

Measuring the Montney:

Key insights into financial
performance, field activity
and deal-making

Daily Oil Bulletin

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Introduction

Wild price volatility, market access issues, investor demands for return of capital, rising ESG concerns and uncertainty over the pace of the energy transition — Montney operators have faced a long list of obstacles as they recover from the COVID-19 crisis.

But in the short and mid-term, signs of positive growth in the resource play straddling the Alberta/British Columbia border are everywhere.

Oil and gas demand is returning to pre-COVID levels, and a lack of capital investment over the last six years means supply is tight. As a result, commodity prices have risen and the trend going forward looks stable.

With Enbridge's Line 3 pipeline expansion in service and TMX moving towards completion, access to oil export markets has improved and should continue to do so. This is good news for both oil and field condensate producers supplying diluent to oilsands operators.

Expansion of the TC Energy NGTL system, and capacity additions in the U.S. Midwest, will provide a near-term outlet for Montney gas production.

LNG Canada continues progressing and the Heartland Petrochemical Complex is advancing towards commercial production, creating future market opportunities in the natural gas sector. Longer-term opportunities from the recent expansion plans announced by Dow at its Alberta ethylene and polyethylene plants, and early work on additional LNG facilities, hold future promise.

This Montney Trends Report examines how the COVID crisis affected producer activity and provides insights into the direction activity is headed given current market trends.

It includes trends and analysis for:

- Commodity Pricing
- M&A Activity
- Cash Flow Management
- Well Licensing
- Wells Spud
- Well Completions
- Production by Commodity
- Production by Key Fields
- Production by Formation
- Production by Operator



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SOURCES OF DATA

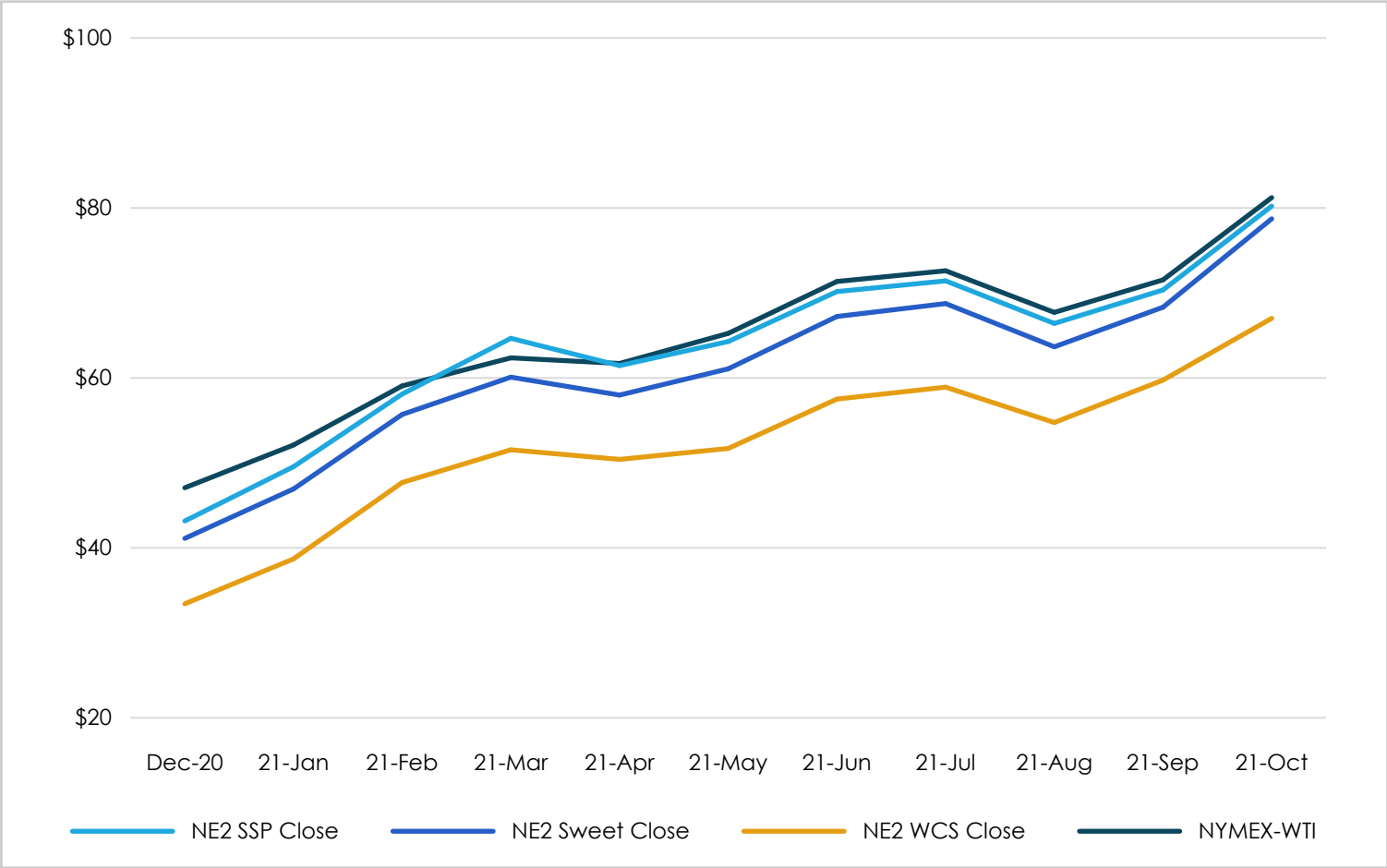
This Montney Trends Report is created using data from the *Daily Oil Bulletin*, *gDC Dashboards* and *Evaluate Energy*.

Prices, Cash Flow Management, Mergers & Acquisitions

OIL PRICES

After reaching the single digit range in April 2020 at the height of the COVID crisis, Canadian light oil prices recovered to \$40/bbl by late 2020. Since then prices have been on a rapid ascent, reaching the \$80 range in early fall 2021.

Going forward, there is uncertainty on whether this level of pricing can be maintained. CME contracts, however, looking out into October 2022 remain above US\$70 WTI.



Source: Daily Oil Bulletin

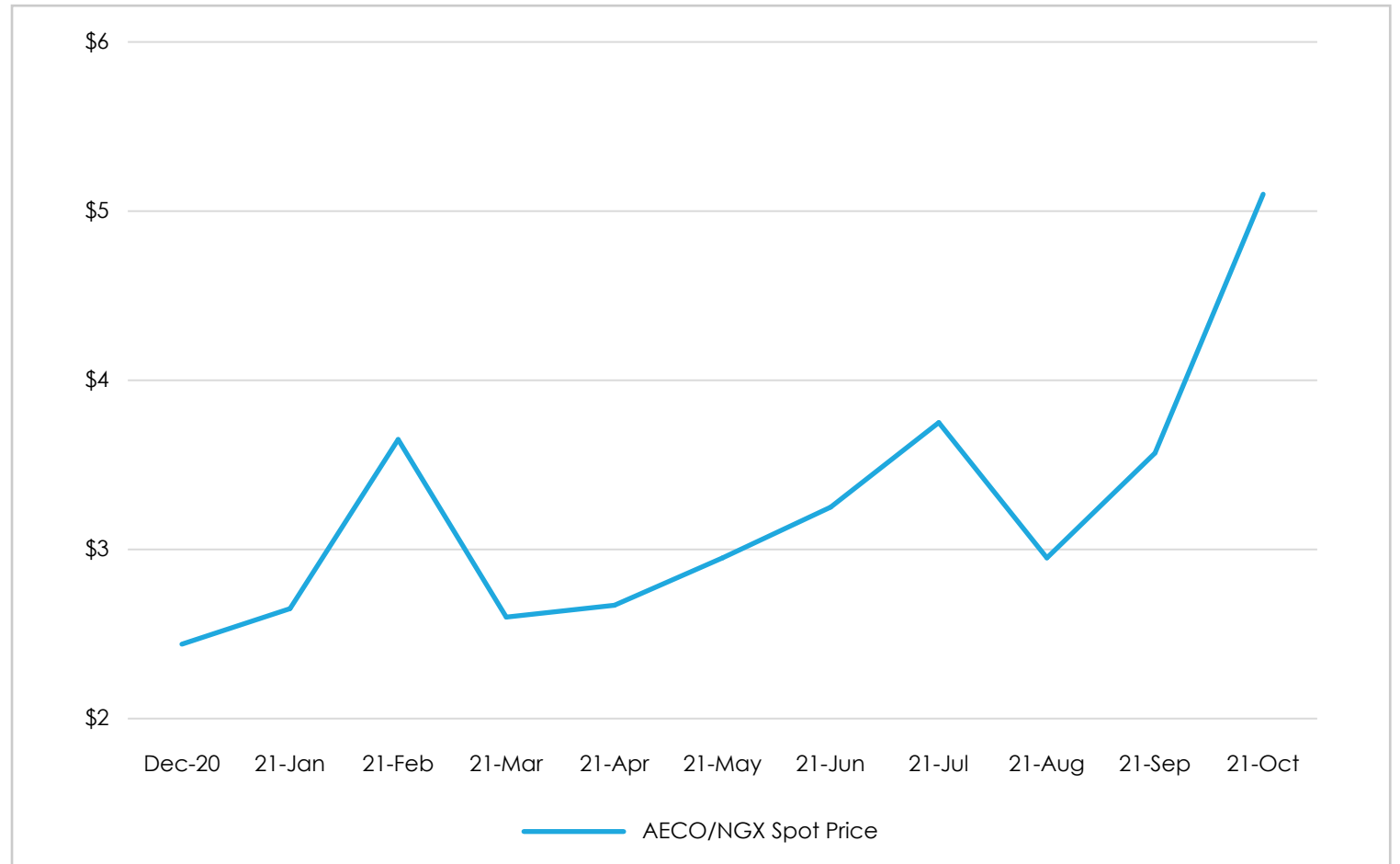
Prices, Cash Flow Management, Mergers & Acquisitions

NATURAL GAS PRICES

AECO/NGX spot prices have seen a volatile recovery since the COVID-19 crisis. Looking to the winter of 2022, AECO C Futures pricing is very positive, with prices remaining above C\$4.50/GJ. Longer term, prices for the winter of 2023 also remain strong, averaging near C\$4.00/GJ.

Operators with access to U.S. markets should enjoy significant premiums, with NYMEX futures averaging over US\$5.25/mmBtu for the winter 2022 heating season. The U.S. Energy Information Administration forecasts that natural gas spot prices at the U.S. benchmark Henry Hub will average US\$5.67/mmBtu between October and March, the highest winter price since 2007-2008.

Extremely high LNG and natural gas prices in Europe and Asia this winter could significantly impact gas flows throughout the North American network as more U.S. gas is exported as LNG. This may create opportunities for increased exports from the WCSB.



Source: Daily Oil Bulletin

Prices, Cash Flow Management, Mergers & Acquisitions

CASH FLOW MANAGEMENT

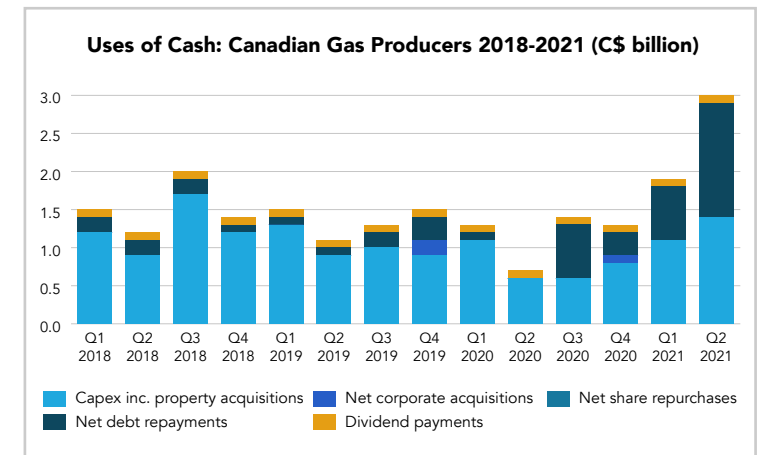
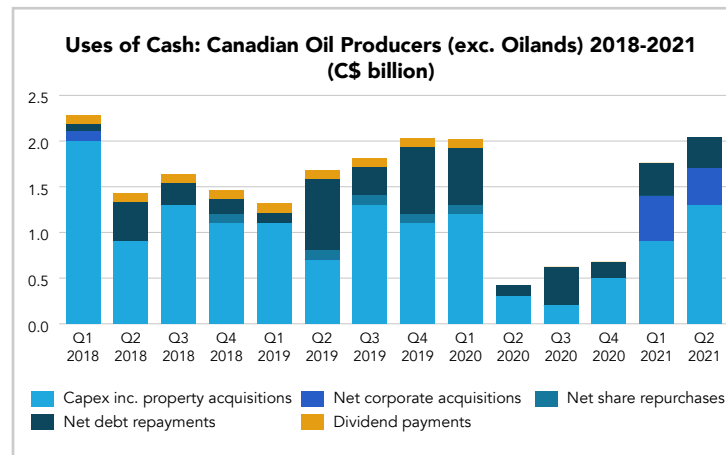
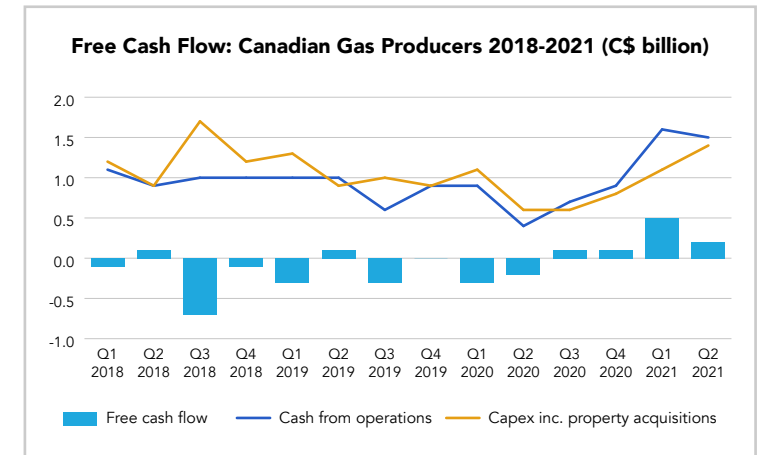
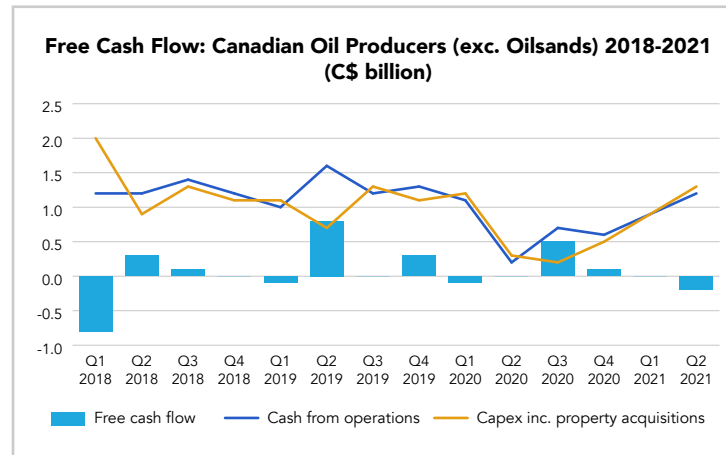
While much investment community focus is on return of capital, industry remains focused on capital investment and debt repayment.

The rapid rise in oil prices has Canadian oil-weighted operators (excluding oilsands producers) spending above pre-pandemic levels in the second quarter of 2021, as money returned to the field and consolidation increased.

Other key expenditures included debt repayments. Net debt repayment has been steady among this group with Q2's C\$343 million repayments just C\$5 million lower than the group average per quarter since the start of 2018.

Natural gas-weighted companies are also putting cash from operations to work, with capital expenditures tracking increased cash flows in the second quarter of 2021.

Similar to oil weighted producers, free cash flow available following capital expenditure is used to pay down debt.



Source: Evaluate Energy

Prices, Cash Flow Management, Mergers & Acquisitions

MERGERS AND ACQUISITIONS

Montney M&A deals gathered pace in 2021, with over \$5.8 billion in deals including the \$4.7 billion ARC Resources Ltd. takeover of Seven Generations Energy Ltd. The previous two years saw \$800 million and \$1.1 billion in deals, respectively.

The ARC deal, along with a number of deals carried out by Tourmaline Oil Corp., have led to substantial Montney consolidation. Canadian Natural Resources Limited, Spartan Delta Corp. and ConocoPhillips have also completed significant deals expanding their presence in the play.

Deals announced/completed involving Montney assets from Jan. 1, 2020 (>\$100 million)

Acquirer	Brief Description	Cost*
ARC Resources Ltd.	ARC Resources Ltd. acquires Seven Generations Energy Ltd.	4,829
Tourmaline Oil Corp.	Tourmaline Oil Corp. acquires Black Swan Energy Ltd.	1,233
Spartan Delta Corp.	Spartan Delta Corp. acquires Velvet Energy Ltd.	752
Cona Resources Ltd.	Cona Resources, a portfolio company of Waterous Energy Fund, acquires all of the outstanding common shares of Pengrowth Energy Corp.	740
ConocoPhillips	ConocoPhillips acquires additional Montney acreage from Kelt Exploration Ltd.	533
Canadian Natural Resources Limited	Canadian Natural Resources Limited acquires all the issued and outstanding common shares of Painted Pony Energy Ltd.	461
Canadian Natural Resources Limited	Canadian Natural Resources Limited acquires natural gas assets located in the Montney region of British Columbia and a 5% net carried interest on an existing Canadian Natural oil sands lease from an undisclosed seller in the first half of 2021	450
Whitecap Resources Inc.	Whitecap Resources Inc. acquires Kicking Horse Oil & Gas Ltd. from Quantum Energy Partners	315
Topaz Energy Corp.	Topaz Energy Corp. acquires a GORR at Doe, Gundy, Conroy (Saguaro), Laprise (Polar Star), and Birley (Chinook) from Tourmaline Oil Corp.	245
Tourmaline Oil Corp.	Tourmaline Oil Corp. acquires 50% of the assets of Saguaro Resources Ltd.	205
Topaz Energy Corp.	Topaz Energy Corp. acquires GORRs on approximately 296,000 gross acres in the NEBC Montney play area from Tourmaline Oil Corp.	145
Spartan Delta Corp.	Spartan Delta Corp. acquires Inception Exploration Ltd. and assets located in the Simonette and Willesden Green areas of Alberta	140
Unspecified	Tourmaline Oil Corp. divests a 5.44% stake in Topaz Energy Corp	100
2021-01-20	Unspecified	99

■ = Deal value at announcement date adjusted for change in share price between announce date and closing date for deals involving stock in consideration.

*Total Acquisition Cost (closing, inc. net debt, C\$ million)
Source: Evaluate Energy

KEY INSIGHTS

Pricing, Cash Flow Management, Mergers & Acquisitions

- Current and near future oil pricing will support increased development activity and production.
- Field condensate development activity and production should increase as oilsands operators add incremental production due to Line 3 capacity coming onstream. Further ahead, the TMX pipeline expansion should drive additional demand for field condensate.
- Significantly higher natural gas prices this winter should support both increased dry gas and liquids-rich gas activity and production in the Montney.
- TC Energy Corp.'s 2021 NGTL expansion project is adding upwards of 1.45 bcf/d of additional capacity to the Grande Prairie and Edson mainlines, which will allow for additional natural gas growth opportunities in the Montney.
- Demand and pricing for propane will increase as the Heartland Petrochemical Complex moves toward commercial operation in 2022. This will be positive for cash flows and will filter into incremental activity.
- Increased cash flows due to higher prices will find their way into increased capital expenditures. Debt repayments and shareholder returns through dividends or share buybacks may limit capital expenditure upside.
- M&A activity is consolidating Montney operations into fewer but larger organizations with better access to capital. This could accelerate capital spending if market conditions remain positive.

Field Activity: Licensing, Well Spuds and Completions Trends

LICENSING

Total Montney well licences stayed relatively stable year-over-year despite a significant drop in licenses issued during the second quarter of 2020 at the peak of the COVID crisis. There were 861 wells licensed from Q4-2019 to Q3-2020 compared to 851 wells licensed from Q4-2020 to Q3-2021.

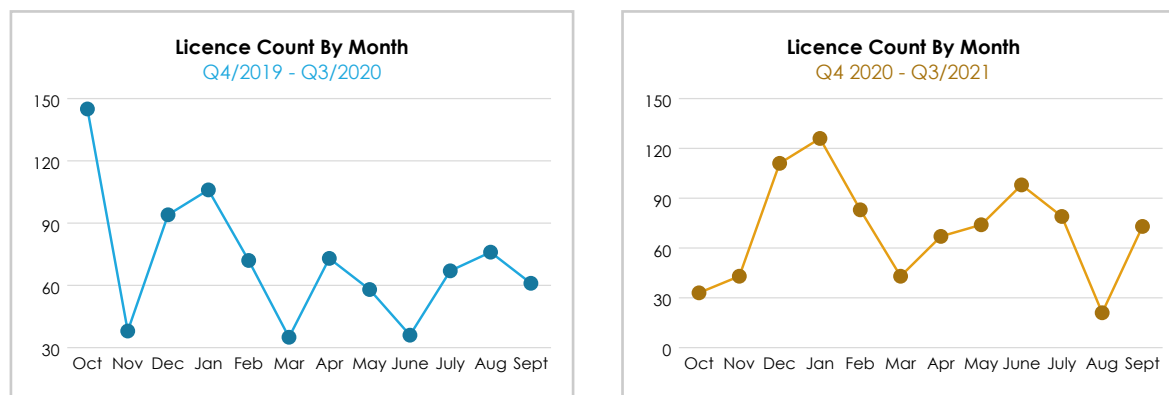
LICENSING: ALBERTA & BRITISH COLUMBIA

Alberta saw a significant increase in wells licensed with 327 licences in the 2019-2020 period and 450 licences in the 2020-2021 timeframe. Around half of the wells licensed for 2020-2021 remain to be drilled, leaving an inventory of around 225 wells.

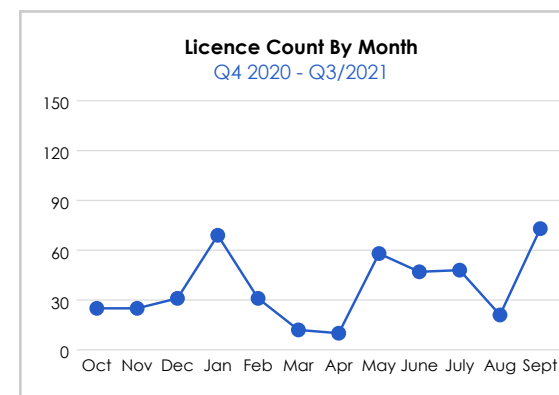
The number of Alberta licences targeting oil increased to 85 in 2020-2021 compared to 60 in 2019-2020, reflecting the increase in oil prices.

British Columbia saw a decline in well licences year-over-year with 534 wells licensed from Q4-2019 to Q3-2020 and 401 licensed in the corresponding 2020-2021 timeframe. Uncertainty surrounding the Blueberry River First Nations court decision drove the decline resulting in a major reduction in well licences in Q3/2021. No wells were licensed in August or September. Only 20 per cent of the wells licensed in B.C. in the 2020-2021 timeframe have been drilled as operators awaited the court decision.

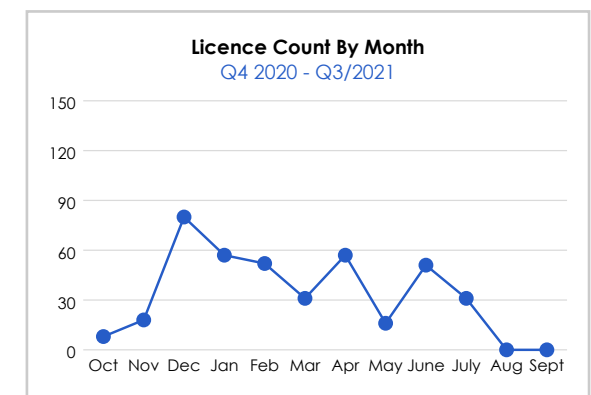
Total Montney Licence Count



Alberta



British Columbia



Source: gDC Dashboards: Well Licensing

Field Activity: Licensing, Well Spuds and Completions Trends

DRILLING ACTIVITY

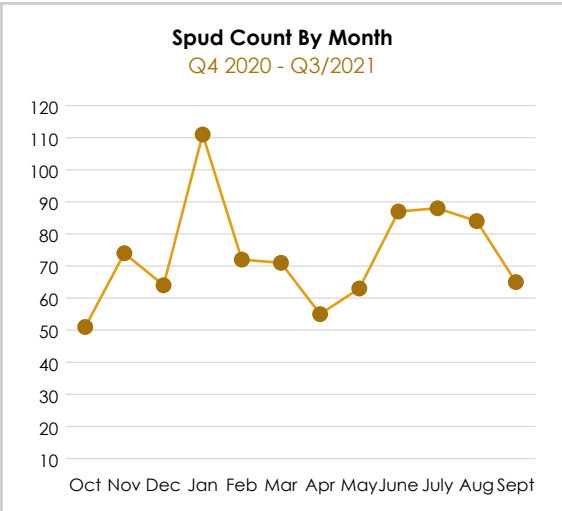
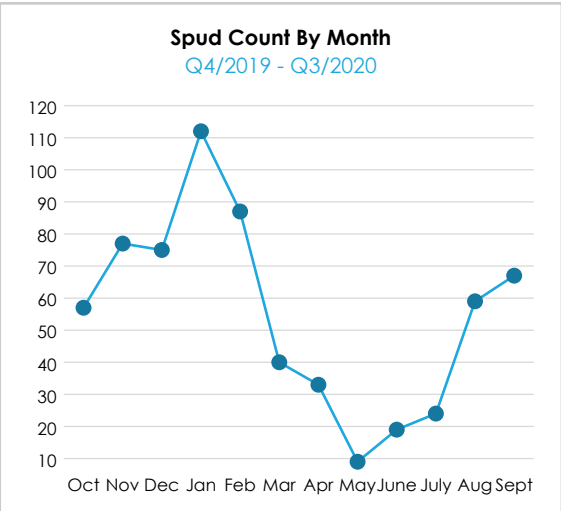
Drilling activity ramped up substantially in the 2020-2021 period compared to the corresponding 2019-2020 timeframe with 872 wells compared to 661 wells.

DRILLING: ALBERTA & BRITISH COLUMBIA

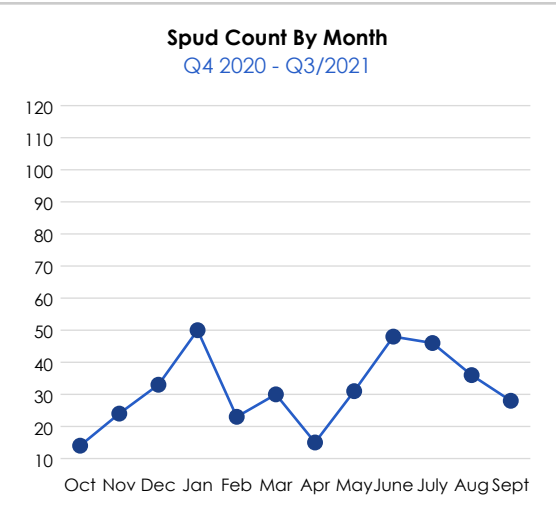
Drilling activity in Alberta remained stable year-over-year, with 338 wells drilled from Q4-2019 to Q3-2020 and 323 wells drilled from Q4-2020 to Q3-2021.

In B.C., activity increased substantially from 337 wells in the 2019-2020 timeframe to 494 wells in the 2020-2021 period.

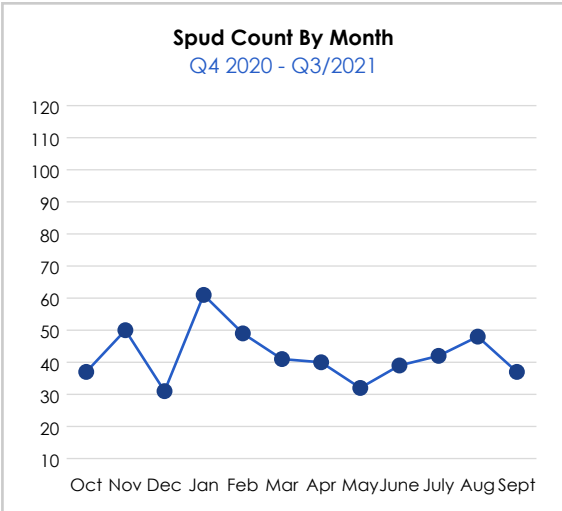
Total Montney Spud Count



Alberta



British Columbia



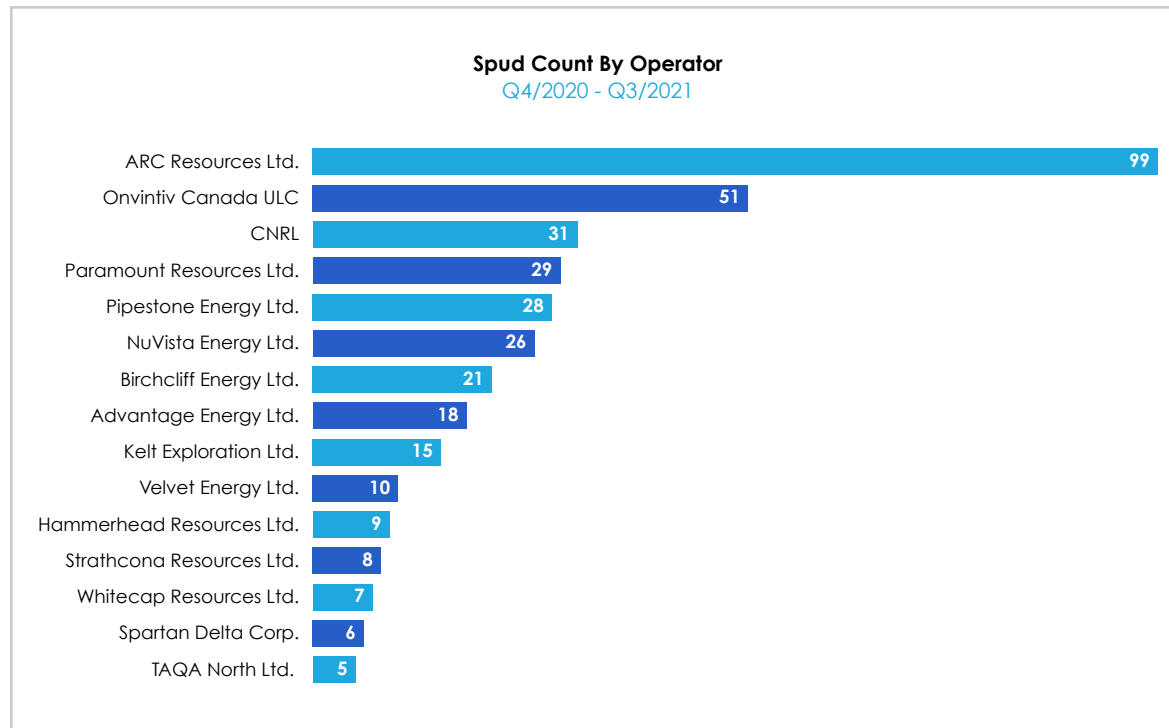
Source: gDC Dashboards: Spud Activity

Field Activity: Licensing, Well Spuds and Completions Trends

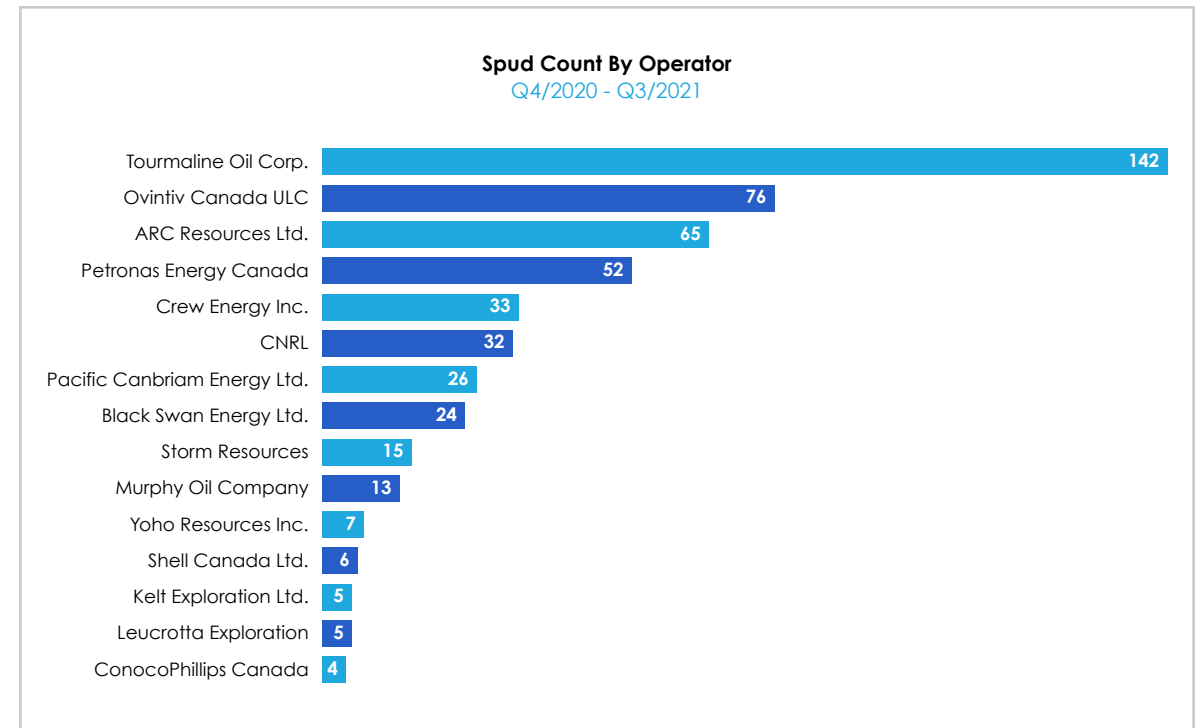
DRILLING: TOP OPERATORS

Just shy of three-quarters of wells drilled in the B.C. portion of the Montney in the 2020-2021 timeframe were drilled by the top five operators in the play due to corporate consolidations. In Alberta the top five operators accounted for almost 60 per cent of wells drilled.

Alberta



British Columbia

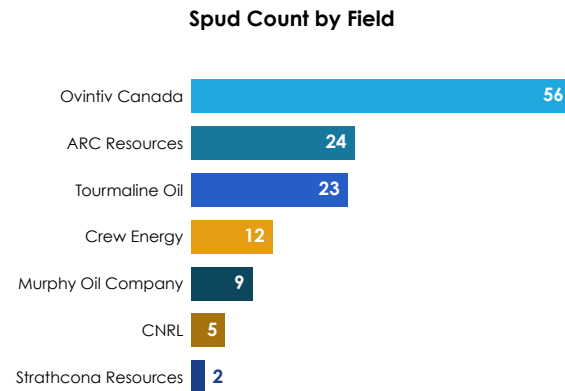
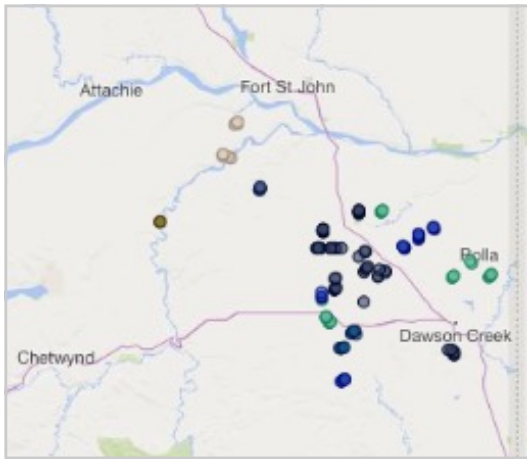


Source: gDC Dashboards: Spud Activity

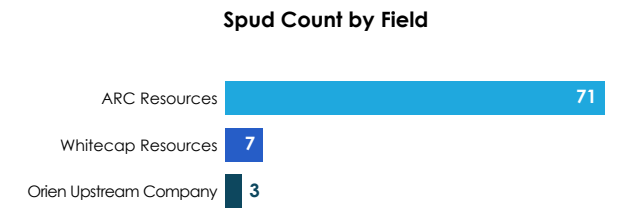
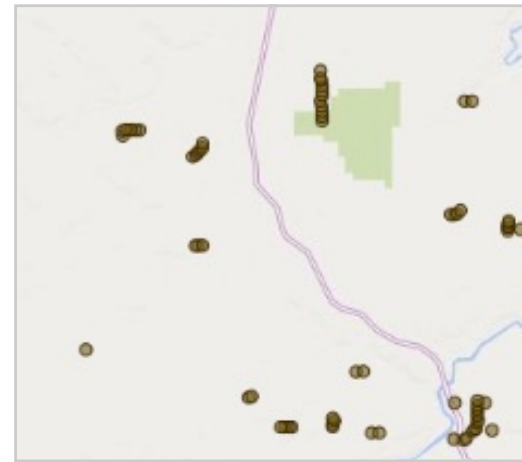
Field Activity: Licensing, Well Spuds and Completions Trends

The Heritage (131 wells) and Northern Montney (125 wells) fields remained the key targets for operators in the B.C. Montney in 2020-2021, representing half of wells spud. In Alberta, operators focused on the field condensate-rich Kakwa field (81 wells), Wembley (86 wells), Pouce Coupe South (61 wells) and Elmworth (67 wells).

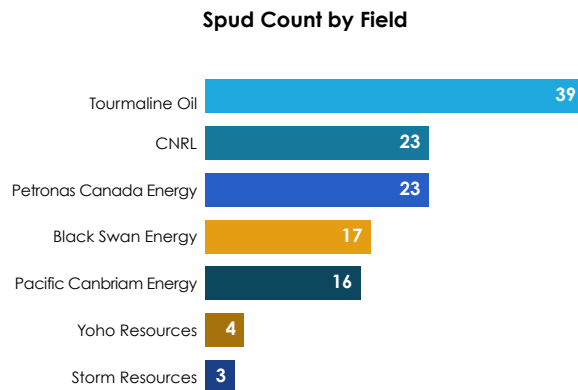
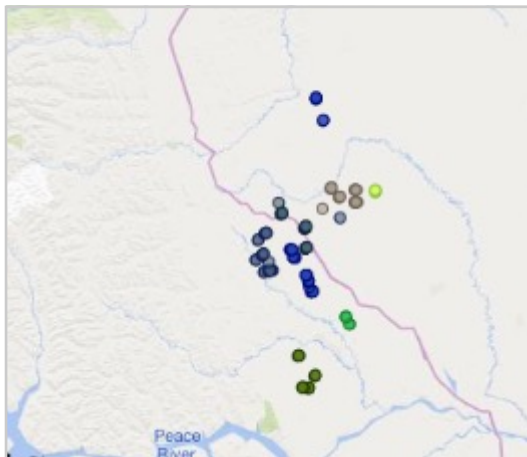
DRILLING BY FIELD: HERITAGE



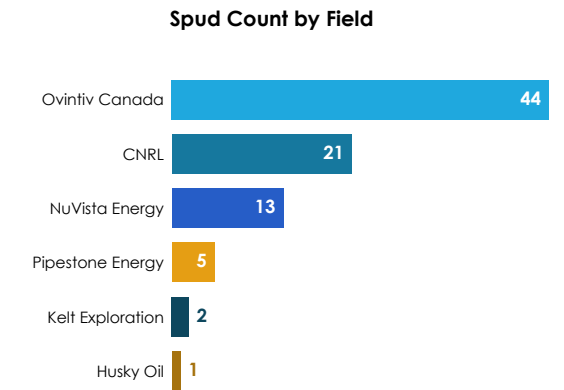
DRILLING BY FIELD: KAKWA



DRILLING BY FIELD: NORTHERN MONTNEY



DRILLING BY FIELD: WEMBLEY



Source: gDC Dashboards: Spud Activity

KEY INSIGHTS

Field Activity

- The inventory of licensed but undrilled wells is high, allowing for operators to quickly respond to market signals for increased production.
- With an initial agreement in place with the Blueberry River First Nations, licensing and drilling activity should return to a more normal pace. No wells were licensed in B.C. in September.
- The upcoming B.C. royalty review could impact future licensing and drilling activity.
- Drilling activity is returning to pre-pandemic levels as operators invest beyond sustaining capital levels.
- Expected higher and more stable pricing will drive increased cash from operations. 2021 cash flow analysis indicates that this cash will find its way into increased activity and further consolidation.
- Operators continue to focus on repeatable activity targeting fields with well-known geology, well construction standards and production profiles. This will continue as they take advantage of short cycle opportunities.
- The Montney is rapidly consolidating, with fewer operators owning a greater share of assets and production. This should lead to improved economies of scale, access to capital, and more orderly development.
- Wells spud will likely dip in the final quarter of 2021 as operator budgets are exhausted and the annual Christmas slowdown arrives.

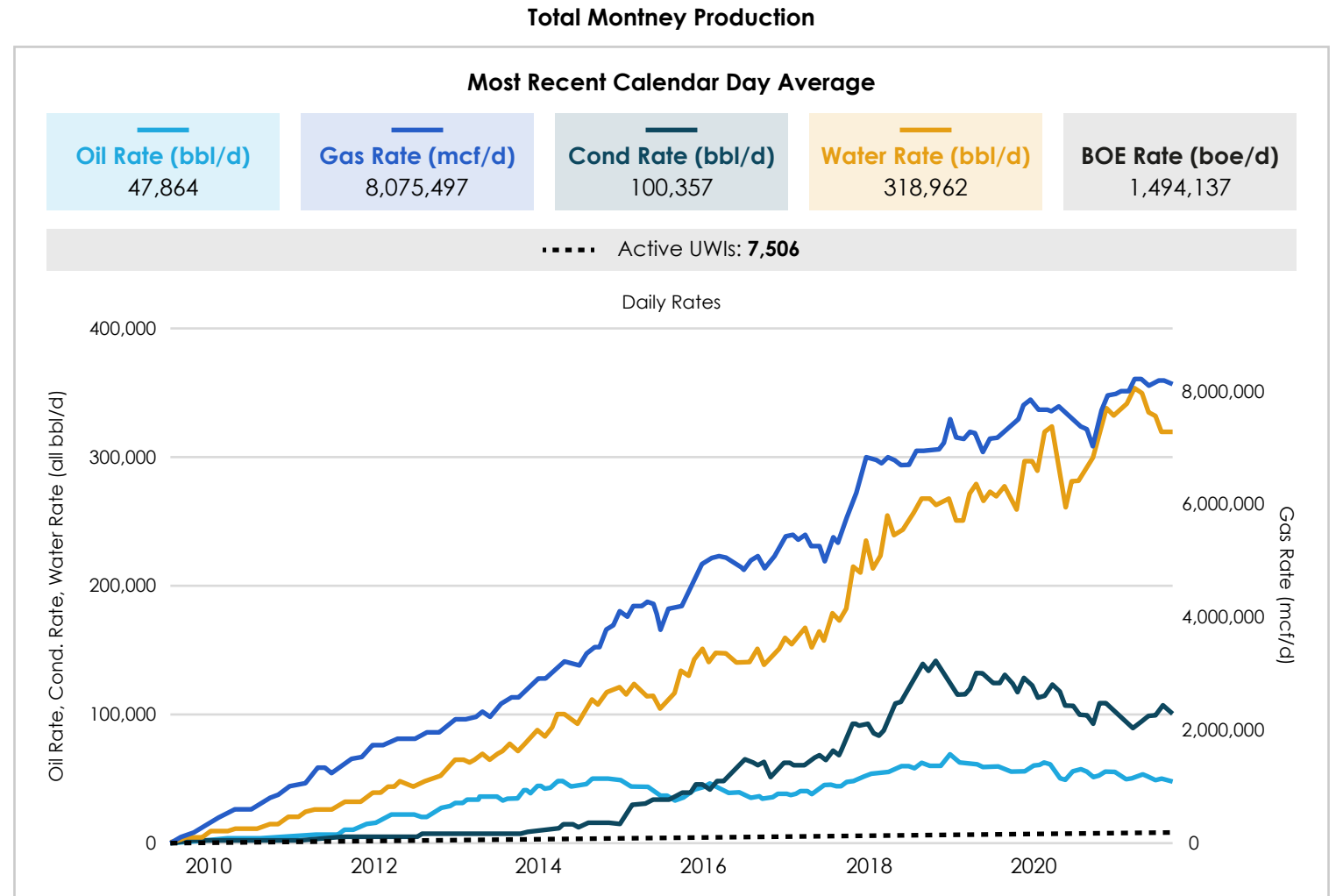
Production: Trends by Commodity, Field, and Key Operators

PRODUCTION

Montney production has quickly rebounded from pandemic lows recorded in the third quarter of 2020 when production declined to 1.3 million boe/d from a peak of 1.48 million boe/d in January of that year. As of the third quarter of 2021, production averaged 1.5 million boe/d.

The recovery, however, has been uneven. Natural gas production has climbed from a low of 6.95 bcf/d in Q3/2020 to 8.1 bcf/d in the same quarter of 2021. Field condensate production has recovered from an average 92,000 bbls/d to slightly over 100,000 bbls/d. Oil production has decreased slightly from an average of slightly below 50,000 bbls/d to a little less than 48,000 bbls/d.

Both oil and field condensate production is down significantly from peak production in the final half of 2018, when oil production averaged almost 67,000 bbls/d and field condensate production reached over 140,000 bbls/d. The decline in liquids production can be tied directly to oil prices.

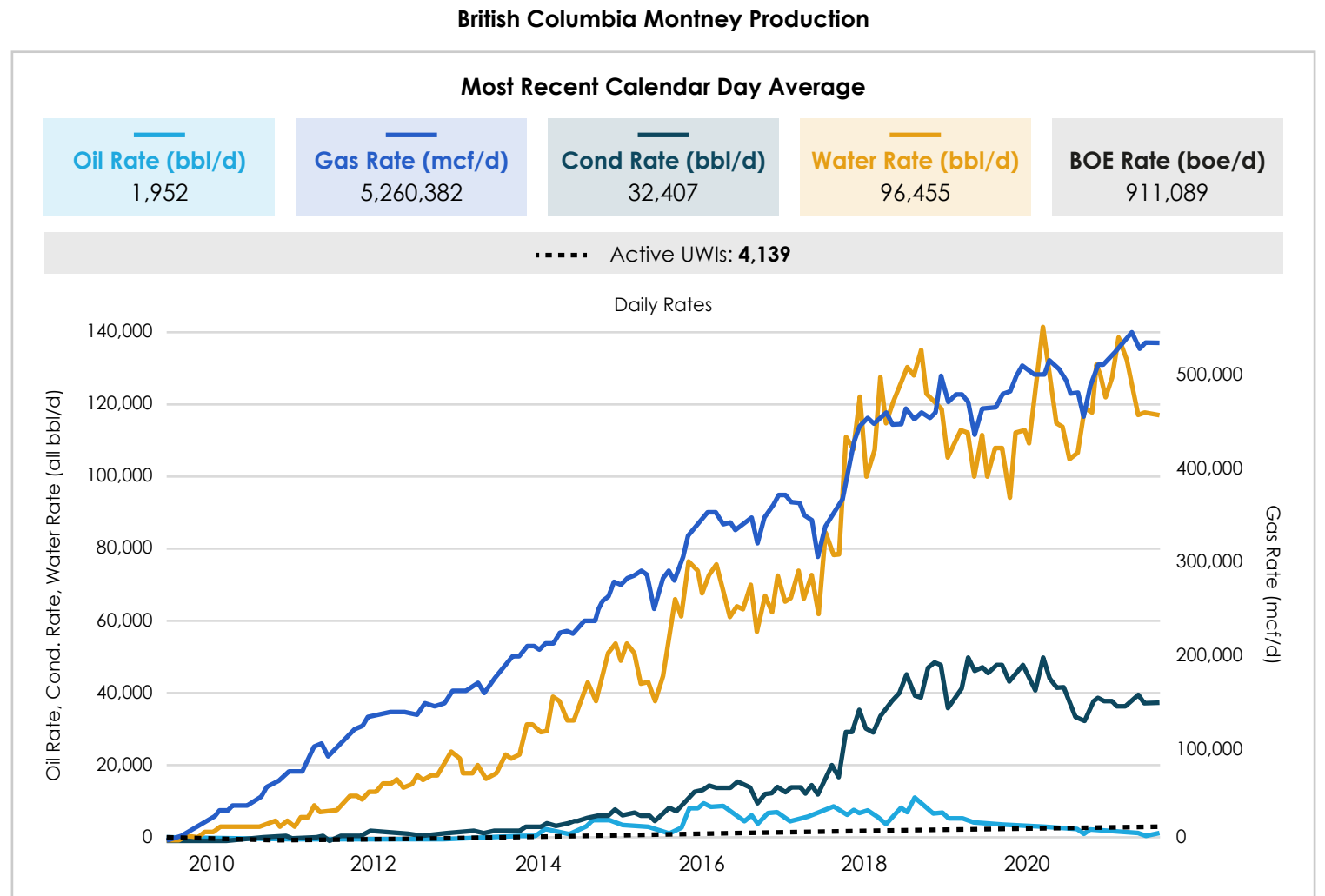


Production as of August 30, 2021
Source: gDC Dashboards: Production

Production: Trends by Commodity, Field, and Key Operators

PRODUCTION: BRITISH COLUMBIA

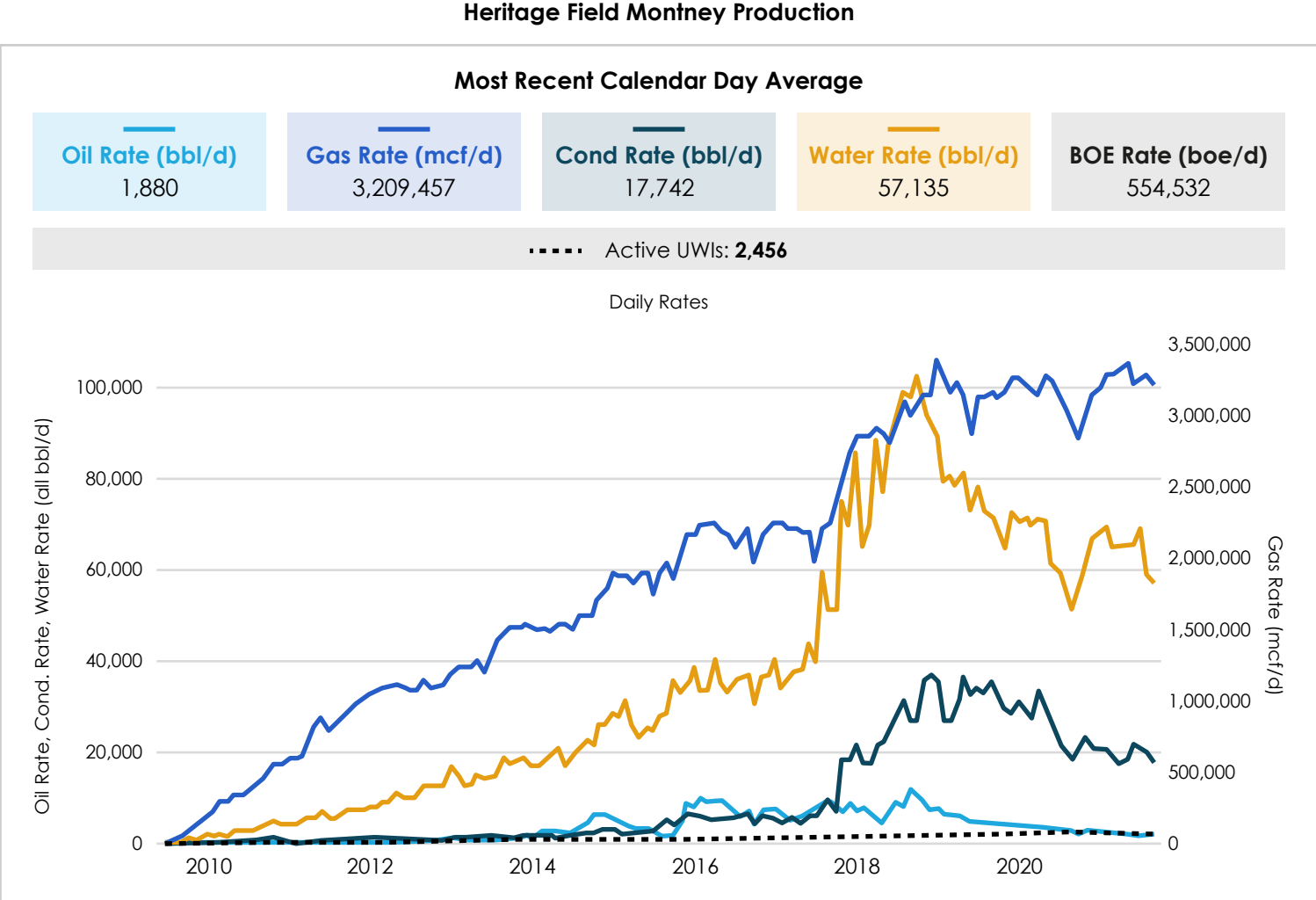
B.C. Montney gas production comes from two large fields — the Heritage and Northern Montney fields. The Heritage field had third quarter production of 555,000 boe/d, accounting for around 60 per cent of total B.C. Montney production of 911,000 boe/d. The Northern Montney accounted for 354,000 boe/d (almost all the remainder). Production from both fields rapidly recovered from the early pandemic production crash.



Production: Trends by Commodity, Field, and Key Operators

PRODUCTION: HERITAGE FIELD

The Heritage field saw production of 2.8 bcf/d in the third quarter of 2020, rising to 3.2 bcf/d a year later. The Northern Montney saw production decline to 1.7 bcf/d before recovering to current production levels.

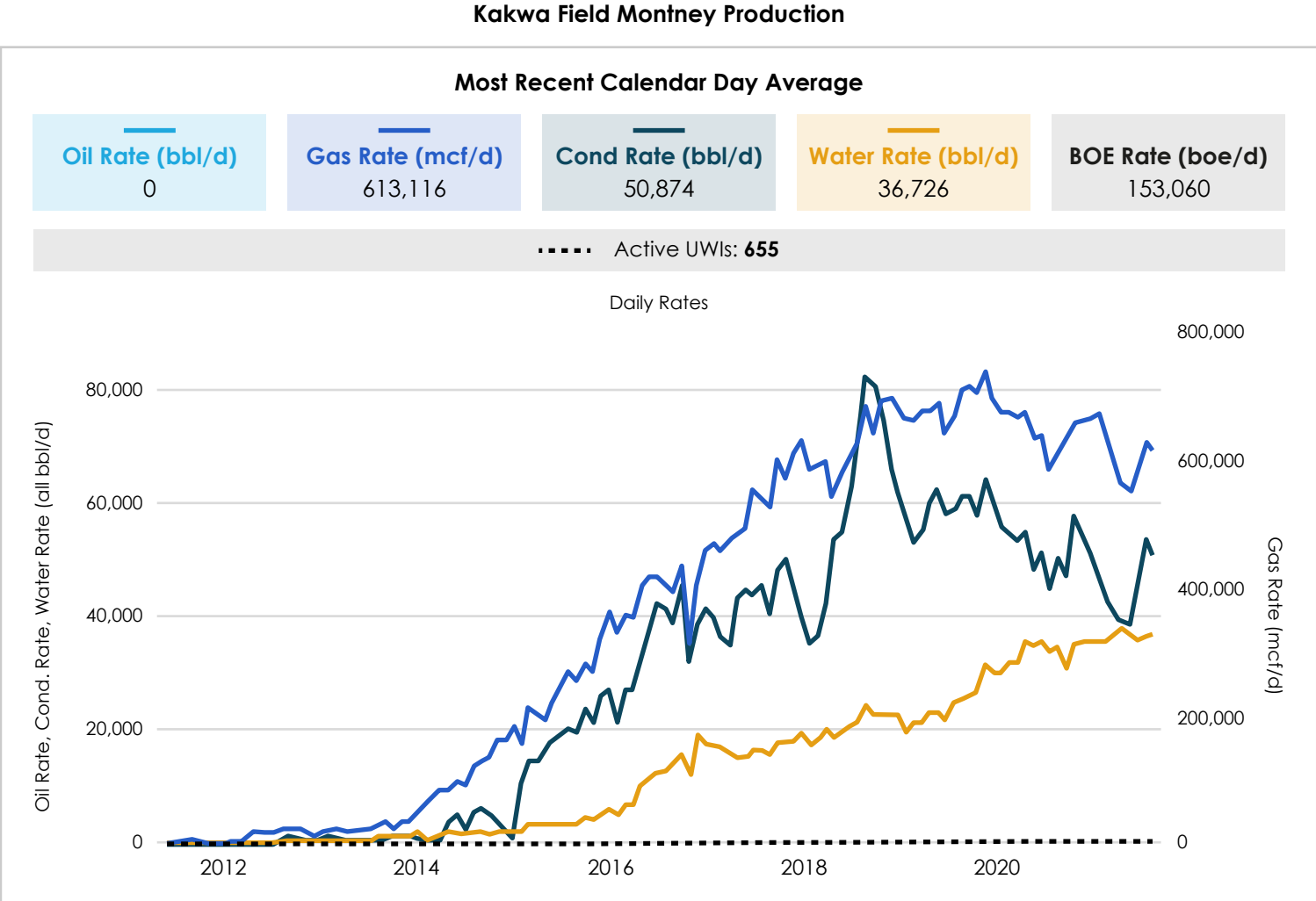


Production as of August 30, 2021
Source: gDC Dashboards: Production

Production: Trends by Commodity, Field, and Key Operators

ALBERTA PRODUCTION

In Alberta, the Kakwa field leads production, producing 153,000 boe/d in the third quarter of 2021, including nearly 51,000 bbls/d of field condensate. Other notable fields include Elmworth (100,000 boe/d), Pouce Coupe South (87,000 boe/d) and the growing development at Wembley (60,000 boe/d).

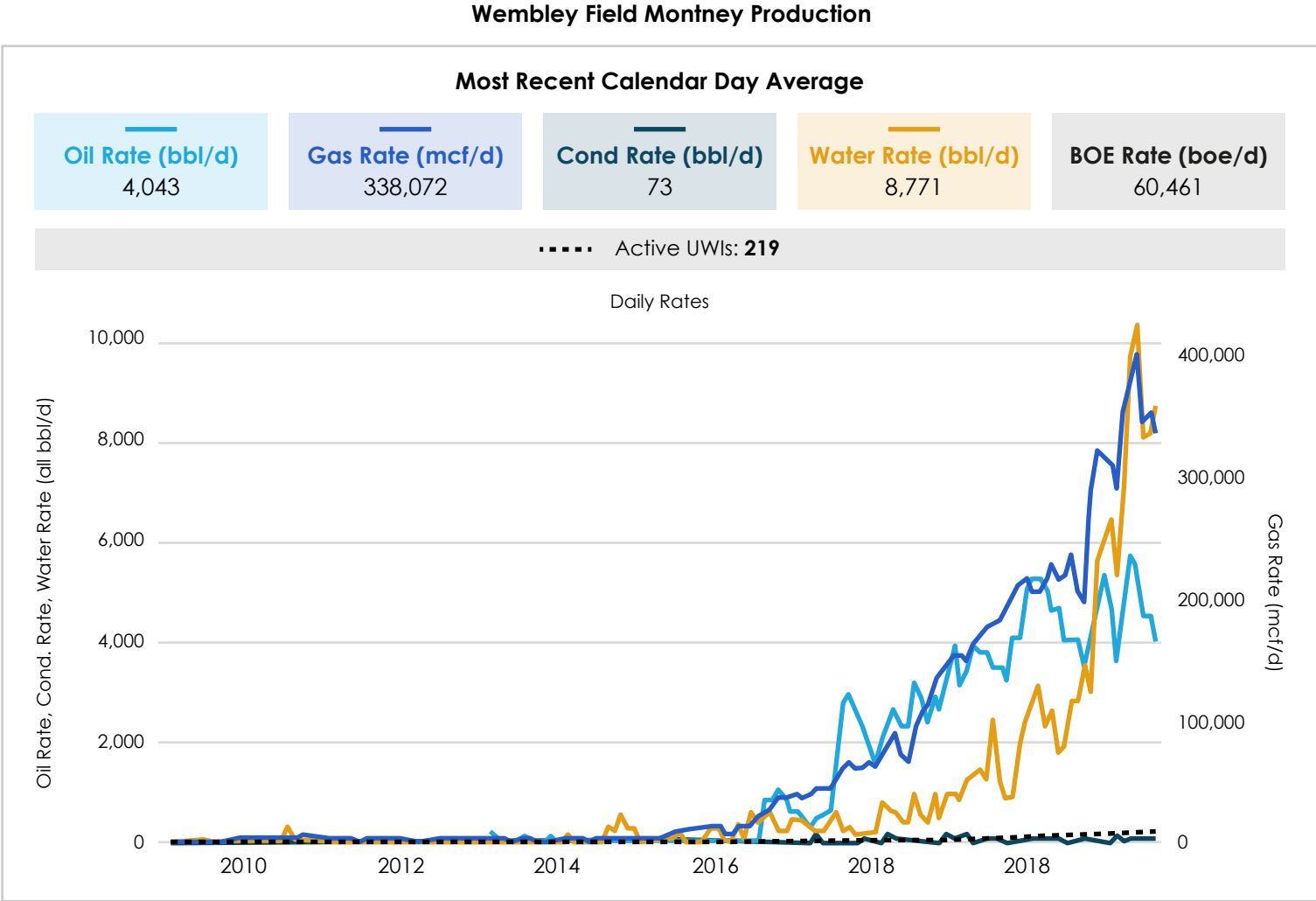


Production as of August 30, 2021
Source: gDC Dashboards: Production

Production: Trends by Commodity, Field, and Key Operators

SPOTLIGHT ON THE WEMBLEY FIELD

Production has been rapidly rising in the Wembley Field, with around 220 active wells drilled since 2016. Key operators in the play include: Ovintiv, Canadian Natural Resources, NuVista Energy, Advantage Energy, Pipestone Energy, and Kelt Exploration. A number of recent wells brought on production this fall indicate both oil and water production will climb in the final quarter of 2021.

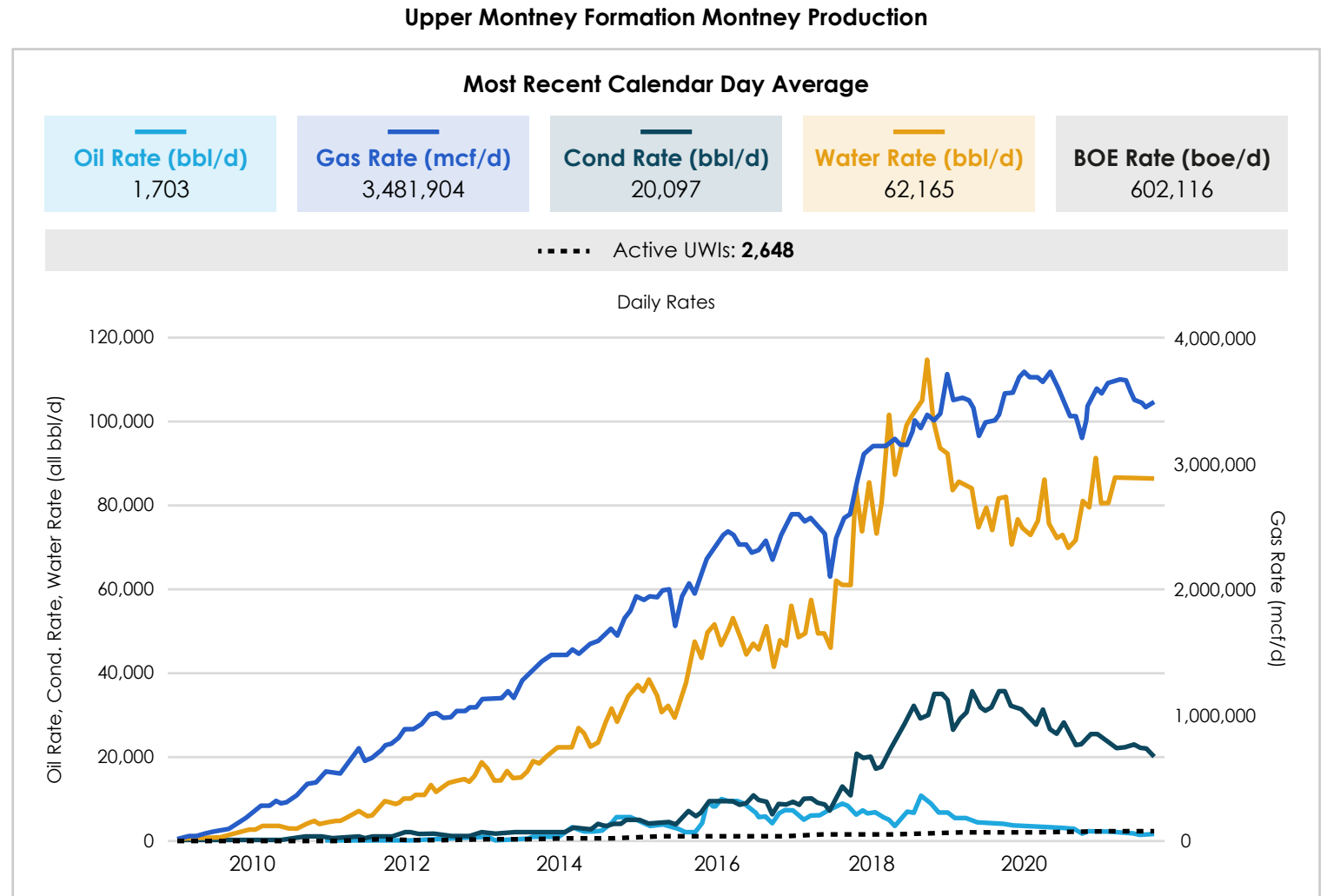


Production as of August 30, 2021
Source: gDC Dashboards: Production

Production: Trends by Commodity, Field, and Key Operators

PRODUCTION BY FORMATION: UPPER MONTNEY

While not all Montney operators divide the Montney formation into Upper, Middle and Lower formations, those that do provide a window into where production is coming from and which direction it is headed. Production from wells reported in the Upper Montney totalled a little over 600,000 boe/d in the third quarter of 2021, making it the most productive formation. Production from wells reported in the Middle Montney totalled over 220,000 boe/d, and the trend line shows a steady increase. Lower Montney production totalled 24,300 boe/d, significantly down from its peak five years ago.

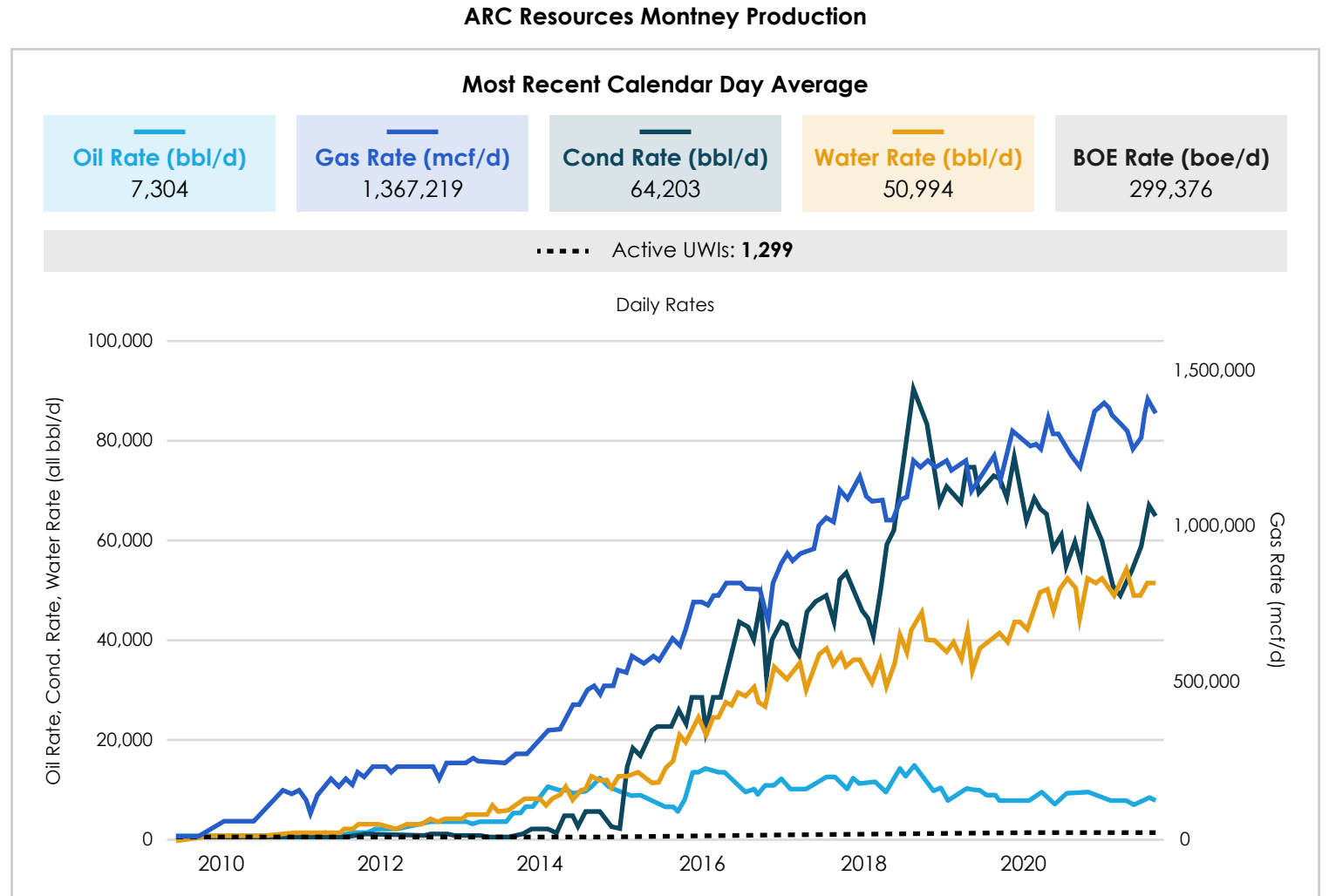


Production as of August 30, 2021
Source: gDC Dashboards: Production

Production: Trends by Commodity, Field, and Key Operators

TOP PRODUCERS: ARC RESOURCES

With its takeover of Seven Generations Energy, ARC Resources is now the largest Montney operator, averaging almost 300,000 boe/d of production in Q3/2021. Montney pioneer Orintiv ranks a close second at 272,000 boe/d. Tourmaline is rapidly expanding production in the Montney as well, with its recent \$1.1 billion takeover of Black Swan Energy. The addition of Black Swan's 44,000 boe/d of production is expected to increase Tourmaline's Montney production to around 175,000 boe/d in early 2022.



Production as of August 30, 2021
Source: gDC Dashboards: Production

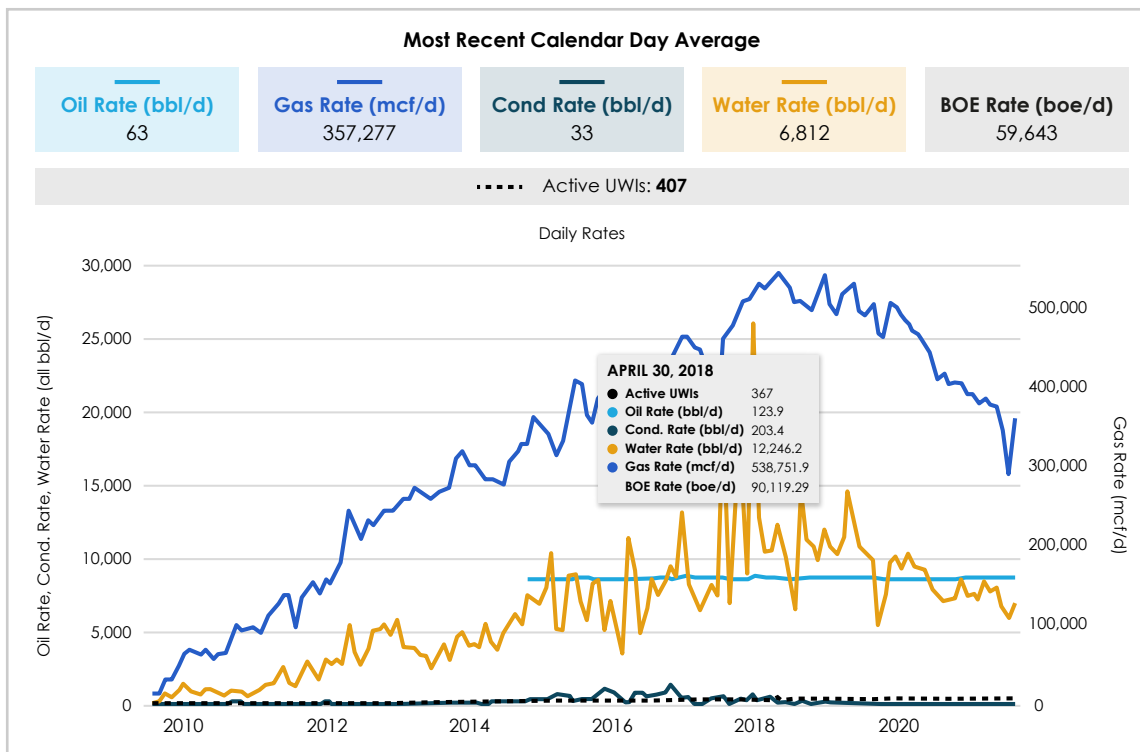
Production: Trends by Commodity, Field, and Key Operators

LNG CANADA OPERATOR SPOTLIGHT

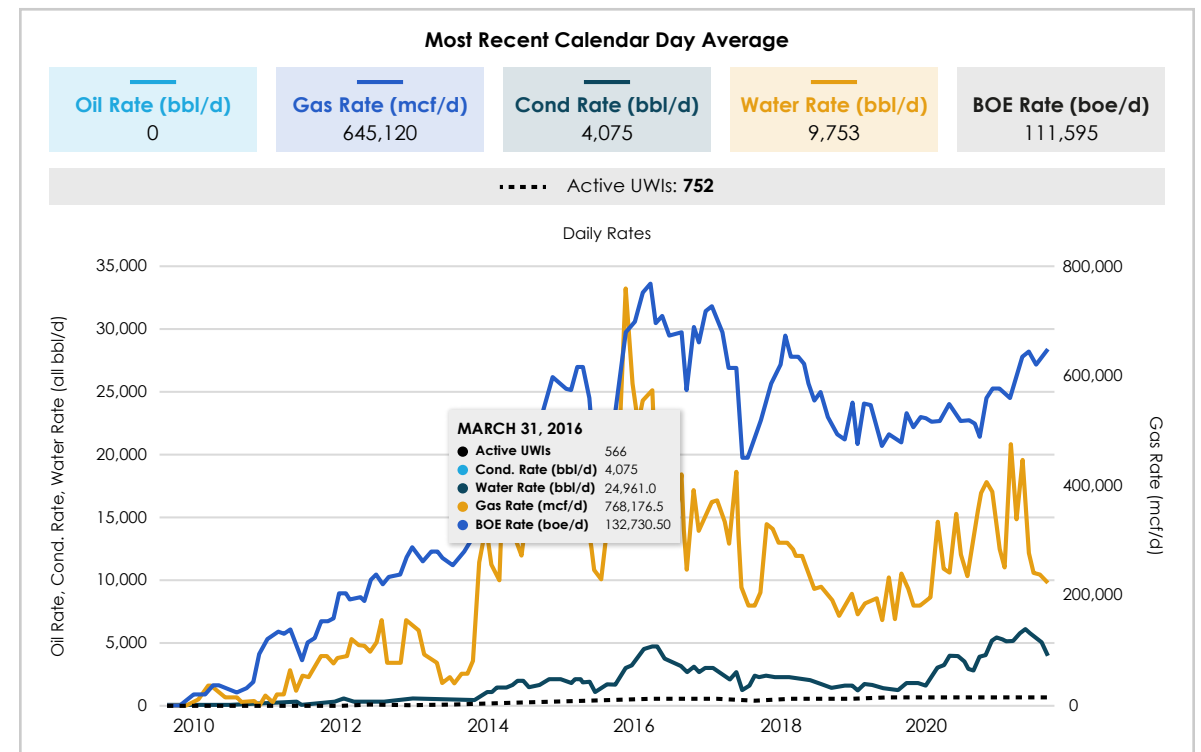
Shell Canada (40%) and Petronas (25%), two key players in the LNG Canada partnership, have seen production decline in the Montney. After peaking at almost 540 mmcf/d in early 2018, Shell production now sits at under 360 mmcf/d. Petronas natural gas production

has declined from a peak of almost 770 mmcf/d in early 2016 to current production of 645 mmcf/d.

Shell Montney Production



Petronas Montney Production

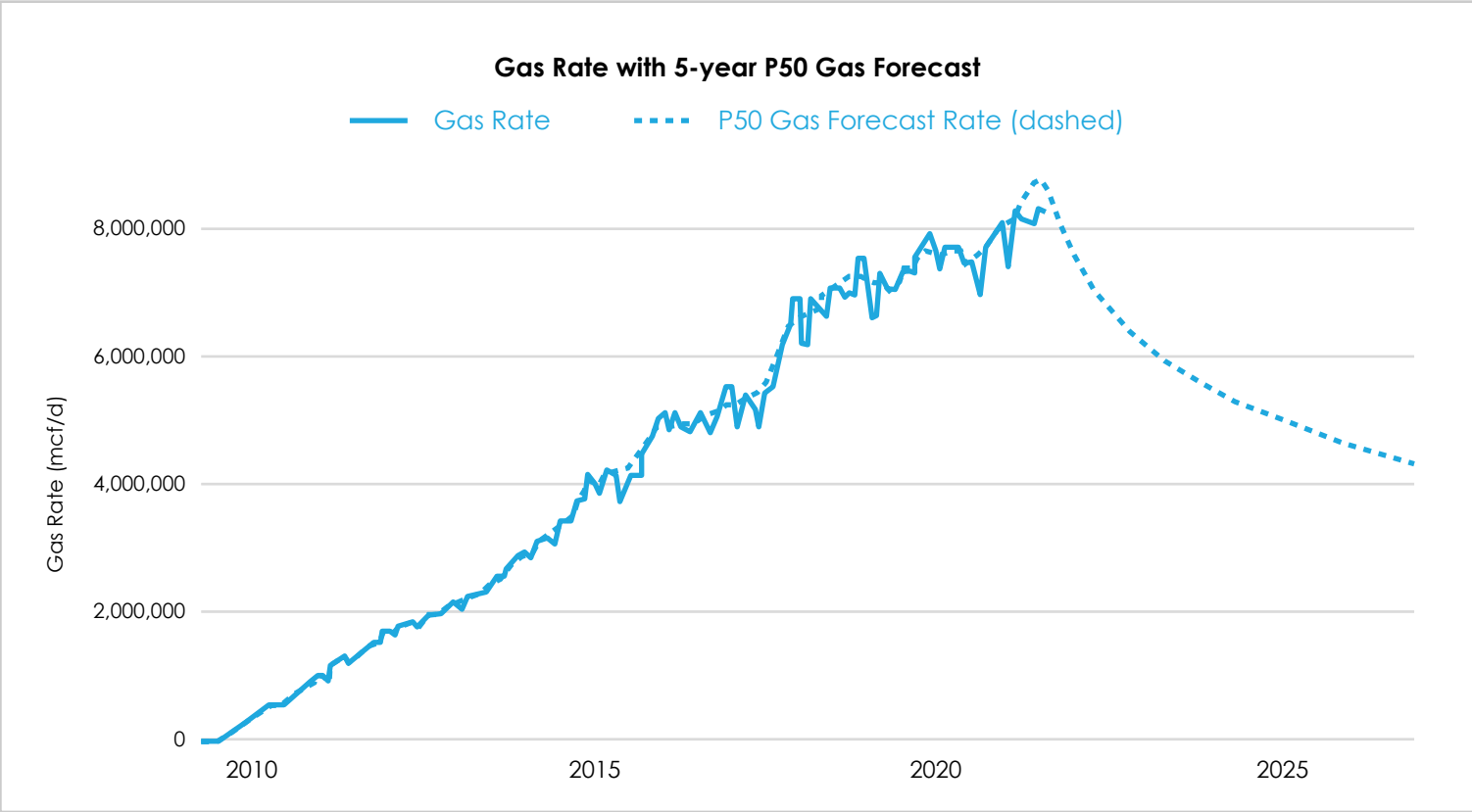


Production as of August 30, 2021
Source: gDC Dashboards: Production

Production: Trends by Commodity, Field, and Key Operators

PRODUCTION DECLINE FORECASTS: NATURAL GAS

Replacing production declines will be an important driver of future Montney drilling activity. Over the next five years Montney operators will have to replace almost 4 bcf/d from wells currently in production to maintain existing production rates.



Production as of August 30, 2021
geoLOGIC basinINTEL & gDC Dashboards: Production

KEY INSIGHTS

Production

- Montney operators quickly recovered from the dip in natural gas production due to the pandemic. This indicates there is the capability to rapidly increase production if market conditions warrant.
- Field condensate and oil production is recovering more slowly and is down from peak production, largely due to prices (and in the case of field condensate lower oilsands production due to curtailment and the pandemic). Expect production of both to climb in early 2022 as drilled but uncompleted wells are brought on production.
- Operators continue to focus development efforts on maintaining production from well-established fields. Any incremental production growth will also come from existing development near infrastructure. However, new sub-plays in these fields will be developed as operators target potential supply growth if future prices remain positive.
- Operators will focus on lower cost development in the Upper and Middle Montney formations.
- Production growth for individual operators is being driven by M&A activity as operators jockey for market share without rapidly increasing overall production. As operators integrate new assets into their portfolios, new growth opportunities are emerging.
- With LNG Canada expected to come into service mid-decade, expect both Shell and Petronas to increase activity to meet supply expectations. This should create opportunity for other operators to fill the void in other markets.
- Natural decline rates are a significant driver of Montney activity, with almost half of current production needing to be replaced in the next five years.



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