

ARTICLE NO.

07

Mind the increasing gap

Why Indonesia's widening oil and gas deficit is pressuring the economy and how domestic production can narrow the gap.

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Indonesia's National Energy Policy seeks energy independence, yet the oil and gas deficit currently stands at US\$1bn a month and is weighing on the nation's economy. Continued domestic production decline and reliance on imports to fill the gap will expand the deficit to US\$6bn a month or higher by 2025. Achieving energy independence means attracting investment to raise domestic production. Risco's Chris Newton explores the upside potential of domestic production and its need for stimulation.



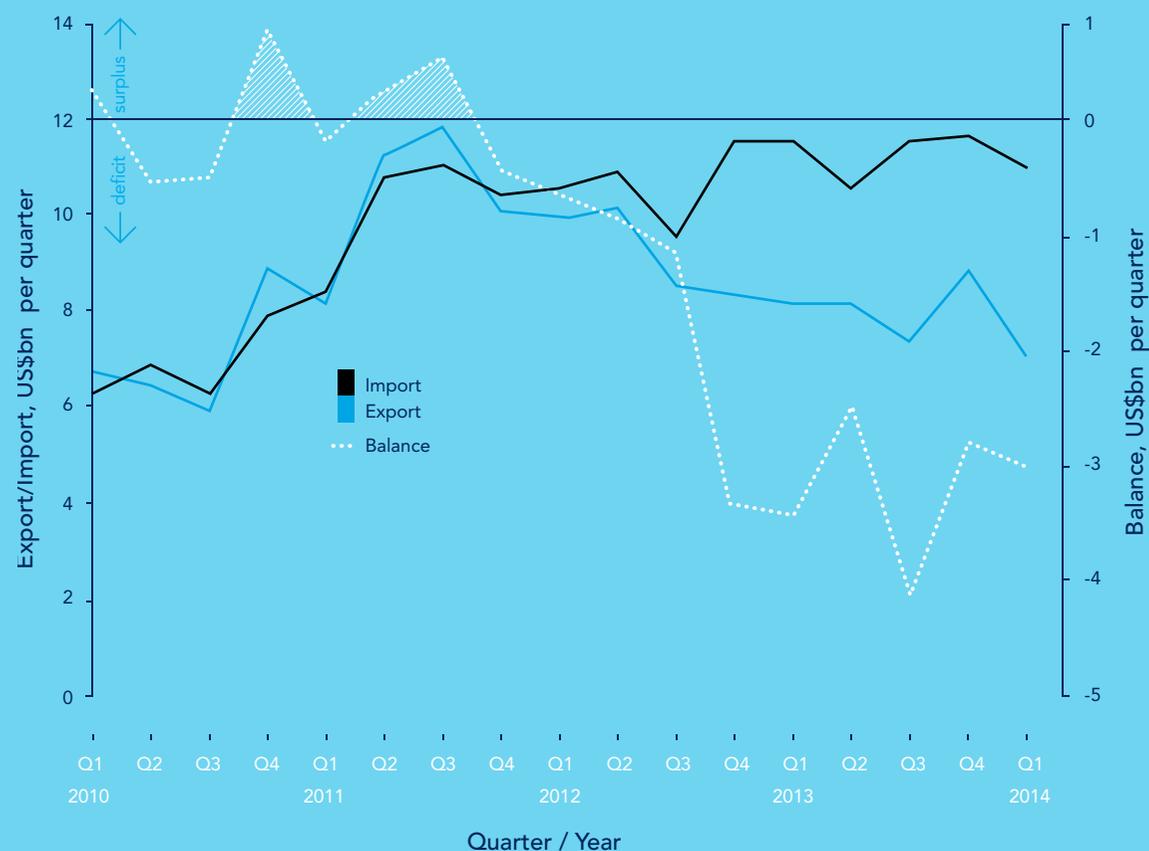
Oil and gas deficit gap ballooning

Indonesia's oil and gas trade deficit currently exceeds US\$1bn per month in net imports driven by stagnating oil and gas production and skyrocketing domestic demand. The country's fuel subsidies provide additional demand stimulus and direct cost to the government, as Angus Graham explores in his piece on ASEAN fuel subsidies in this edition.

Indonesia became a net oil importer (in volume terms) in 2004, a position that has continued to grow as oil production has steadily declined. Historic increases in gas production have partially stemmed oil's decline in overall oil and gas volume terms. With nearly 50% of its gas production exported, Indonesia remains a net hydrocarbon exporter on a volume/barrel of oil equivalent (boe) basis – just. But as demand rises, oil production falls and gas production plateaus, the move to net importer is rapidly looming. In US dollar value terms, Indonesia has been a net importer – that is, in deficit – for several years as expensive imported petroleum products outweigh lower-value crude and gas or LNG exports. The path to an expanding deficit gap is clear.

Indonesia's oil and gas trade deficit

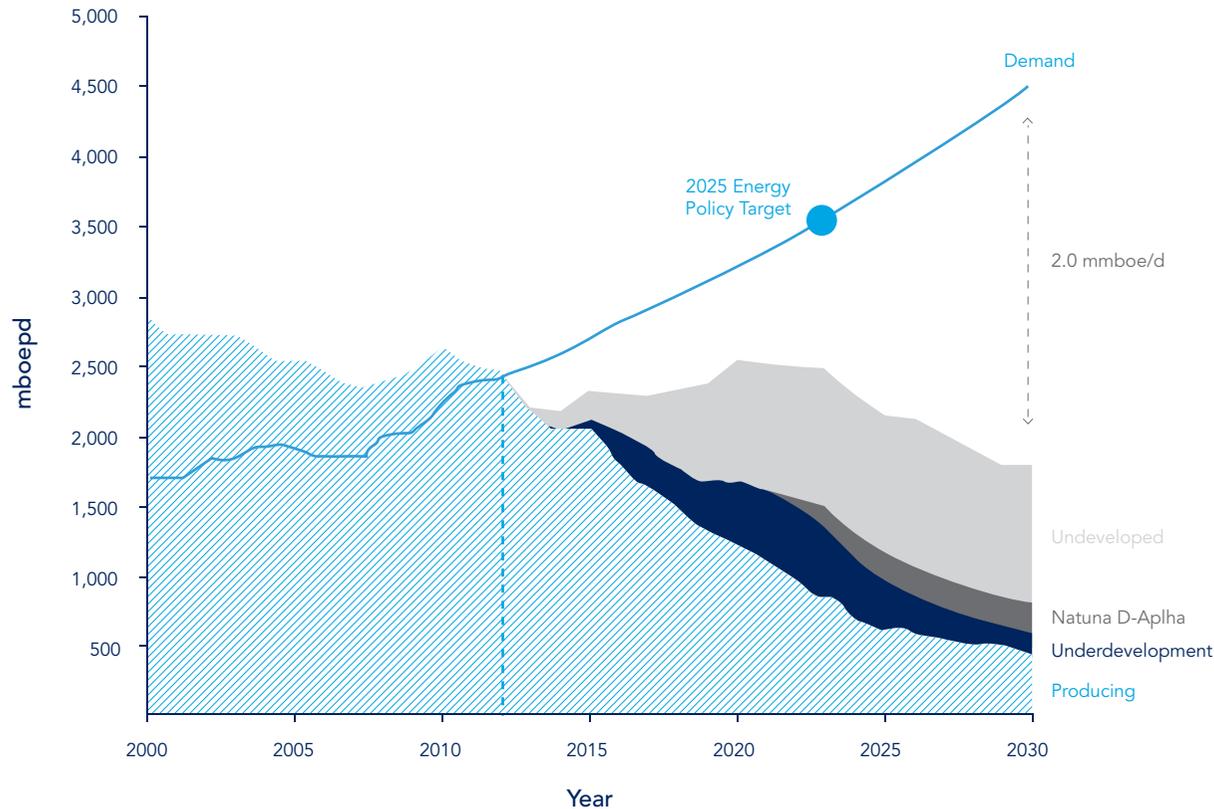
Indonesia's oil and gas trade deficit exceeded US\$1bn per month in 2013



Source: Statistics Indonesia

Indonesia's forecast oil and gas demand

If Indonesia relies on imports to fill 2025 supply/demand gap the deficit jumps to US\$6bn per month



Note: Forecast oil and gas demand uses the 2025 and 2050 Natural Energy Policy targets. Supply uses the latest production, development planning reserves, and resource data. Assumes all known reserves and resources are developed. mboepd = thousands of barrels of oil equivalent per day

Source: Migas, Wood Mackenzie, Risco Energy

Economic burden builds

The broader economic impact of the current billion per month oil and gas trade deficit is becoming increasingly clear, pressuring both trade and current accounts and hindering Indonesia's currency and economic growth. This is further amplified by the continued existence of fuel subsidies, which averaged US\$2.6bn per month in 2013. Assuming imports continue to fill the ever-widening supply/demand gap, we forecast Indonesia's oil and gas trade deficit will balloon to US\$6bn per month by 2025.

Even US\$6bn may be too conservative when understated assumptions in Indonesia's National Energy Policy (NEP) for oil and gas demand are considered – see the following page.

“NEP assumes Indonesia’s per capita consumption rises while energy demand elasticity nearly halves.”

Our US\$6 billion per month deficit forecast for 2025 faces potential uplift if a number of NEP assumptions prove to be understated:

- Primary energy demand totals 158mmtoe (million tons of oil equivalent) in 2010 rising to 400mmtoe in 2025 and 1,000mmtoe in 2050.
- This means a doubling in energy demand per capita, from 0.7 to 1.4 by 2025.
- There is an explicit and dramatic increase in the role of renewable energy in the energy mix, rising from 5% in 2010 to 23% in 2025 – largely at the assumed expense of oil.
- Despite rising per capita consumption, energy intensity is targeted to decline by 1% pa to 2025 and energy elasticity to drop below 1.0 from its current level of circa 1.8.
- Macro assumptions include GDP growth of more than an average 6.4% pa over the period, falling population growth, and a four-fold increase in GDP per capita.

While the role of oil and gas in the energy mix is targeted to decline between 2010 and 2025, total oil and gas demand will still increase by 3.6% pa (up from 3.2% pa between 2000 and 2010). For oil this means demand for 2.01mmstbopd (million standard barrels of oil per day) by 2025 and for gas 9.8bcfd (billion cubic feet per day).

Oil and gas demand appears understated given these targets rely on rising efficiency and a massive contribution from renewable energy, mainly geothermal and hydro. Interestingly, the latter are inconsistent with state power generator PLN’s own primary fuels planning.

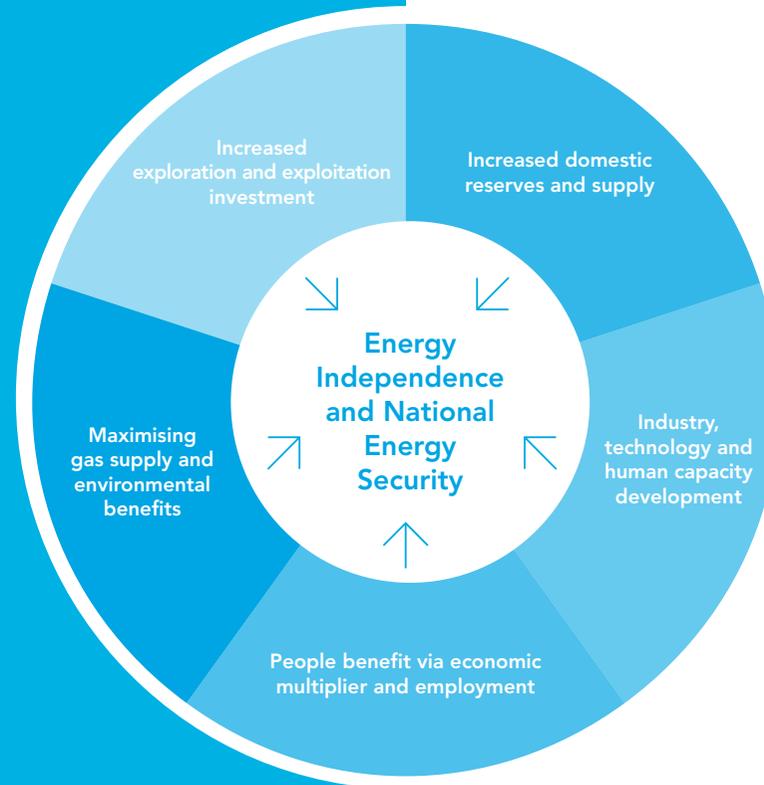
This view of understated assumptions is shared by others. Wood Mackenzie sees Indonesia’s liquids demand in 2025 at 2.25mmbopd (million barrels of oil per day), some 250kbopd (thousand barrels of oil per day) greater than the policy target, which would materially increase our US billion per month oil and gas deficit gap forecast.

Desperate need to stimulate domestic production

The options to fill this gap are simple: carry on relying on imports and fuel further deficit increases, or increase domestic production, which is currently set for decline.

Increasing import reliance runs directly counter to the NEP's clear objective of energy security and independence, the latter defined as "utilising the maximum potential from domestic sources". But action is required to stimulate the activity and investment to drive meaningful and sustainable production increases.

Indonesia's National Energy Policy fit with stimulating domestic production investment



Uncompetitive Investment Environment

Lower reserves and production
Higher imports
Reduced energy independence and security

The NEP already recognises numerous current deficiencies that need to be addressed, including:

- inefficient energy use
- poorly targeted energy subsidies
- poor supply prioritisation
- energy prices lower than the economic price
- low investment interest
- reliance on fossil fuels while reserve replacement is low
- energy infrastructure limitations
- low domestic funding and participation
- limited research and development and technology application
- low community access to energy
- poor demand side management
- export driven with limited value add.

The NEP's objectives clearly fit with stimulating investment in domestic production.

Conventional oil and gas – set for continued decline

Indonesian conventional oil and gas production faces continued decline with a broadly un compelling investment climate from both a regional and global perspective. This was articulated in our “Bottom of the barrel” survey report and is demonstrated by the steady decline in new field wildcat exploration drilling – the key tracking metric. While exploration investment in US dollar terms has increased, this is mainly driven by cost inflation (particularly from rig rates) and by the recent move into expensive deep water exploration. The number of wells and what they successfully yield is most pertinent rather than their cost.

The long-term decline in wildcat exploration, the purest form of such drilling, has been halted over the last few years as the massive number of production sharing contracts (PSCs) signed in 2007–09 have drilled their exploration commitments. Unfortunately there has been little to show for this massive investment and this, combined with the deteriorating investment environment, means the necessary increase in exploration drilling activity is unlikely to eventuate. At the ESDM – IPA exploration forum in 2012, the IPA showed that at current rates of exploration efficiency, annual exploration drilling activity would need to triple if conventional oil and gas was to satisfy just 50% of Indonesia’s 2025 oil and gas supply/demand gap.

Unconventional oil and gas – tremendous potential but remains nascent

Accessing this potential could transform Indonesia’s production landscape, but it will require catalysing support.

Many of the issues faced by conventional oil and gas can cross over into unconventional, particularly ones of above ground operating and regulatory environment. Others are potentially amplified in an unconventional setting, such as land access (larger footprint) and services costs. Unconventional also has its own specific challenges such as high commercialisation uncertainty and a need for operator flexibility and speed, requiring lighter handed regulation than conventional oil and gas projects. Much of this can be addressed via clear, supportive and enabling regulation.

Within the unconventional space, shale has higher costs, lead times and risk when compared to coal bed methane (CBM), meaning more supportive fiscal terms are needed initially. Ideally, a flexible PSC regime would drive the economic viability of marginal shale projects while capturing a fair revenue share for the state from attractive ones – e.g. R/C (Revenue/Cost) terms. Shale is capital and technology intensive, suggesting PSC awards should be prioritised for companies with those assets.

Two clear paths exist

Increasing investment and hence production in conventional and unconventional oil and gas requires a competitive fit-for-purpose investment environment. A critical component is the right fiscal, regulatory and operating environment to compete for highly mobile capital, technology and skills. Indonesia has significant fiscal and strategic motivation for stimulating investment in new domestic hydrocarbon production. Increasing investment and hence production in conventional and unconventional oil and gas requires a competitive fit-for-purpose investment environment.

The government has two key near-term levers readily available to achieve increased investment in domestic production, in the form of adjustments to regulation and fiscal terms. Neither are “catch-all” solutions, but they are likely to materially impact the key measure of effectiveness: an increase in the number of pure exploration wells. The result will be corresponding progress towards increasing domestic production and creating greater energy independence and security. The alternative of an uncompetitive environment leads to falling reserves and production, higher imports, reduced energy independence and security and mounting economic pressures.

Chris Newton

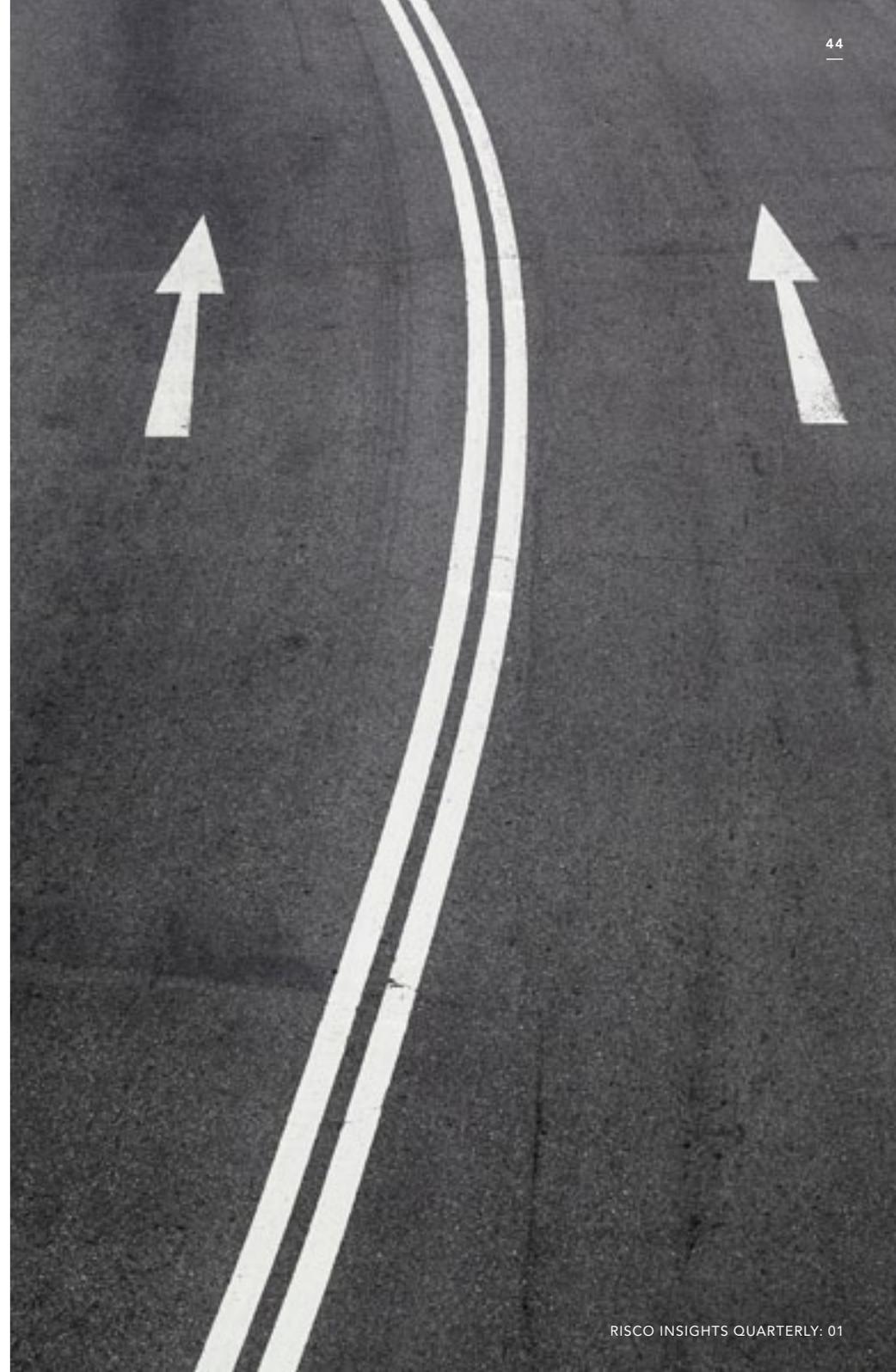
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Chris has written further on Indonesia’s national energy policy and how conventional and unconventional potential can be turned into increased domestic production.

View these articles at riscoenergy.com/insights



An aerial photograph of an oil rig on a paved surface. The rig is red and black, with the text 'S21 LADO TIERRA' and 'SWL SINGLE TWIN' visible. Two workers in red shirts and white hard hats are visible: one is pushing a red traffic cone, and the other is pushing a wooden crate filled with black equipment. The scene is set on a grey asphalt surface with white lane markings.

Risco Energy is an investment company focused on upstream oil and gas in ASEAN

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