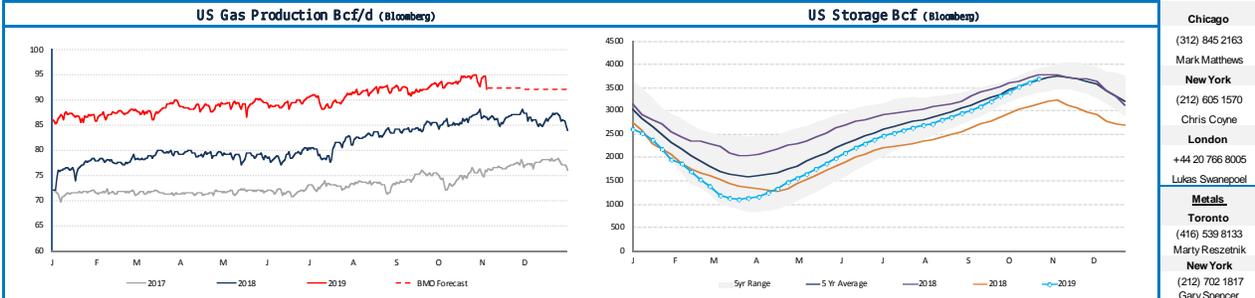
The weather model divergence seems to have the market confused at what to do here. Weather is super bullish and over the next 5 numbers we expect to pull more than we did last year. However, with the forecast turning this bullish in such a short amount of time, is max/bullishness short term already priced in with the front near 2.90 and 3.7 Tcf in the ground? Front to back were once again strong with Cal21 and out trading negative on the day. Producer activity continues to keep the back end under pressure relative to the front, and we saw more significant curve flattening further out the curve today. Cal 27 traded 2.825 on 1/2 day today, which is down nearly .04 from our mark. Implied vol was weaker by 1% in Dec as the .10 implied break-evens weren't realized today. Call skew in Q120 remains well supported for the calls and back end vol remains bid.

NYMEX Natural Gas (USD/MMBTU)			AECO Basis (USD/MMBTU)		AECO (CAD/GJ)		Natural Gas Basis (USD/MMBTU)			
Prompt	Price	Change	Price	Change	Price	Change	Dec19	Jan20-Dec20	Jan20-Jun20	
Prompt	\$2.862	\$0.041	(\$0.88)	(\$0.045)	\$2.47	(\$0.003)	Chi Citygate	\$0.17	(\$0.06)	\$0.03
Jan20-Dec20	\$2.576	\$0.012	(\$1.12)	(\$0.015)	\$1.82	(\$0.003)	CIG, Rockies	(\$0.38)	(\$0.60)	(\$0.63)
Zero-Cost Collar	\$2.75/\$2.35				\$1.15/\$2.76		Dawn	\$0.14	(\$0.05)	\$0.03
Zero-Cost Collar	\$2.50/\$2.65				\$1.00/\$3.01		Dominion	(\$0.38)	(\$0.44)	(\$0.36)
Jan20-Jun20	\$2.633	\$0.020	(\$1.10)	(\$0.022)	\$1.92	(\$0.001)	El Paso, Perm	(\$1.14)	(\$1.49)	(\$1.52)
Zero-Cost Collar	\$2.10/\$3.58				\$1.15/\$2.93		El Paso, SJ	(\$0.41)	(\$0.66)	(\$0.72)
Zero-Cost 3-Way	\$2.10/\$2.60/\$2.79				\$1.15/\$1.25/\$3.12		HSC	(\$0.11)	(\$0.06)	(\$0.08)
Apr20-Oct20	\$2.445	\$0.005	(\$1.15)	(\$0.010)	\$1.62	(\$0.005)	Malin	(\$0.06)	(\$0.42)	(\$0.44)
Nov20-Mar21	\$2.691	\$0.002	(\$1.07)	(\$0.006)	\$2.02	(\$0.003)	NW Rockies	(\$0.12)	(\$0.45)	(\$0.48)
Jan21-Dec21	\$2.495	(\$0.001)	(\$1.00)	\$0.006	\$1.87	\$0.008	Panhandle	(\$0.52)	(\$0.54)	(\$0.56)
Apr21-Oct21	\$2.370	(\$0.002)	(\$0.97)	\$0.015	\$1.74	\$0.018	PGE Citygate	\$0.52	\$0.38	\$0.33
Nov21-Mar22	\$2.655	(\$0.005)	(\$0.95)	(\$0.005)	\$2.13	(\$0.010)	SoCal Gas	\$0.25	(\$0.16)	(\$0.30)
Apr22-Oct22	\$2.400	(\$0.008)	(\$0.96)	(\$0.015)	\$1.80	(\$0.027)	Station 2	(\$1.35)	(\$1.30)	(\$1.29)
Nov22-Mar23	\$2.695	(\$0.007)	(\$0.93)	(\$0.000)	\$2.21	(\$0.007)	Sumas	\$1.10	(\$0.45)	(\$0.27)
							TCO	(\$0.29)	(\$0.34)	(\$0.29)
							TxOk	(\$0.22)	(\$0.21)	(\$0.22)
							Waha	(\$1.24)	(\$1.60)	(\$1.64)

Cash Fixed Price Liquidations (NGX)				Natural Gas Storage & Production (Bloomberg)				
	Aeco 5a	Station 2	Dawn	Storage (BCF)	Current	W/W Change	Last Year	5 Yr. Avg. Seasonal
	Same Day (C\$/GJ)	Next Day (C\$/GJ)	Next Day (US\$/MM)	US Natural Gas	3,695	2.47%	3,143	3,631
Last Close	\$2.8839	\$1.0292	\$2.7815	CAN Natural Gas	610	1.12%	638	686
D/D Change	10.75%	-5.26%	4.16%	Production (BCF/Day)	Current	Mo/Mo Change	Last Year	5 Yr. Avg.
MTD Avg.	\$2.3358	\$0.4245	\$2.0531	US Dry Gas Production	94.4	-0.37%	87.5	81.1

## Gas Market Fundamentals (BMO Forecast)

	Jul-19	Aug-19	Sep-19	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Commodities
Production	88.31	90.27	90.21	91.50	92.51	92.11	91.90	92.12	92.10	<b>Calgary</b>
LNG Sendouts	0.13	0.14	0.12	0.11	0.17	0.18	0.22	0.27	0.12	(403) 515 3682
CAD Imports	4.68	3.92	4.19	3.86	4.37	4.71	4.17	3.72	4.80	1-888-432-0222
<b>Total Supply</b>	<b>93.12</b>	<b>94.33</b>	<b>94.51</b>	<b>95.47</b>	<b>97.05</b>	<b>97.00</b>	<b>96.30</b>	<b>96.10</b>	<b>97.02</b>	Marie-Je James
PowerBurn	40.53	40.12	36.22	29.71	26.67	27.33	28.78	27.66	26.41	Andrew Parke
Industrial	20.88	21.12	21.10	22.00	23.40	24.94	25.06	24.17	23.62	Leigh MacComb
ResComm	10.14	10.18	10.28	17.83	36.39	40.61	47.26	42.43	31.77	Colin Bloom
Pipeline	2.09	2.09	1.99	2.01	2.45	2.59	2.83	2.65	2.30	<b>Houston</b>
Mexperts	5.29	5.39	5.40	5.45	5.62	5.69	5.80	5.64	5.98	(713) 546 9782
<b>Total Demand</b>	<b>84.91</b>	<b>84.06</b>	<b>81.14</b>	<b>83.65</b>	<b>101.62</b>	<b>109.13</b>	<b>117.44</b>	<b>110.90</b>	<b>98.33</b>	Dustin Cook
LNG Exports	5.98	5.16	6.15	6.67	7.09	7.98	7.71	8.35	8.25	Laney Sweetart
<b>Inventory</b>	<b>2,671</b>	<b>2,954</b>	<b>3,365</b>	<b>3,727</b>	<b>3,547</b>	<b>3,110</b>	<b>2,370</b>	<b>1,864</b>	<b>1,733</b>	Audrey George



## US Weather Forecast (Current) | US Weather Forecast (Prior) | Baker Hughes Rig Count

**Warmer Central; Cooler East**

1-5 Day: Tuesday Nov 5 - Saturday Nov 9

**Cooler Texas; Warmer Southeast**

6-10 Day: Sunday Nov 10 - Thursday Nov 14

**Warmer West/South; Colder North**

11-15 Day: Friday Nov 15 - Tuesday Nov 19

	Current	Weekly Change
Canada Total	142	-3.4%
Canada Gas	49	8.9%
US Total	822	-1.0%
<b>US GAS</b>	<b>130</b>	<b>-2.3%</b>
Cana Wood	28	0.0%
DJ-Niobrara	22	0.0%
Eagle Ford	63	0.0%
Haynesville	51	-1.9%
Marcellus	40	-4.8%
Permian	416	-0.2%
Utica	11	0.0%
Williston	53	0.0%

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