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INDONESIA HYDROGEN OUTLOOK 2026

From Strategic Ambition to Commercial Reality Check

Executive Summary

Hydrogen has emerged over the past five years as a central pillar in Indonesia's long-term energy transition narrative. Positioned as a potential solution for decarbonizing hard-to-abate sectors, enabling renewable energy integration, and supporting future clean energy exports, hydrogen has featured prominently in national roadmaps, state-owned enterprise strategies, and bilateral energy cooperation discussions. However, as Indonesia approaches 2026, a clear gap has emerged between policy ambition and commercial reality.

Despite early momentum driven by policy announcements and conceptual project pipelines, Indonesia's hydrogen sector has yet to transition beyond pilot-scale activity. No large-scale green or blue hydrogen projects reached final investment decision by the end of 2025, and there were no material new project announcements during the year. Previously disclosed projects have progressed slowly, with limited evidence of advancement toward bankable structures. This domestic stagnation is occurring in parallel with a broader global reassessment of hydrogen economics, as major international energy companies pause, delay, or withdraw from hydrogen investments amid rising costs, weak demand signals, and policy uncertainty.

From a Petromindo perspective, hydrogen in Indonesia remains a long-dated strategic option rather than a near-term commercial opportunity. Without meaningful intervention on the demand side, stronger fiscal support, and clearer regulatory frameworks, hydrogen is unlikely to play a material role in Indonesia's energy mix before the early 2030s.

Strategic Context: Why Hydrogen Matters to Indonesia?

Indonesia's interest in hydrogen is rooted in its broader decarbonization challenge. As a resource-rich economy with a heavy reliance on coal, oil, and natural gas, Indonesia

faces structural constraints in rapidly reducing emissions while sustaining economic growth. Hydrogen has been positioned as a flexible energy carrier that could, in theory, leverage Indonesia's renewable energy potential, support industrial decarbonization, and create future export value¹.

Government institutions, including the Ministry of Energy and Mineral Resources (ESDM), Bappenas, PLN, and Pertamina, have articulated hydrogen as part of Indonesia's Net Zero Emissions 2060 pathway. These narratives emphasize green hydrogen produced from renewable power and blue hydrogen leveraging domestic gas resources, combined with carbon capture and storage. In strategic documents, hydrogen is frequently described as an enabler for future energy security and industrial competitiveness.

However, hydrogen's role remains largely conceptual. It is not yet embedded into Indonesia's near-term energy planning frameworks, such as binding power procurement plans, industrial fuel mandates, or carbon pricing mechanisms. As a result, hydrogen development has been driven more by strategic signaling than by concrete market demand.



Figure 1: Grand launching of Global Hydrogen Ecosystem Summit 2025 in Jakarta

¹ ESDM: [Hidrogen Hijau Pilar Utama Dekarbonisasi Industri](#). June 2022

Policy and Regulatory Landscape

Indonesia's hydrogen policy framework remains under development². While several roadmaps and discussion papers have been published^{3,4}, these documents primarily outline long-term aspirations rather than enforceable policy instruments. There is currently no hydrogen-specific regulation governing pricing, certification, offtake obligations, or infrastructure access.

The absence of a carbon pricing mechanism at a level sufficient to shift fuel choices further undermines hydrogen competitiveness. While Indonesia has introduced elements of carbon trading and emissions reporting, these measures have yet to materially alter investment decisions in favor of low-carbon hydrogen. In addition, regulatory uncertainty around carbon capture, particularly concerning long-term liability and CO₂ storage rights, complicates the outlook for blue hydrogen.

From an investor perspective, the policy environment does not yet provide the clarity or stability required to justify large-scale capital commitments. This is a critical barrier in a sector where project economics are already highly sensitive to regulatory support.

Project Landscape and Development Progress

Indonesia's hydrogen project pipeline consists largely of pilot initiatives, feasibility studies, and early-stage concepts announced between 2021 and 2024. These include small green hydrogen facilities linked to hydropower or geothermal resources, as well as blue hydrogen concepts associated with existing gas processing infrastructure.

By the end of 2025, out of the previously announced 3.18 million tons per annum of hydrogen⁵, none of these projects had progressed to final investment decision. Importantly, 2025 did not see the announcement of any new large-scale green or blue hydrogen projects, nor were there material updates indicating accelerated development of previously announced initiatives. In several cases, project timelines appear to have been extended without public explanation, reflecting either internal reassessments or challenges in securing offtake and financing.

The only notable execution milestone during this period was the groundbreaking of the Ulubelu green hydrogen pilot plant by PT Pertamina Geothermal Energy Tbk (IDX:

² Petromindo: [Govt Plans Regulation on Green Hydrogen Development](#). March 2023

³ ESDM: [Strategi Hidrogen Nasional](#). November 2024

⁴ ESDM: [Peta Jalan Hidrogen dan Amonia Nasional](#). April 2025

⁵ Petromindo: [Indonesia Hydrogen Outlook 2024](#). December 2023

PGEO)⁶. While this development demonstrates continued institutional interest and technical capability—particularly in leveraging geothermal resources for hydrogen production—the project remains pilot-scale and does not materially alter the commercial outlook for hydrogen in Indonesia. As such, it should be viewed as a proof-of-concept initiative rather than a precursor to near-term large-scale deployment.

This lack of momentum contrasts sharply with earlier expectations that Indonesia could leverage its renewable resource base to become a regional hydrogen leader. Instead, project development has stalled at the point where commercial viability must be demonstrated.



Figure 2: Groundbreaking of green hydrogen pilot plant at the Ulubelu geothermal site in Lampung

Economic Reality of Hydrogen in Indonesia

The fundamental constraint on hydrogen development in Indonesia is economics. Green hydrogen production costs remain high due to the combined impact of electrolyzer capital expenditure, renewable power costs, and low-capacity utilization⁷. Even under optimistic assumptions, levelized costs of green hydrogen in Indonesia remain significantly above the price levels that industrial or power sector consumers are willing to pay.

Blue hydrogen faces a different but equally challenging cost structure. While Indonesia has access to relatively low-cost natural gas, the addition of carbon capture and storage

⁶ Pertamina: [Pertamina Hadirkan Teknologi Elektrolisis Modern Berbasis Panas Bumi](#). September 2025

⁷ BKPM: [Kajian Pengembangan Investasi Hidrogen Hijau di Indonesia Potensi dan Tantangan](#). 2023

significantly increases overall project costs. Moreover, Indonesia lacks a fully developed CCS regulatory framework and proven large-scale CO₂ storage projects, increasing both technical and financial risk⁸.

In the absence of subsidies, carbon pricing, or guaranteed offtake agreements, hydrogen struggles to compete with existing fuels. For most potential users, switching to low-carbon hydrogen would result in a substantial increase in operating costs, with limited immediate economic benefit.

Demand-Side Constraints and Market Readiness

Perhaps the most critical weakness in Indonesia's hydrogen outlook is the lack of demand-side readiness. While hydrogen is frequently discussed as a solution for industrial decarbonization, there are currently no mandates or incentives requiring industrial users to switch from conventional fuels or grey hydrogen to low-carbon alternatives.

In the power sector, hydrogen co-firing has been technically explored but remains economically uncompetitive compared with alternatives such as biomass co-firing, renewable energy expansion, or grid optimization. In the transport sector, hydrogen mobility remains confined to small pilot projects⁹, with electric vehicles progressing more rapidly due to lower costs and established infrastructure pathways.

Without a clear anchor customer or policy-driven demand, hydrogen projects struggle to secure bankable offtake agreements. This creates a circular challenge in which projects cannot proceed without demand certainty, while demand does not materialize due to high costs and lack of supply.

Global Hydrogen Reset: Implications for Indonesia

Indonesia's hydrogen challenges must be understood within the broader global context. Between 2024 and 2025, the global hydrogen sector entered a period of strategic recalibration. Major international energy companies began pausing, delaying, or withdrawing from hydrogen projects that could not demonstrate near-term commercial viability.

⁸ The Jakarta Post: [Experts Doubtful about RI's Plan on Carbon Capture](#). October 2022

⁹ Petroindo: [Government to Trial Hydrogen-Powered Transportation](#). May 2024.

Monitoring by Petromindo indicates that throughout 2025 a growing number of high-profile hydrogen projects were either paused or terminated by leading global energy players:

- Air Products ended the Massena green LH2 projects¹⁰
- ExxonMobil paused a Texas hydrogen plant that would have been of the world's largest¹¹
- bp recently withdrew from planned hydrogen plants in Oman and Teesside in UK¹²
- Repsol and partners scrapped a 200 MW green hydrogen plant in Spain, citing costs and lack of supportive regulations¹³
- Fortescue Future Industries canceled major projects in Gladstone (Australia) and Arizona (US)¹⁴
- Thyssenkrupp canceled its tender for green hydrogen for its German steelmaking, opting for natural gas due to high cost¹⁵

This global pullback is not limited to mature markets. In Indonesia, Germany-based Augustus Global Investment has recently announced the postponement of its planned 35,000 tons per annum green hydrogen project in Aceh¹⁶.

This shift was driven by several factors, including capital cost inflation, higher interest rates, slower-than-expected policy implementation in key markets, and difficulty securing long-term offtake agreements. As a result, hydrogen investment has become more selective, with capital increasingly directed toward projects with strong policy backing or guaranteed demand.

For Indonesia, this global retrenchment reduces the pool of potential international partners willing to take early-stage development risk. It also raises return expectations, making marginal projects even harder to justify. In effect, Indonesia is competing for hydrogen capital at a time when investors are becoming more cautious and disciplined.

Export Ambitions and Competitive Pressures

¹⁰ Air Products: [Air Products to Exit Three US-Based Projects](#). February 2025

¹¹ Reuters: [Exxon Freezes Plans for Major Hydrogen Plant Amid Weak Customer Demand](#). November 2025

¹² BBC: [BP Pulls Out of Building Teesside Hydrogen Plant](#). December 2025

¹³ Hydrogen Insight: [Repsol and Partners Cancel up-to 200 MW Green Hydrogen Plant in Spain on Site of Former Coal Power Station](#). December 2025

¹⁴ FCW: [Fortescue Walks Away From Two Flagship Hydrogen Projects After Final Approval](#). July 2025

¹⁵ Hydrogen Insight: [Thyssenkrupp has Put Hydrogen Tender for €3bn Green Steel Plant 'On Hold' due to 'Significantly Higher' Prices than Expected](#). March 2025

¹⁶ Petromindo: [Augustus Global Pauses Aceh Green Hydrogen Project](#). November 2025

Indonesia has frequently highlighted the potential to export hydrogen or hydrogen-derived products to markets such as Japan and South Korea. While these countries have expressed long-term interest in hydrogen imports, they are increasingly selective in their sourcing strategies.

Competing suppliers, including Australia¹⁷ and Middle Eastern¹⁸ producers, have moved faster in establishing policy frameworks, securing offtake agreements, and advancing projects toward FID. Indonesia, by contrast, remains at an earlier stage, with limited infrastructure and slower execution timelines.

As global supply options expand, buyers are likely to prioritize jurisdictions that can offer cost certainty, reliability, and regulatory clarity. These dynamics further challenge Indonesia's ability to position itself as a preferred hydrogen exporter in the medium term.

Outlook Toward 2026 and Beyond

Looking ahead to 2026, Petromindo's base-case outlook is that hydrogen in Indonesia will remain largely at the pilot and conceptual stage. Policy discussions and strategic positioning will continue, but material commercial deployment is unlikely without a step change in government support or demand-side intervention.

An upside scenario would require the introduction of targeted subsidies, clearer regulatory frameworks, and mandated offtake from state-owned enterprises. Conversely, a downside scenario could see hydrogen deprioritized in favor of more immediately viable decarbonization options, such as renewable power, LNG optimization, and carbon capture for existing assets.

Indonesia's hydrogen story is best understood as a long-term strategic option rather than an imminent investment opportunity. While the country possesses many of the ingredients required for hydrogen development, the current market, policy, and economic conditions are not yet aligned to enable large-scale deployment.

From a Petromindo perspective, the next phase of Indonesia's energy transition is more likely to be defined by incremental decarbonization of existing systems rather than a rapid scale-up of hydrogen. The challenge for policymakers and developers will be to translate ambition into credible commercial pathways before global competition and investor fatigue further narrows the window of opportunity.

¹⁷ Australian Government: [National Hydrogen Strategy 2024](#). 2024

¹⁸ S&P Global: [Middle East Eyes Global Role in Green Hydrogen Trade](#). January 2025