

Alberta's Montney

AER/AGS Information Series 162

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1 Summary

The Montney Formation, which extends from Alberta into British Columbia, is a top-tier North American resource play with consistent year-over-year production growth since 2010 (Figure 1). The Early Triassic marine siltstone–sandstone deposits accumulated in shoreface to offshore/turbidite settings. The play is developed mainly with horizontal wells and multistage hydraulic fracturing, and in Alberta has large established proven reserves of 58 Tcf of natural gas and 3 billion bbl of oil.

April 27, 2026: Shell announced agreement to acquire ARC Resources – one of the main Montney producers – for USD\$16.4 billion. The long-duration, low-cost shale gas and liquids resources of the Montney was identified as a key driver for the acquisition.

2 Geology

The Montney Formation is a highly predictable unconventional resource play of Early Triassic age found in northwestern Alberta and British Columbia. Up to 300 m thick, it consists of sandstone, siltstone, and some limestone (coquina). It was deposited in shoreface to distal offshore marine environments including turbidite deposits (Davies et al., 1997; Zonneveld et al., 2010).

Reservoir Characteristic	Units	Deep Basin (Unconventional)	Conventional
Typical pressure gradient	kPa/m	10-12 but up to 16	8-9
Typical water saturation	%	18-27	28-50
Typical porosity	%	3-4	6-13

Table 1. Montney reservoir Properties.

The Montney is divided into Lower, Middle, and Upper Members, all of which have proven reserves and are prospective, allowing for multi-layer stacked development in some areas.

Targets for hydrocarbon development have changed through time from more conventional reservoirs, such as the turbidite and coquina deposits, to unconventional deeper basin/finer grained packages as the use of hydraulic fracturing became prominent. The thermal maturity of the formation increases westward towards the deep basin and, in Alberta, much of the unconventional play is condensate and liquids-rich gas although there is a wide range of fluid maturities.

3 Production Analysis and Anticipated Demand Growth

Oil and gas activity in the Montney has occurred since the 1950's – first, conventional resources related to dolostone and sandstone Montney reservoirs were developed and then, with drilling advancements (i.e., hydraulic fracturing), finer grained (siltstone) unconventional reservoir intervals were increasingly targeted. Since 2010 it has been one of the fastest growing unconventional plays in North America. (Figure 1)

One of the most significant attributes of the Montney in Alberta is the range of fluid maturities from black oil to dry gas, with significant volumes in the condensate and liquids-rich gas windows. The liquids add significant value to the play and are an important source of diluent for bitumen from the oil sands, located in northeastern Alberta. 2023 production from the Montney Formation in Alberta was ~ 3.5 Bcf/day of natural gas and 240 Mbbbl/day oil+condensate.

As noted by McDaniel and Associates in a 2026 study completed for the Alberta Energy Regulator, a key feature of the Montney in western Canada (British Columbia and Alberta) is existing infrastructure and scalable take-away capacity. With LNG development on the west coast of

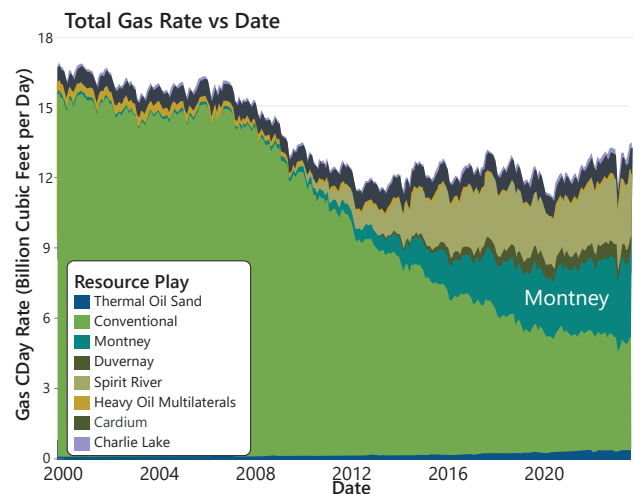
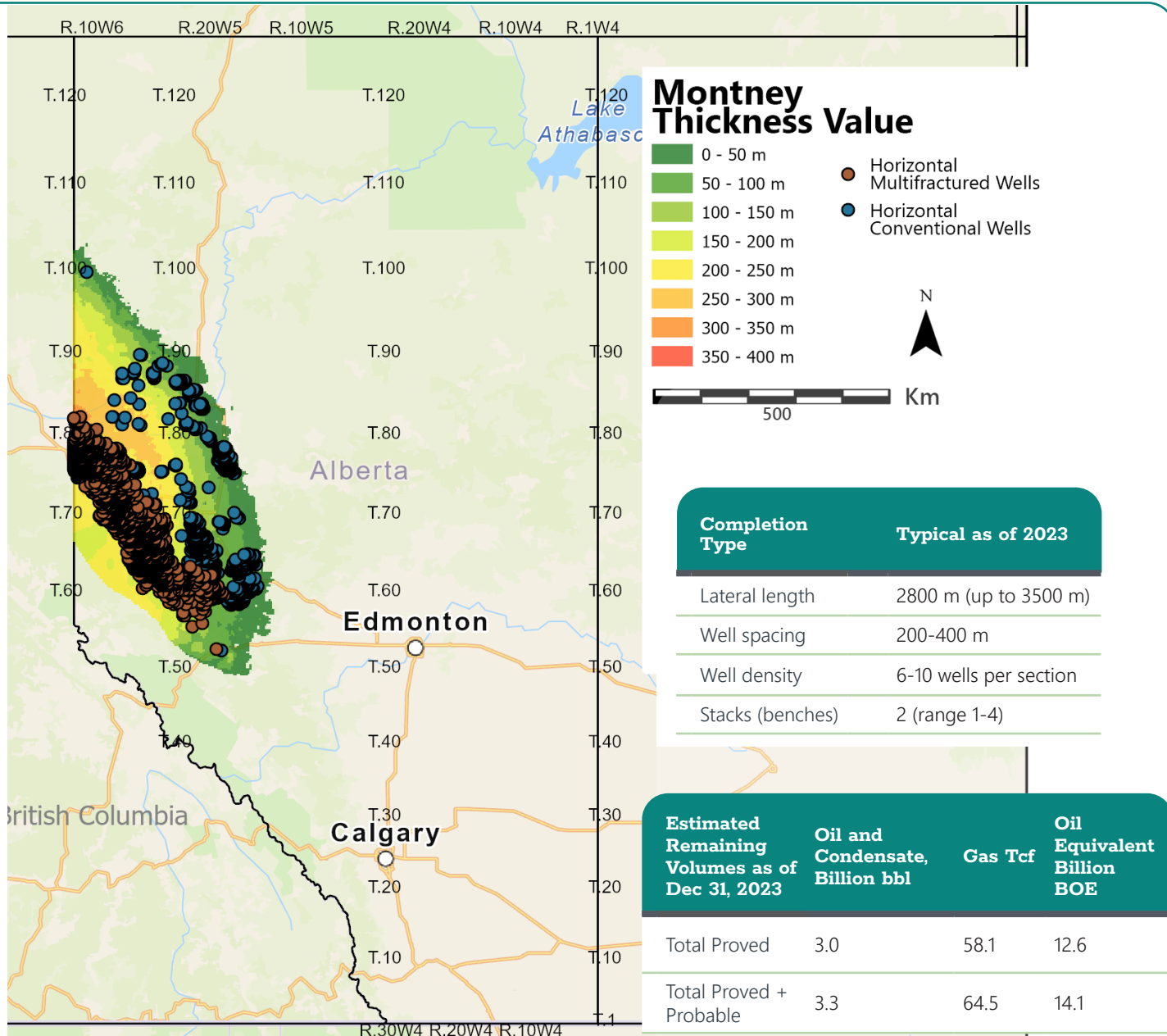


Figure 1. Montney production in Alberta has grown considerably since ~2010. Graph from McDaniel and Associates 2026.



Map 1. Distribution of Montney Formation in Alberta with the main unconventional fairway showing significant horizontal well development.

Canada (e.g., LNG Canada awaiting Phase 2 FID, Woodfibre LNG, Ksi Lisims LNG, and others) and expanding natural gas demand in the United States as their LNG commitments increase, the stage is set for significant demand for Alberta’s Montney resources.

4 Development Scheme and Reserves

Most Montney wells are horizontally drilled and completed with multistage hydraulic fractures in the 1-2.5 tonne/m range for proppant intensity. More than 6000 horizontal wells have been drilled in the formation, targeting multiple zones in the Lower, Middle and Upper benches. The average lateral length is ~2800 m, 200-400 m well spacing is typical and 6-10 wells per section is standard.

McDaniel and Associates have assessed (as of Dec. 2023) the Montney unconventional resource play in Alberta to have 58 Tcf of natural gas and 3 billion barrels of proved oil reserves, equating

to 30 years of inventory. Total proved plus probable reserves have been assessed at 3.3 billion bbl of oil and 64.5 Tcf of natural gas, equivalent to 14.1 billion bbl of oil equivalent.

References

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