

The \$0.29 per Barrel Question: How to Test Any Refinery AI Claim

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Summary

Honeywell has published a per-barrel estimate for refinery AI with its caveats attached. That is more useful than a headline percentage, because a number with caveats can be tested.

This paper sets out how an owner can test it. Check the arithmetic, apply five tests (real, attributable, net, durable and governed), score the evidence on a one-page scorecard, and put ten questions to any vendor before go-live.

A refinery with a measurement plan can tell whether \$0.29 per barrel is real. A refinery without one will end up debating the number.

What was claimed

On 26 October 2026, Honeywell Technologies launched Forge Plant Cognition, an industrial AI platform for refining, petrochemical and LNG operators. Its first deployment is at Dangote's Lekki refinery in Nigeria.

Based on preliminary data, Honeywell estimates an operational benefit of more than \$0.29 per barrel, or more than \$60 million a year in gross benefit at full capacity. Honeywell describes the figures as preliminary, specific to the facility, gross of implementation costs and not guaranteed. It also says results depend on refinery configuration, operating conditions, crude slate, utilisation, baseline performance, data quality, product margins and customer implementation.

Those qualifications are the useful part. They tell an owner where to look first.

Check the arithmetic first

At \$0.29 per barrel, each barrel per day of throughput is worth about \$106 a year ($0.29 \times 365 = \$105.85$). Working backwards, \$60 million implies roughly 567,000 barrels per day. Lekki's nameplate capacity is 650,000 barrels per day, and an expansion to 1.4 million barrels per day is planned.

Throughput basis	Annual gross benefit at \$0.29 per barrel
567,000 barrels/day (implied by \$60 million)	about \$60 million
650,000 barrels/day (current nameplate)	about \$69 million
1,400,000 barrels/day (planned expansion)	about \$148 million

Honeywell states both figures as "more than", so treat these as simple projections that assume the same benefit per barrel at every rate.

The first owner questions follow from the table. Which throughput does "full capacity" mean? And does a per-barrel benefit estimated on one configuration hold as the refinery changes?

Five tests for any refinery AI claim

1. Real: is the gain measured against a fixed baseline?

Fix the baseline in writing before go-live. It must cover the crude slates, seasons and operating modes the unit actually sees.

Report physical results first: throughput, yield shifts, energy per barrel and giveaway against specification. Convert them to dollars afterwards, using a fixed reference price deck.

Warning sign: a baseline set after the system is running, or one that covers only favourable periods. A weak starting baseline inflates any measured gain.

2. Attributable: did the AI cause the gain?

On a refinery in transition, capacity work, advanced process control (APC), crude changes and product margins all move at the same time. The measurement method must separate them.

Credit the AI only when it moves a binding constraint. Trace every recommendation to an operator decision: accepted, modified or rejected. Convert physical gains at the fixed reference prices.

Warning sign: a single benefit total with no split from existing APC.

3. Net: what does the owner keep?

Honeywell's figure is gross. The owner needs the net: licences, computing, integration, data clean-up, digital twin upkeep, sustainment staff, cyber security and change management. In my experience, data remediation is often the largest hidden cost.

Report the net annual benefit alongside the annual cost of keeping it.

4. Durable: does the gain last?

APC teams know the pattern: benefit at commissioning, then decay as models drift and instruments degrade. Track four measures every month: service factor, operator acceptance rate, normalised benefit and model health.

A 90-day result shows the system can work. Months 12 to 18 show whether the operating model can sustain it.

5. Governed: who controls the decisions?

Document decision rights by unit and type of move. Keep any write path away from safety instrumented systems. Apply management of change. Rationalise new alerts against your alarm philosophy. Keep an auditable record of every recommendation and outcome.

Decide up front where your operating data and trained models reside, and who owns them if the contract ends.

The owner-side scorecard

Score each line 0 (absent), 1 (partly in place) or 2 (agreed in writing before go-live). The maximum is 30.

Test	Evidence to require	Score (0, 1 or 2)
Real	Baseline fixed in writing before go-live	
Real	Baseline covers the crude slates, seasons and run modes the unit sees	
Real	Physical results reported before dollar conversion	
Attributable	Effects of existing APC, capacity work, crude and margins separated	
Attributable	Every recommendation traced to operator accept, modify or reject	
Attributable	Fixed reference price deck for converting gains to dollars	
Net	All cost lines listed, including data clean-up and sustainment staff	
Net	Net annual benefit reported alongside gross	
Net	Annual cost of keeping the benefit forecast	
Durable	Monthly tracking of service factor, acceptance rate, normalised benefit and model health	
Durable	Formal reviews at 90 days and at 12 and 18 months	
Durable	Named owner for model maintenance and instrument health	
Governed	Decision rights documented by unit and type of move	
Governed	No AI write path to safety instrumented systems; management of change applied	
Governed	Record of recommendations and outcomes retained; data and model residency decided	

Reading the total (a CSI working guide, not an industry standard):

- 0 to 10: the number will be debated, not tested.
- 11 to 20: partly testable. Close the gaps before go-live.
- 21 to 30: testable.

Ten questions for any refinery AI vendor

1. What baseline was the estimate measured against, and which crude slates, seasons and run modes does it cover?
2. Will you commit to reporting physical results (throughput, yield, energy per barrel and giveaway) before dollars?
3. How does your method separate the AI's contribution from existing APC, capacity work, crude changes and margins?
4. Can every recommendation be traced to an operator decision: accepted, modified or rejected?
5. What is the full cost of implementation, and of keeping the system running each year, including data preparation and staff?
6. What is the net benefit once those costs are included, and on which throughput basis?
7. What do you expect the benefit to look like at months 12 and 18, and what do you track to catch decay?
8. Who maintains the models and instrument health after commissioning, and what does that cost?
9. Which moves can the system make or recommend, and how is it kept away from safety instrumented systems?
10. Where do our operating data and trained models reside, and who owns them if the contract ends?

Putting it into practice

Before go-live. Agree the baseline, the attribution method, the cost lines and the decision rights in writing.

At 90 days. Report physical results first, then dollars. Re-run the scorecard.

At 12 to 18 months. Review durability and restate the net benefit.

A fair reading

A specific, caveated per-barrel estimate is more honest than a headline percentage, and it can be tested. The right response is a measurement plan agreed before go-live, which gives finance, operations and engineering a common basis for judging the result.

Sources

- Honeywell Technologies press release, 26 October 2026:
<https://www.honeywell.com/us/en/news/press-releases/2026/10/honeywell-technologies-launches-forge-plant-cognition-with-dangote-built-with-ndivia-ai-dell-technologies>

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- Engineering.com: <https://www.engineering.com/honeywell-launches-ai-platform-for-refinery-operations/>

About CSI

Collaborative Systems Integration (CSI) is a vendor-neutral industrial automation consultancy. csi-automation.com