

Case study: Canada

# Kymera hybrid drill bit improves steerability and increases ROP 41%

A customer drilling the Montney formation required large dog legs of 14° and was experiencing poor toolface control resulting in inconsistent build rates when drilling with competitor polycrystalline diamond compact (PDC) bits. The Baker Hughes Drill Bit team in Canada recommended a **Kymera™ hybrid drill bit** to reduce the drilling dysfunctions and achieve a consistent build rate through a section consisting of siltstone, shale and fine-grained sandstone. Although this early generation Kymera drill bit demonstrated improved toolface control, the Baker Hughes team was confident that additional performance gains were achievable with an optimized design.

The Baker Hughes Drill Bit product development team created an advanced analytical model to

measure the relative contribution the PDC and roller cone cutting elements have on a Kymera hybrid drill bit's drilling dynamics and overall performance in a given formation.

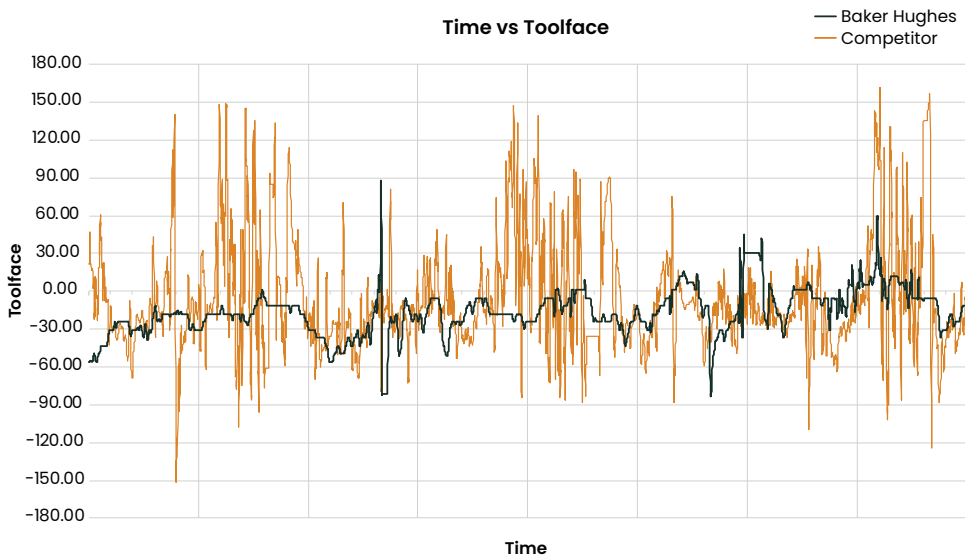
Applying this advanced analytical modeling, featured on the newest generation of **Kymera Mach 5 hybrid drill bits**, the Baker Hughes team was able to partner with the customer to deliver a tailor made solution for drilling a faster well. This new Kymera hybrid drill bit design, paired with a high-speed motor increased the rate of penetration (ROP) by 41% compared to the previous hybrid solution and outperformed the competing PDC without compromising toolface control.

## Challenges

- High unconfined compressive strength
- Interbedded formation
- High dog leg severity
- Inconsistent build rates

## Results

- Increased ROP by 41%
- Maintained steerability



Maintained excellent toolface control