

Better Fuel Data, Better Dispatch

How integrated refuelling intelligence is putting productive hours back on the clock



THE PROBLEM

Fuel tank sensors are unreliable. ECM fuel estimates drift over time — a study at a South American mine found average errors of **5.9%**, with half the fleet above **9%**. Dispatchers compensate by sending trucks to refuel at 30–35% tank capacity. The result: trucks spend time refuelling when they could be hauling.

THE SOLUTION

Cascadia Scientific's **Refuel Coach** integrates directly into **Wencomine FMS** through Wenco's Data Exchange Service (DES). On-truck fuel flow meters deliver sub-percent measurement accuracy. Machine learning models calculate **remaining haul cycles** — giving dispatchers a contextual picture of when refuelling is genuinely needed.



01 DETECT

Confirms refuelling events using multiple data sources (tank temperature, GPS, fuel sensors, FMS data).



02 MEASURE

Tracks actual fuel consumption using high-accuracy fuel flow meters (not ECM estimates).



03 CALCULATE

Uses machine learning to predict how many trips remain before a truck needs to refuel.



04 ALERT

Sends smart, real-time low-fuel alerts based on actual fuel-on-board.



THE IMPACT

Based on measured operational data from a producing mine site — not modelled estimates.

32.5% → 15%

Refuel threshold reduction

+22 hrs

Productive hours per truck per year

~USD \$25K

Annual value recovered per truck

~USD \$750K

Recovered across 30-truck fleet



"This is not about squeezing a marginal efficiency out of the system. It's about correcting for a long-standing data quality problem that has forced mines to operate conservatively."

Reid Given, Director of Product Management, Wenco

WHY THIS INTEGRATION IS DIFFERENT



Cycles, not litres

Dispatchers get guidance based on payload, grade, and distance — not raw tank numbers.



Native to dispatch

Alerts arrive inside Wencomine FMS. No new dashboards or context-switching.



OEM-agnostic

Works across mixed fleets regardless of equipment manufacturer. No vendor lock-in.



Open architecture

Connected via Wenco's DES Web Service API — the same framework behind the broader partner ecosystem.

WHAT'S NEXT

Wenco and Cascadia are developing a direct API connection between Cascadia's SmartRView cloud platform and Wencomine. On the roadmap: fuel intensity heat maps across haul road networks to identify road segments where consumption spikes — informing haul route optimization and targeted road maintenance.

"Working with Wenco has been a genuinely collaborative experience. The more technology providers can break down silos and keep the customer's outcomes front and centre, the greater the impact."

Stephen Edwards, Sales and Marketing Director, Cascadia Scientific

