PETRONAS

PETRONAS
Activity Outlook 2026-2028

Passionate about Progress

Cover Rationale

Beyond Boundaries: Redefining Energy Excellence

The cover design is purposefully crafted with PETRONAS' goals in mind, while communicating the theme, 'Beyond Boundaries: Redefining Energy Excellence'. As a central visual metaphor, the wave element symbolises motion beyond limits while embodying progress, transition, resilience, and innovation. Complementing this, images of PETRONAS assets highlight the journey of energy transition, competitiveness, and sustainability.

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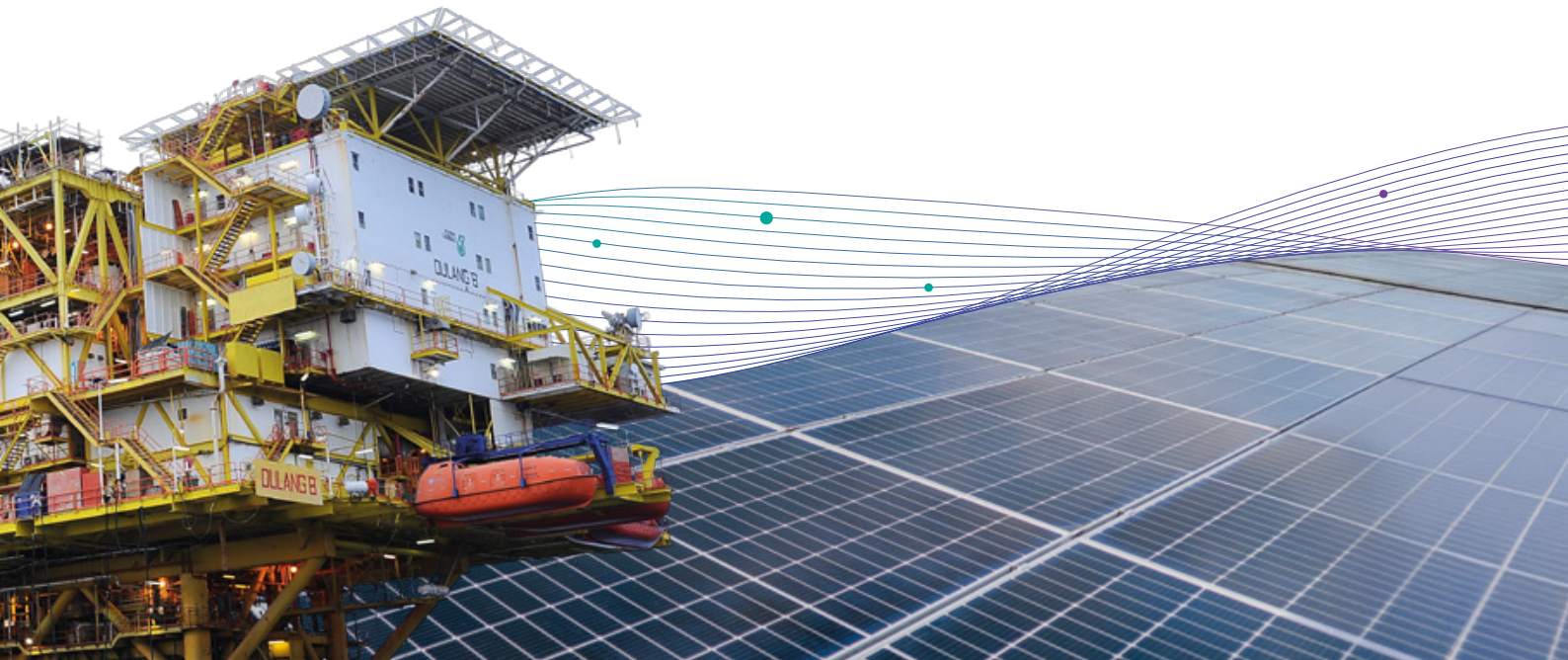

About This Report

Dear Stakeholder,

Welcome to the PETRONAS Activity Outlook 2026. This report provides insights into industry trends, demand outlook, and PETRONAS' forecasted activities for the next three years covering Upstream, Downstream, and Gas and Maritime businesses for Malaysian operations. The report is part of PETRONAS' efforts to engage the Oil and Gas Services and Equipment (OGSE) sector in sustaining a resilient ecosystem.

Objective and Scope

The intent of this report is to provide direction for industry players to develop respective high-level plans. It is recommended that industry players also refer to additional sources of data or information for comprehensive decision-making.

Scope of Reporting

- Encompasses key operations and activities within PETRONAS and its subsidiaries (PETRONAS Group), and other Petroleum Arrangement Contractors (PACs) from 1 January 2026 to 31 December 2028 (unless specified otherwise).
- The outlook provided is based on activities for the year, and not on tender issuance or contract awards. Therefore, it includes activities which may have been contracted at the time of reporting. An overview of contracts with its current duration is provided in this document.
- The data provided is based on the projection of activities with base scenarios indicating the project milestones at the time of release. Changes are expected in response to market dynamics and operational requirements.
- Includes a list of associated services, which may benefit smaller players.

Forward-looking Statements
This report was developed based on currently available information from internal and external sources. PETRONAS believes the predictions of its Management as reflected by such forward-looking statements are reasonable, based on information currently available to it. PETRONAS makes no representation on the accuracy or completeness of any information provided in this report and expressly disclaims any liability whatsoever arising from, or in reliance upon, the whole or any part of its contents.

This report contains forward-looking statements with words such as "believe", "anticipate", "intend", "seek", "will", "plan", "could", "may", "endeavour" and similar expressions used to represent our judgement and future expectations. These statements involve risk and uncertainty because they relate to future events and circumstances and should be considered in light of the various important factors. PETRONAS undertakes no obligation to update or revise any of them, whether as a result of new information, future developments or otherwise. Accordingly, readers are cautioned not to place undue reliance on the forward-looking statements, which are stated only as of the date they were issued. Images are for illustrative purposes only and do not accurately represent a real technical workflow. They are visual aids intended for conceptual understanding and do not reflect specific technical details or procedures.

Agreement
To optimise the benefits from the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP), PETRONAS needs to be strategic in deciding categories or areas to attract foreign participation for competitiveness, and likewise to prioritise for local players in achieving meaningful participation. This will require support from all parties, including the OGSE sector and the greater ecosystem.

Other Information
For more information on PETRONAS, refer to the **PETRONAS Integrated Report 2024** at:

https://www.petronas.com/integrated-report-2024/

Point of Contact
We welcome inquiries from our stakeholders and readers to help improve our reports. Please send your feedback to:

https://www.petronas.com/suppliers/connect-to-collaborate-c2c

From the Desk of Vice President, Group Procurement

Dear Esteemed Stakeholders,

I am pleased to present this year's edition of the PETRONAS Activity Outlook, providing a forward-looking view of Malaysian operations' activity demand from 2026 to 2028 across PETRONAS' Upstream, Downstream, and Gas and Maritime businesses. This report continues to serve as a strategic reference for partners and stakeholders, offering actionable insights to support informed decision-making and long-term planning in an evolving energy landscape.

Navigating an Era of Transformation

The global energy sector is undergoing profound transformation. Multipolar geopolitics, price volatility, and shifting policy priorities have heightened the need for resilience and adaptability. Closer to home, Malaysia's energy ecosystem is evolving to meet the twin imperatives of sustainability and competitiveness, as the nation advances its energy transition agenda in line with the National Energy Transition Roadmap (NETR) and the National OGSE Industry Blueprint 2021–2030.

Given this trajectory, PETRONAS remains steadfast in advancing the energy transition — progressing towards becoming a global energy superstore that delivers reliable, lower-carbon energy solutions. By 2035, PETRONAS aspires to operate as an integrated energy hub, offering a comprehensive portfolio spanning oil and gas, renewables, hydrogen, carbon capture and storage (CCS), and green mobility.

Positioning the OGSE Industry for the Future
Malaysia's Oil and Gas Services and Equipment (OGSE) sector stands at a pivotal juncture. Long regarded as the backbone of the national energy value chain, OGSE players are now expanding into both conventional and new energy segments. The sector's continued relevance rests upon its ability to adapt, innovate, and seize opportunities in emerging areas such as digitalisation, decarbonisation, and integrated project delivery.

Growth potential for OGSE companies hinges on accelerating transformation by enhancing cost efficiency, strengthening operational excellence, and embedding sustainability across operations. Embracing advanced technologies such as automation, robotics, artificial intelligence and data analytics will be critical to improving productivity and competitiveness.

Equally important is investment in capability and talent development to build a skilled workforce that is agile, future-ready, and equipped to drive innovation in a rapidly evolving industry.

PETRONAS continues to work with the OGSE industry to spur transformation through financing programmes, capability-building initiatives and technology partnerships. These efforts aim to create an ecosystem that is resilient, competitive and aligned with Malaysia's aspirations for a sustainable energy future.

Driving Collective Progress
Collaboration has always been the cornerstone of Malaysia's energy success story. The shared expertise and commitment of PETRONAS and its partners have shaped an ecosystem that is resilient and globally competitive.
As we navigate the challenges and opportunities ahead, PETRONAS remains committed to fostering partnerships that unlock new value, strengthen industry capabilities, and accelerate technology adoption.

Through this shared purpose, we can reinforce Malaysia's position as a trusted and progressive energy player — advancing innovation, accelerating technology adoption, and fostering a sustainable energy ecosystem. PETRONAS remains dedicated to working alongside industry partners to strengthen resilience and advance collective progress towards a sustainable and more inclusive energy future.

Rashidah Alias

Vice President,
Group Procurement

Industry Overview

The global economy is undergoing upheavals not seen since the pandemic, as discontent over the rising cost of living leads to louder calls for change. Policy revolution is reshaping trade, disrupting immigration, and halting cooperation in areas including technology and energy.

The transformation serves as a backdrop that has increased uncertainty in markets and the energy world. Energy security is competing with energy transition as nations seek to decarbonise while still ensuring access to energy and prioritising affordability.

The International Monetary Fund (IMF) projects global economic growth to slow from 3.3 per cent in 2024 to 3.2 per cent in 2025 and 3.1 per cent in 2026, with advanced economies growing around 1.5 per cent and emerging market and developing economies just above 4 per cent.

While the economy has remained resilient, downside risks for the global economy remain as the positive impact from frontloading of trade fades.

The energy sector is, consequently, facing increased volatility as supply increases are met by prospects of slower demand growth, especially in large economies where trade has become more challenging amid an erosion in consumer confidence.

Source: S&P Global, SR analysis

Oil and Gas Sector

The oil and gas sector is forecast to face another challenging year as a market in surplus is met by weak demand growth.

Against an environment of extended geopolitical upheaval, players in the sector will focus their attention on three themes: cost compression, decarbonisation, and diversification of both supply chain and portfolio.

Cost compression will ensure players ranging from exploration and production companies to oilfield services companies are able to protect their margins when oil prices are weak, while boosting their cash positions for acquisitions when prices rebound.

Energy transition remains a key priority for oil and gas, while continuing to play the role of meeting nations' and consumers' energy security needs. The push towards cleaner fuels and reduced emissions translate into increasing demand for decarbonisation. The development of technology to reduce emissions and decarbonise operations will require capital in the near term, with paybacks in the longer term when a company with lower-emission fuels powers ahead of competitors. Low-carbon investments will be required to ensure decarbonisation goals are fulfilled. These fundamentals show that the energy transition is no longer primarily driven by decarbonisation but also by structural benefits like lower cost.

Diversification also plays a key role for the oil and gas industry. This refers to the diversification of supply chains, which include having suppliers from across the world, as well as the diversification of portfolios to ensure companies and energy systems can face greater upheavals with agility.

Facing up to the reality of an energy landscape where sustainability is at the core of oil and gas will allow players to adapt and thrive.

PETRONAS Overview

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PETRONAS Overview

Established in 1974 as Malaysia's national oil and gas company to manage and develop the country's hydrocarbon resources, Petroliam Nasional Berhad (PETRONAS) has grown into a global energy and solutions partner with presence in over 100 countries. PETRONAS is ranked amongst the largest corporations on Fortune Global 500®.

The group continues expanding its portfolios to offer integrated solutions across conventional and cleaner energy. PETRONAS offers a diverse range of fuels, lubricants and petrochemical products, renewable energy, green mobility, and biofuels to meet growing and evolving energy transition needs.

PETRONAS maintains its role as a trusted energy partner in the transition towards a lower-carbon future, further strengthened by its continued efforts to drive improved emissions performance, address impacts on nature, and support social progress.

Ranked 1st
Most Valuable ASEAN Brand*

Top 10
Most Valuable Global Oil and Gas Brand*

Ranked highest
ASEAN Brand for Sustainability Perceptions Value**

Ranked 167th
on Fortune Global 500® List

*Brand Finance Global 500 report
**Brand Finance ASEAN 500 report

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Main Business Coverage

Malaysia Petroleum Management
Malaysia Petroleum Management (MPM) oversees the management and development of Malaysia's oil and gas resources and upstream petroleum industry as entrusted by the Petroleum Development Act 1974. MPM provides stewardship in building a robust and sustainable oil and gas ecosystem. MPM's focus is on shaping Malaysia's upstream industry into a thriving investment destination by cultivating a competitive and conducive environment while ensuring optimum production through prudent and safe practices.

Upstream Business
The Upstream business is responsible for exploring and developing hydrocarbon resources, and managing oil and gas production assets in Malaysia and around 20 other countries. They focus on developing resources that are efficient and lower in emissions to help meet global energy demand while maintaining commercial viability.

Downstream Business
The Downstream business converts hydrocarbon resources into a range of products for over 100 markets worldwide. The operations span refining, marketing, and trading crude oil and petroleum products, as well as manufacturing and marketing petrochemicals, derivatives, and specialty chemicals.

Its venture into specialty chemicals aims to capture future growth opportunities in delivering long-term value to its customers. To reinforce support for the shift in energy demand, the business is further diversifying its portfolio by developing cleaner energy solutions such as biofuels, circular economy initiatives, and advanced fluid technologies. Its convenience business continues to grow with products and services aimed at broader consumer needs.

Gas and Maritime Business
The Gas and Maritime business provides gas solutions and energy-related maritime services which include liquefied natural gas, natural gas infrastructure and transportation, gas processing, and marketing and trading. They transport gas and petroleum products and supply maritime assets for offshore oil and gas resources extraction activities.

Through its integrated value chain, the business contributes to a reliable supply of natural gas and liquefied natural gas. They work closely with customers to help meet their energy and transportation needs.

Cleaner Energy Solutions
PETRONAS, through its subsidiary Gentari Sdn Bhd (Gentari), is supporting the adoption and commercialisation of cleaner energy solutions to complement existing energy systems. As a key driver in diversifying and future-proofing PETRONAS' portfolio, Gentari provides solutions in renewable energy, hydrogen, and green mobility that align with customers' needs.

PETRONAS' aspiration is for Gentari to become Asia Pacific's most valued clean energy solutions partner by 2030, grounded in customer-centric innovation, agile execution, and strategic collaboration.

Other Businesses
PETRONAS' other ventures include property investment and development, notably through its subsidiary, KLCCP Stapled Group, Malaysia's largest real estate investment trust and the only stapled security in the country, with landmark assets such as the PETRONAS Twin Towers.

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Charting the Next Decade of Energy Transformation

The energy sector today is being reshaped by global and domestic challenges. Market volatility, geopolitical shifts, technological disruption, climate issues, and a rapidly evolving energy landscape mean traditional approaches are no longer sufficient for long-term resilience and growth. This polycrisis calls for urgent and coordinated action by all parties, at every level.

In Malaysia, these pressures are amplified as many existing fields are maturing, while rising transportation and operational costs further tighten margins, driving the need to reshape the operational landscape. As Malaysia's national oil and gas company, PETRONAS recognises its responsibility to navigate these complexities and accelerate progress in the energy transition – not only to secure its own sustainability but to strengthen the domestic energy ecosystem. This commitment is reflected in the Group's prudent financial management and disciplined portfolio strategy, enabling delivery of RM320 billion in revenue in 2024 despite global uncertainties.

Malaysia's Oil and Gas Services and Equipment (OGSE) industry plays a critical role in supporting energy security, industrial development, and economic growth, contributing between five to eight per cent of the nation's Gross Domestic Product (GDP). Under the National OGSE Industry Blueprint 2021–2030, this sector is expected to contribute RM40–50 billion to Malaysia's GDP by 2030, positioning it as a significant component of the national economy, supporting the oil and gas value chain through approximately 4,000 vendors.

The Ecosystem Imperative

For PETRONAS, the health and competitiveness of Malaysia's OGSE sector is not ancillary to our mission – it is fundamental to it. A resilient, innovative, and globally competitive OGSE ecosystem directly determines our ability to deliver energy security, execute our transformation strategy, and maintain Malaysia's relevance in a rapidly evolving global energy landscape.

This relationship is reciprocal: PETRONAS provides scale, strategic direction, and market access; OGSE companies provide execution capability, specialised expertise, and innovation. Neither can achieve their transformation objectives independently. This interdependence shapes how we approach ecosystem development – not as corporate social responsibility, but as strategic imperative.

Resilience Amid Disruption

Malaysia's energy industry is undergoing systemic change. Natural resource decline continues to challenge upstream production rates, while LNG operations face rising cost pressures and increasing customer demand for cleaner shipping solutions amidst growing competition, necessitating continued improvements in efficiency and reliability. Downstream segments, meanwhile, continue to strengthen operational performance and explore opportunities to navigate tightening margins.

For PETRONAS and the OGSE ecosystem, these realities reinforce the need for resilience and adaptability. The Group is reshaping business models, accelerating advanced technology adoption, and strengthening strategic partnerships across the value chain to respond effectively. In this dynamic landscape, PETRONAS' ability to adapt quickly and build operational and organisational resilience will be key to maintaining relevance today and in the years ahead.

The Future Starts Today

Amidst these volatilities, PETRONAS remains focused on fulfilling its purpose as a progressive energy and solutions partner, enriching lives for a sustainable future while safeguarding Malaysia's energy security and long-term industry growth. Anchored by its aspiration to achieve Net Zero Carbon Emissions (NZCE) by 2050, PETRONAS is advancing efficient, lower-carbon production, contributing to reliable global energy supply and diversified cleaner energy solutions.

The organisation has taken the necessary measures to catalyse its transformation into an integrated energy company serving the world's energy and solutions needs safely, reliably, and sustainably by 2035. It now focuses its efforts on delivering higher value at low cost and lower emissions for a more competitive upstream sector, leveraging its proven track record and reputation as a reliable global LNG supplier while diversifying its portfolio to deliver value-accretive energy solutions aligned with evolving customer needs.

Similarly, the OGSE industry's long-term relevance and success depend on its ability to anticipate and prepare for emerging challenges and opportunities. An enhanced business model and portfolio diversification beyond traditional oil and gas activities will strengthen market position while contributing to the industry's target of achieving 25 per cent of OGSE revenue from non-oil and gas sources by 2030.

Achieving these ambitions require concerted efforts and strong alignment across the value chain, leveraging operational excellence, strategic partnerships and technological innovation to drive sustainable value creation for stakeholders and the OGSE ecosystem.

Strategic Partnership for Progress

As PETRONAS aligns its transformation with global best practices, it remains committed to Malaysia by functioning as ecosystem architect – deliberately creating platforms, mechanism, and market conditions that enable Malaysian OGSE companies to build competitive advantage sustainably.

The Group continues to invest in local talent, supplier development, and capability building to position Malaysia as a regional hub for energy transition expertise. Meaningful collaboration with industry associations and government agencies to develop strategies for improvement and bridge skill gaps will equip OGSE players with the support and visibility needed to participate in new growth areas.

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PETRONAS' partnership for progress with the OGSE sector is grounded by long-term support designed to uplift the entire ecosystem.
To accelerate technology adoption within the industry, PETRONAS has established a strategic collaboration with industry associations.
As highlighted in the OGSE Blueprint Mid-Term Review, this collaboration aims to accelerate the commercialisation of technology by matching PETRONAS-owned intellectual property with capable OGSE companies. It strengthens industry innovation, supports small and medium-sized enterprises (SMEs), and enhances competitiveness while advancing energy transition goals. By fostering deeper ecosystem collaboration, improving access to advanced technologies, and enabling diversification beyond traditional oil and gas services, the initiative positions Malaysia's OGSE sector for greater resilience, sustainability, and long-term growth.

Beyond technology transfer, PETRONAS structures major projects and investments to deliberately build Malaysian capabilities in emerging areas. As we pursue carbon capture and storage, renewable energy development, and hydrogen infrastructure, these initiatives are designed not merely to procure services but to systematically develop Malaysian OGSE competencies in these domains from project inception.

Domestically, PETRONAS aims to sustain production at close to two million barrels of oil equivalent per day through continued exploration, deepwater development, enhanced oil recovery (EOR), and new Production Sharing Contracts (PSCs) awarded under the Malaysia Bid Round 2024. Upcoming activities are expected to unlock additional reserves, strengthening national energy security and creating new demand for technical services and innovative solutions.

These developments present significant opportunities for OGSE companies to demonstrate enhanced competitiveness across the value chain, emphasising agility and efficiency without compromising quality, safety, and integrity. Each major development becomes a platform for capability advancement – enabling OGSE companies to move from executing established scopes to co-developing solutions for emerging technical challenges.

The ultimate validation of ecosystem strength lies in Malaysian OGSE companies' ability to compete regionally and globally. PETRONAS facilitates this transition by including qualified Malaysian partners in international operations, supporting capability-building joint ventures, and leveraging our global relationships to open market access for proven Malaysian capabilities.

The Journey Ahead
The path toward a future-ready energy ecosystem is challenging but filled with opportunity. Guided by shared priorities and aligned ambitions, anchored by transparent metrics and reciprocal commitments, PETRONAS and its OGSE partners are well positioned to advance together and unlock greater value for a just and equitable energy transition. By harnessing technology, building talent, and fostering deeper collaboration, the industry can develop an ecosystem that is resilient and competitive, in securing Malaysia's energy future.

In the Spotlight
Charting the Next Decade
of Energy Transformation

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Strengthening OGSE Ecosystem as an Investment Catalyst

Malaysia's upstream oil and gas sector stands at a pivotal moment. For over five decades, the country has built a legacy of resilience, innovation, and technical excellence. But as global energy dynamics shift towards globalisation, decarbonisation, digitalisation, and sustainability, Malaysia must evolve not just to keep pace, but to lead.

In positioning Malaysia as the preferred Capital Project Investment Destination (CAPE), PETRONAS, through Malaysia Petroleum Management (MPM), promotes sustainable growth in the industry through ongoing innovation and renewal, in alignment with the Oil & Gas Services and Equipment (OGSE) Industry Blueprint 2021-2030 by the Malaysia Petroleum Resources Corporation (MPRC), which aims to enhance the competitiveness of Malaysian OGSE companies.

Driving Transformation through CAPE Masterplan 2030

CAPE Masterplan 2030 is PETRONAS' long-term transformation plan to elevate Malaysia's project delivery to strengthen OGSE competitiveness and promote data-driven resource planning towards regional top quartile by 2030.

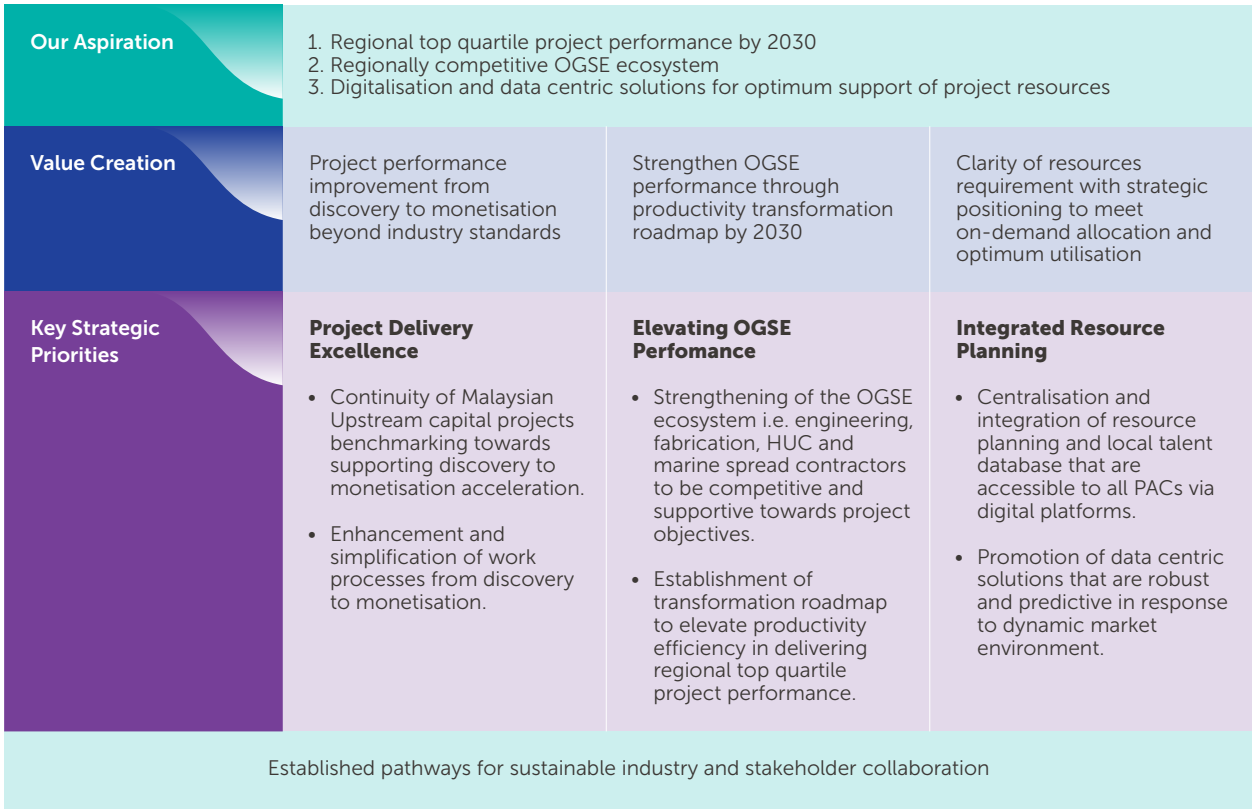


Figure 1: CAPE Blueprint

The key strategic priorities – Project Delivery Excellence, Elevating OGSE Performance, and Integrated Resource Planning – are designed to address current industry challenges, foster resilience, and position Malaysia's OGSE sector as a critical driver of economic progress and technological advancement to uphold Malaysia's goals of producing two million barrels of oil equivalent per day (MMboed) this year and beyond.

Moreover, the emphasis on digital transformation and integrated planning ensures that Malaysian OGSE companies remain adaptable in an ever-evolving global market. The collaborative approach highlighted in the masterplan empowers all stakeholders including businesses, government agencies, and the wider community to contribute meaningfully towards the nation's future. Ultimately, it represents a shared commitment to excellence, innovation, and long-term prosperity for Malaysia's energy industry.

Strategic Priority 1: Project Delivery Excellence

Achieving regional top quartile performance by 2030 requires a step-change in project delivery standards. PETRONAS has initiated benchmarking exercises to assess national upstream performance against global best practices. An example of this initiative includes the 'Discovery to Monetisation' study, which compares life-cycle schedules of Malaysian projects with international norms, identifying gaps and actionable improvements.

As part of this transformation, PETRONAS aspires to achieve a 50-month cycle from discovery to monetisation, significantly reducing project timelines while maintaining quality and safety standards. By implementing recommendations for acceleration and transparency, Malaysian projects can optimise cost and schedule performance, ensuring continuity and success for upstream capital projects. These efforts lay the foundation for faster monetisation and improved competitiveness.

To achieve these ambitious targets, OGSE players must embrace new technologies and automation across the project lifecycle. Digital tools, advanced analytics, and automated processes are critical enablers for improving efficiency, reducing rework, and accelerating delivery. PETRONAS calls on industry partners to invest in innovation and integrate cutting-edge solutions into engineering, fabrication, and installation activities. This focus on technology adoption will not only drive productivity but also position Malaysia's OGSE sector as a future-ready ecosystem capable of meeting global standards.

Strategic Priority 2: Elevating OGSE Performance

The productivity transformation roadmap drives substantial improvements across vital segments such as engineering, fabrication, hook-up and commissioning (HUC), transportation and installation (T&I), and marine spread services. It champions innovation and establishes clear, measurable productivity benchmarks. These actions strengthen cost and schedule competitiveness while bolstering operational resilience.

Advancing Engineering Excellence
Malaysia's engineering sector is evolving to overcome systemic challenges and enhance project delivery performance. By strengthening early-stage planning, the industry can minimise changes during execution, ensuring better cost control and timely delivery.

PETRONAS is planning to conduct an engineering benchmarking assessment and develop Malaysia's Engineering Excellence Roadmap in 2026, focusing on capability development, standardisation, industry alignment, and digital transformation. Benchmarking against global standards is anticipated to provide clearer performance anchors that may guide improvements in productivity, quality, and innovation throughout the engineering value chain.

Elevating Fabrication Yards Productivity Towards Regional Best

Fabrication yards continue to play a pivotal role in the successful execution of upstream projects, and benchmarking efforts have helped identify opportunities to further strengthen productivity and planning. In support of this advancement, PETRONAS introduced the Malaysia Yard Productivity Target (MYPT), aiming for a 30 per cent productivity improvement by 2030. The signing of five Memoranda of Understanding (MoUs) with leading fabricators, Brooke Holding Sdn Bhd (BHSB), Oceanmight Sdn Bhd (OMSB), Muhibbah Engineering Berhad (MEB), Malaysia Marine and Heavy Engineering Holdings Berhad (MHB), and Sapura Fabrication Sdn Bhd (SFSB), reflects strong industry commitment towards elevating national yard transformation.

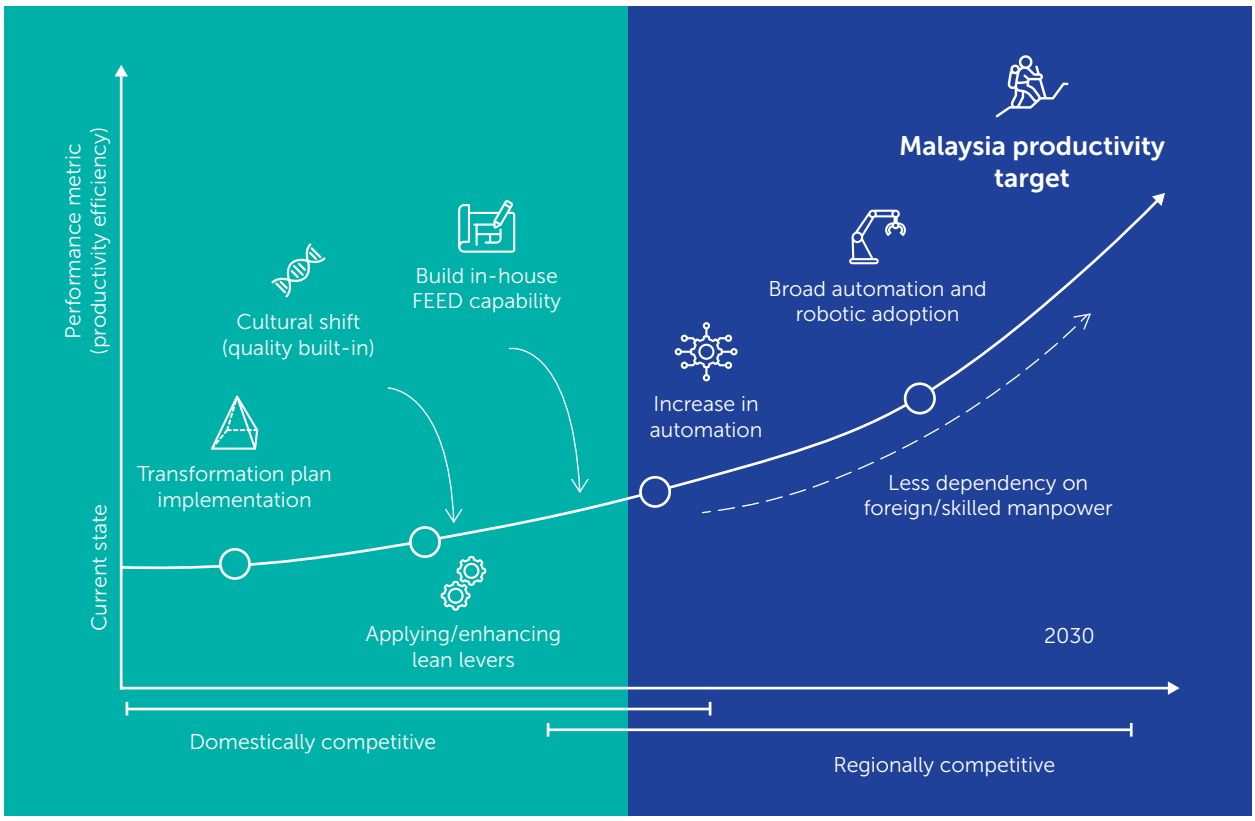


Figure 2: MYPT Implementation Maturity Quantum

05 In the Spotlight

Strengthening Transportation and Installation Ecosystem for Cost Competitiveness

Cost competitiveness in offshore installation is critical, especially for marginal fields. PETRONAS has signed an MoU with a Malaysian transportation and installation (T&I) player to ensure supply security and cost efficiency, reinforcing Malaysia's reputation for reliability. This strategic approach not only ensures a stable and predictable environment for T&I within Malaysia's offshore sector but also fosters collaborative innovation and operational efficiency, enabling marginal field projects to remain viable despite fluctuating market dynamics.

Transforming Hook-Up and Commissioning and Modification, Construction and Maintenance Contractors Towards Excellence

With nearly 100 Hook-Up and Commissioning and Modification, Construction and Maintenance (HUC-MCM) contractors contributing to Malaysia's upstream ecosystem, PETRONAS introduced the HUC-MCM Excellence initiative to strengthen performance consistency and elevate industry capabilities. Through this initiative, PETRONAS established the Malaysia HUC-MCM Efficiency Target, driving structured progress across six key productivity pillars — scaffolder, structural welder, piping welder, piping fitter, electrical and instrumentation (E&I) cable-pulling technician, and painter — with the aspiration to achieve a 30 per cent improvement in performance, productivity, and cost efficiency by 2030 through structured transformation roadmaps.

Transforming Malaysia's Offshore Marine Logistics for Operational Excellence

PETRONAS is planning to elevate offshore marine logistics through a new standardisation and collaboration framework that aims to establish a more cohesive and efficient operating ecosystem. This forward-looking initiative is expected to enhance timely and cost-effective project delivery. Together with other planned digital and operational improvements, it is envisioned to foster stronger alignment between Petroleum Arrangement Contractors (PACs) and OGSE players, streamline future logistics processes, and further position Malaysia as a hub for high-quality, efficient offshore operations.

Strategic Priority 3: Integrated Resource Planning

CAPE Masterplan 2030 promotes data-driven solutions to optimise resource allocation and enhance transparency. Digital platforms such as Integrated Vessel Scheduling (iVS) and digital project management tools (i-PROMPT) enhance overall project lifecycle management, offering improved visibility and control over every phase of execution. These technologies underpin high-impact delivery and foster accountability across stakeholders.

Expanding Skilled OGSE Talent Pool through Collaboration

Talent development remains central to sustaining OGSE competitiveness. PETRONAS is driving strategic initiatives to strengthen Malaysia's OGSE talent pipeline and future-proof workforce capabilities across critical segments.

PETRONAS continues to strengthen Malaysia's energy talent pipeline by advancing structured development pathways across critical trades, including riggers, scaffolders, welders, fitters/joint makers, and blasters and painters. Through five formalised MoUs with leading contractors, EPIC OG Sdn Bhd, Sapura Fabrication Sdn Bhd, HHA Associates Sdn Bhd, Petra Resources Sdn Bhd and Turcomp Engineering Services Sdn Bhd, PETRONAS is fostering a more capable, future-ready workforce. These collaborations have already enabled the enrolment of 97 committed trainees, the enhancement of On-the-Job Training (OJT) syllabi for riggers and welders, and permanent employment opportunities for successful participants. By leveraging HRD Corp Levy and the Industry Specific Program Latihan Madani (ISPLM), PETRONAS has unlocked funding for 60 talents, with the first cohort of welders and blasting and painting trainees completing their training and OJT in 2025.

To accelerate the development of Malaysia's marine workforce, PETRONAS is also partnering with the Malaysia Offshore Support Vessel Owners' Association (MOSVA) to fast-track career progression for local seafarers. This collaboration has delivered the Marine Talent Succession and Acceleration Framework and launched the Seafarer Junior Officer Competency and Development Handbook in December 2025, endorsed by the Malaysia Marine Department for industry-wide adoption. These initiatives collectively build stronger competency foundations and support Malaysian talent in advancing to higher officer ranks.

In support of Malaysia's expanding well decommissioning and intervention activities, PETRONAS has further established the Hydraulic Workover Unit (HWU) Academy under MPM. This strategic initiative aims to cultivate a sustainable, highly skilled HWU talent pipeline, strengthen domestic technical capabilities, and position Malaysia as a regional centre for HWU training and expertise, supporting global operational needs and attracting international investment.

Industry players such as Hibiscus, Shell, and TotalEnergies have pledged support through mentorship and resource contributions, reinforcing the collaborative approach to talent development. Additional MoUs with service providers expand pathways in high-demand trades, while the HWU Academy addresses niche skills for well intervention and abandonment, ensuring Malaysia remains competitive and ready for the future.

05 In the Spotlight

Optimising Floating Production Storage and Offloading and Floating Storage and Offloading Facilities

Floating Production Storage and Offloading (FPSO) and Floating Storage and Offloading (FSO) facilities play a pivotal role in enabling Malaysia's offshore development, particularly in marginal and deepwater fields. As the industry evolves, PETRONAS is exploring opportunities to further enhance cost efficiency and lifecycle performance, ensuring these assets continue to deliver strong value and support long-term offshore growth.

A strategic shift is underway, focusing on optimisation rather than conventional deployment. This includes technical and economic feasibility assessments, lifecycle analysis, and cross-functional collaboration to ensure fit-for-purpose floater utilisation. With around 20 units of FPSO and FSO currently operating in Malaysian waters and even more planned for production, timely deployment and cost-effective acquisition are essential.

The ultimate goal is to establish a comprehensive FPSO and FSO strategy that supports both near-term production and long-term sustainability, leveraging shared efficiencies, competitive yard selection, and partnerships to build a resilient and future-ready offshore ecosystem.

Mapping the CAPE Journey

The CAPE Masterplan 2030 recognises the cyclical nature of the oil and gas industry, emphasising the need for ongoing innovation and revitalisation to ensure sustainable sector growth. As illustrated in Figure 3 below, the CAPE Masterplan 2030 journey is mapped through distinct stages, each designed to address evolving challenges by driving transformation and fostering resilience. These phases celebrate past milestones and set clear directions for future enhancements, ensuring the industry's continued ability to adapt, innovate, and thrive in a dynamic environment.

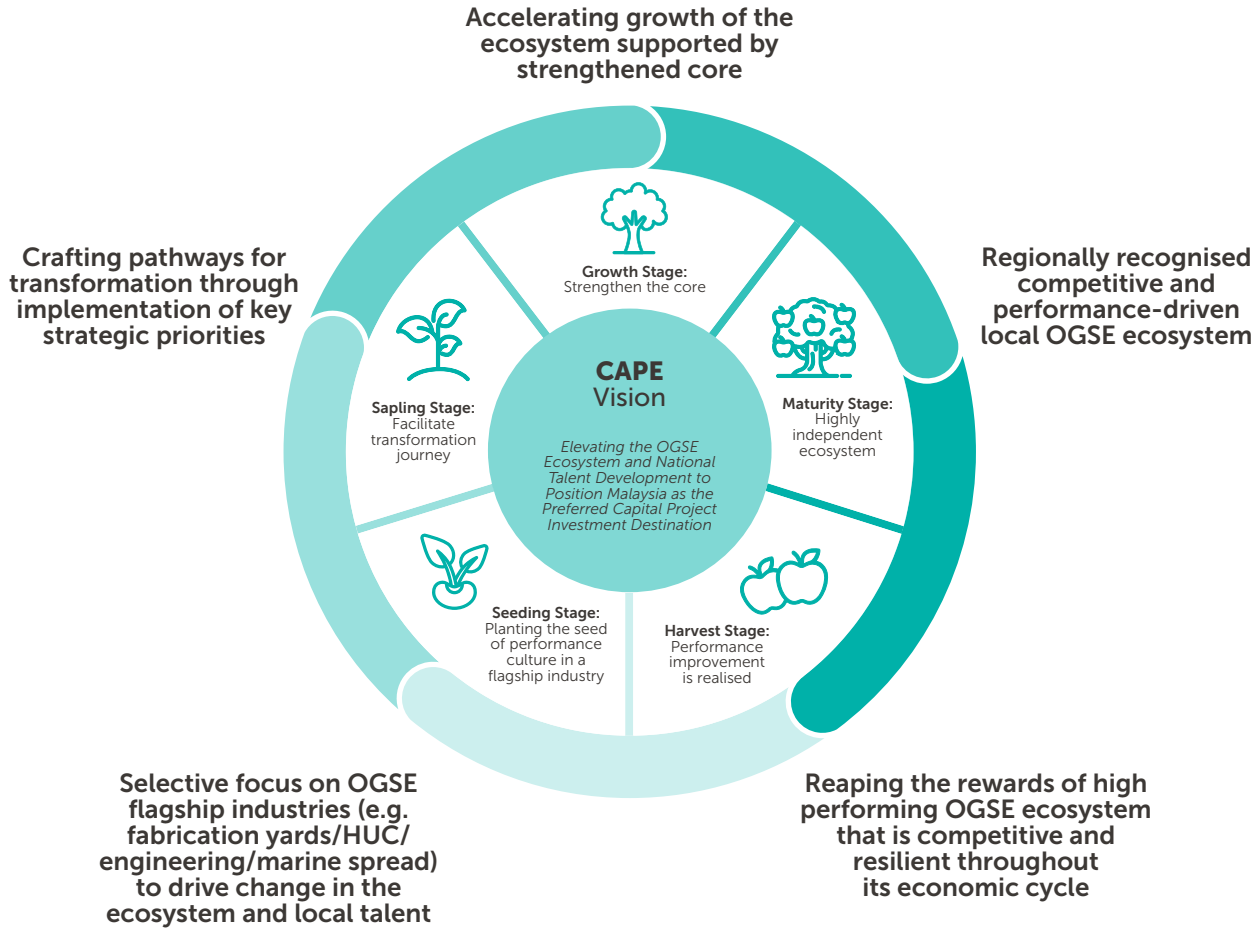


Figure 3: CAPE Masterplan 2030 Journey

By 2026, comprehensive transformation blueprints — covering engineering, fabrication, marine logistics, and digital integration — along with rigorous productivity monitoring will accelerate progress across the entire OGSE value chain. By 2030, Malaysia aims to achieve a 30 per cent productivity improvement and regional top-quartile performance, positioning its OGSE sector as a competitive, future-ready ecosystem.

05 In the Spotlight

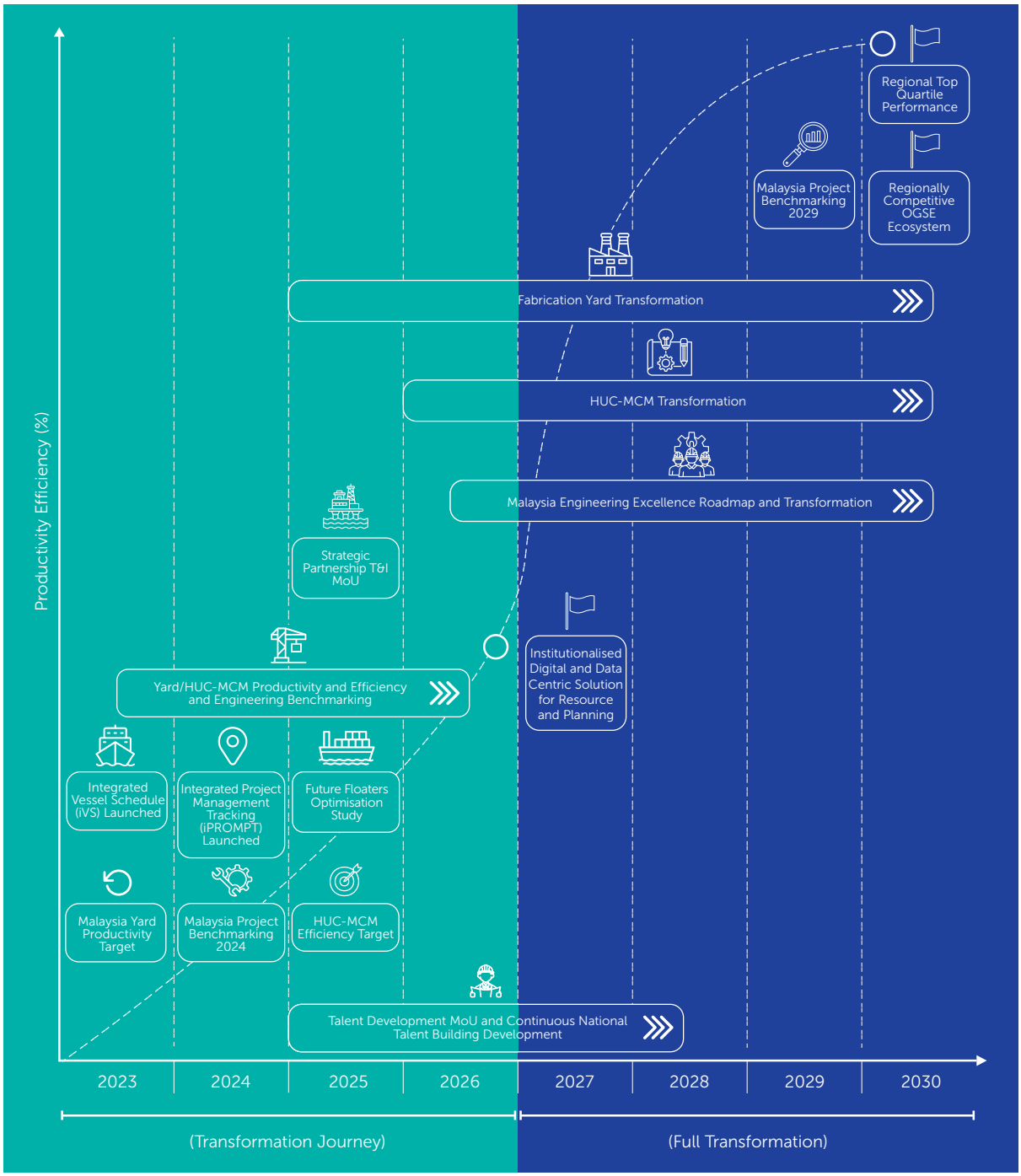


Figure 4: CAPE Roadmap

Collectively Progressing Towards a Resilient Future

CAPE is more than a masterplan — it reflects a shared commitment to excellence, innovation, and sustainability. Through strategic partnerships, digital integration, and talent development, Malaysia is charting a course towards becoming the preferred destination for capital project investments. These efforts not only strengthen a future-ready, dynamic OGSE ecosystem but also contribute towards PETRONAS' aspiration to become an energy superstore by 2035.

Harnessing Innovation Across the Energy Value Chain

The energy sector is currently navigating a period of unprecedented complexity – a polycrisis shaped by economic volatility, geopolitical tensions, climate imperatives, and rapid technological disruption.

For PETRONAS, these overlapping challenges impact supply chains, market stability, and sustainability goals. The shift to cleaner energy, coupled with unpredictable markets and evolving regulations, demands agility and foresight. At the same time, competition in emerging low-carbon solutions and digital innovation is accelerating.

To remain relevant and competitive, PETRONAS must continuously innovate – leveraging new ways of working, advanced technologies, and collaborative partnerships to future-proof its business and secure long-term resilience.

Creating and Capturing New Value

PETRONAS' innovation scope spans three core areas aligned with its business coverage:

1. Enhancing its integrated oil and gas value chain to meet growing energy demand while reducing greenhouse gas (GHG) emissions
2. Capturing new growth opportunities in emerging sectors such as Specialty Chemicals, Bio-based Value Chains, Carbon Capture and Storage (CCS), Renewable Energy, Hydrogen, and Green Mobility
3. Driving operational excellence and innovation to achieve the company's ambition of Net Zero Carbon Emissions (NZCE) by 2050

These areas translate to the development of a broad spectrum of solutions including digital platforms, automation and development of AI-powered solutions to boost productivity and efficiency, engineering solutions to enhance operational performance as well as research and development (R&D) on technology in strengthening core business and creating new offerings.

Innovation at PETRONAS is a shared responsibility where business units are expected to contribute within their respective areas, complemented by innovation teams such as R&D programmes, internal incubators, and venture builders, with oversight at Group level to ensure measurable outcomes and alignment with business priorities.

To accelerate innovation and deliver value, PETRONAS adopts various approaches which include building or developing in-house solutions, buying proven technologies from external providers, as well as partnering and collaborating with OGSE companies, start-up, industry players, academia, or other partners to co-create solutions.

Through these approaches, PETRONAS is able to address operational challenges and achieve excellence in productivity, efficiency, and decarbonisation, while also opening new growth opportunities.

05 In the Spotlight

Delivering Impact Through Innovation

Collaboration with OGSE players is important to PETRONAS' innovation ecosystem. Multiple platforms facilitate this partnership, including Innovation Gateway @ PETRONAS (iG@P), a technology marketplace connecting OGSE providers with PETRONAS' needs; FutureTech, a start-up accelerator for disruptive technologies; Standardised Work and Equipment Categories (SWEC), a vendor registration system ensuring quality and compliance; R&D collaboration to co-develop new technologies and solutions; and SEEd.Lab, a social enterprise incubator nurturing ventures that address sustainability challenges.

PETRONAS' commitment to innovation is demonstrated through these initiatives that deliver tangible impact.

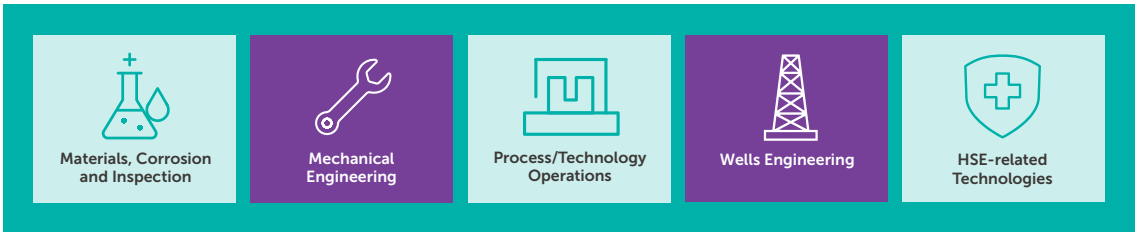
Looking ahead, innovation will continue to shape PETRONAS' priorities. By cultivating a culture of creativity, embracing new technologies, and building strong partnerships, PETRONAS is well-positioned to navigate the complexities of the energy transition, deliver sustainable growth, and create lasting value for all stakeholders.

Impact Highlights

1. Innovation Gateway @ PETRONAS (iG@P)

Since the launch of iG@P in 2017, the platform has achieved:

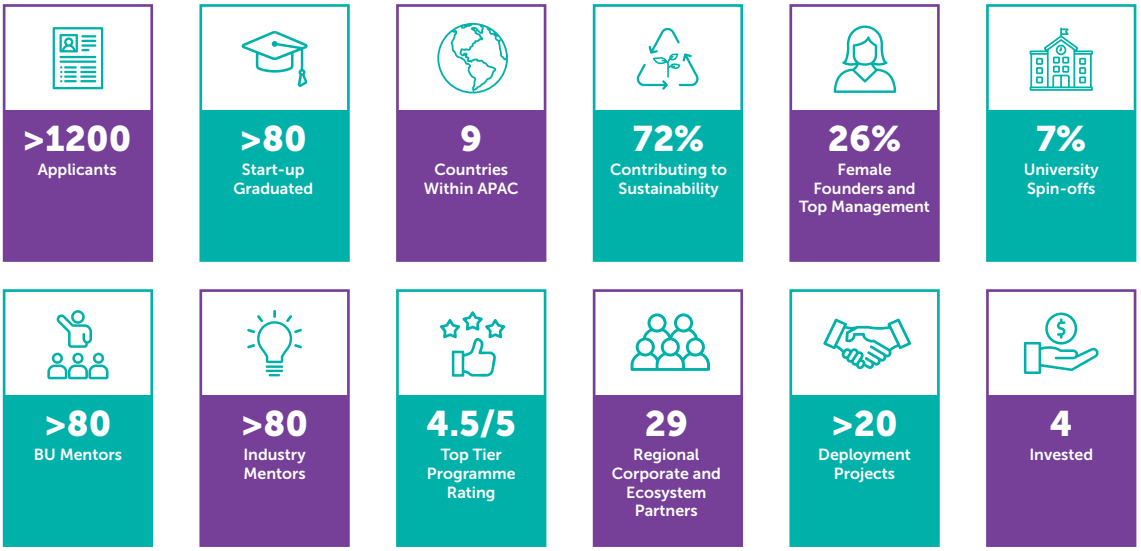
Technologies were submitted across various categories, primarily relating to:



For more information please visit https://www.petronas.com/innovation-petronas/

2. FutureTech

Since its launch in 2019, FutureTech has achieved the following milestones:



To date, the programme has supported more than 80 start-up across four cohorts. Over 160 mentors from PETRONAS and its network of over 29 corporate and ecosystem partners have been involved in the programme, providing valuable domain expertise and mentorship to the start-up.

For more information please visit https://www.petronas.com/ventures/futuretech

PETRONAS Activity Outlook

06

6.1 Outlook Methodology

Scope of Coverage
This section provides the activity outlook for core activities, serving as leading indicators to many other supporting services. The interdependencies create multiplier effects across the value chain.

For information related to Upstream, this report covers the activity outlook for Malaysia, including activities from PETRONAS Group of Companies and other Petroleum Arrangement Contractors (PACs). Activities governed under the Malaysia-Thailand Joint Development Area (MTJDA) are excluded from this report.

For information related to Downstream, and Gas and Maritime, this report covers the activity outlook for PETRONAS Group of Companies in Malaysia only.

Time Horizon
The report provides information on activities within a three-year period, from 2026 to 2028. In oil and gas, activities typically would take two to three years to be executed. However, for the purpose of this report, the activity outlook is counted once based on the year of actual or planned contract award dates. For example, activity outlook for Offshore Fabrication is based on the year of planned award date instead of the first steel-cut date. Similarly, plant turnaround activities beginning in December 2026 and ending in January 2027 are only accounted for once, i.e. in 2026.

Outlook Overview
To sustain domestic production at close to two million barrels of oil equivalent per day, PETRONAS will continue to invest in exploration, deepwater development, enhanced oil recovery (EOR), and new Production Sharing Contracts (PSCs), awarded under the Malaysia Bid Round 2024. Upcoming activities are set to unlock additional reserves, strengthening the nation's energy security while generating new opportunities for technical service providers and innovative solutions.

For Upstream business, in the short term (2026–2028), PETRONAS will focus on revitalising Malaysia's exploration and production landscape to strengthen domestic energy security. This includes intensifying exploration in new and mature areas, accelerating appraisal of recent discoveries, and ensuring timely maturation of resources to sustain base production. Key projects such as Belud, Kurma Manis, and Sepat will play a pivotal role in meeting production targets.

Alongside operational efficiency, Upstream is advancing decarbonisation efforts in line with the Net Zero Carbon Emissions 2050 Pathway by progressing carbon capture and storage (CCS) hubs as a strategic solution and new revenue stream – positioning Malaysia as a regional CCS hub. Looking ahead to the medium and long term, Upstream is committed to safeguarding production supply while embedding decarbonisation across the value chain.

06 PETRONAS Activity Outlook

The business will reshape operations to remain competitive in a low-price environment, ensuring projects deliver positive returns even under challenging market conditions. Financial discipline, accelerated cash generation, and capital efficiency will be key priorities in delivering low-cost, lower-carbon, and high-margin barrels. These ambitions will be driven by innovation, technology deployment, and strong collaboration with industry partners, ensuring sustainable growth, value creation, and resilience for the future.

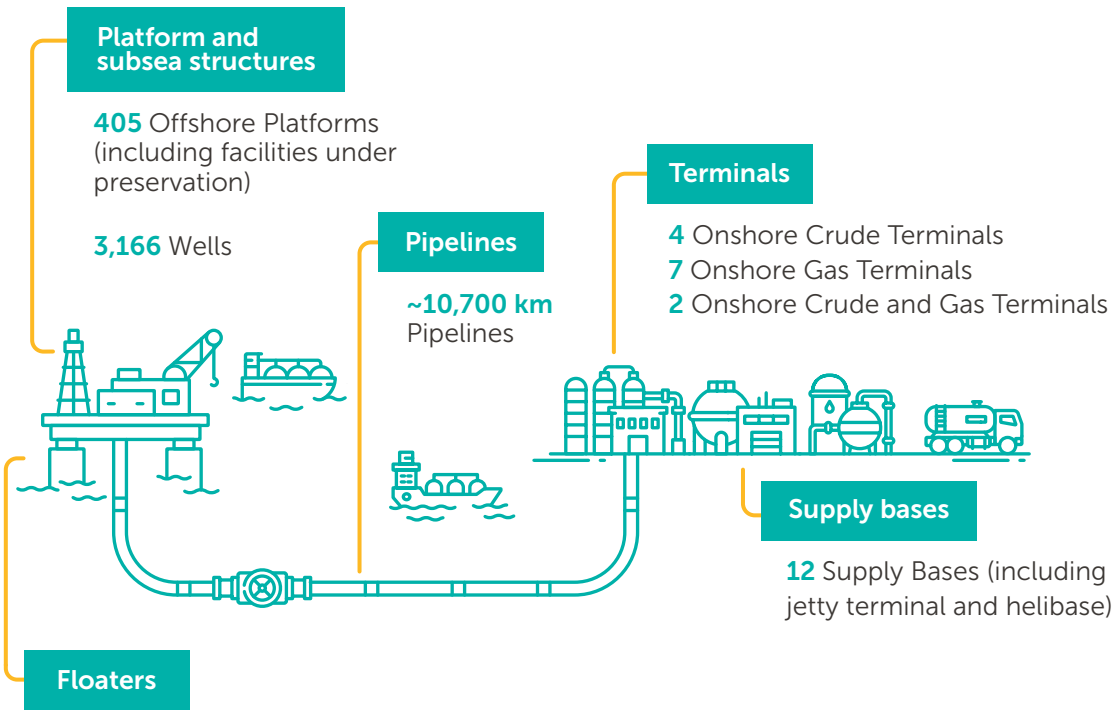
For Downstream business, the short-term goal is to enhance operational efficiency and reliability to capitalise on global petroleum market recovery. The business aims to remain resilient amid chemical industry volatility by optimising production, strengthening supply chains, and expanding product offerings. Over the medium to long term, the focus shifts to achieving operational and commercial excellence across refineries and chemical plants, ensuring safe and reliable operations, and building a diversified energy mix through investments in advanced processing technologies and infrastructure. These efforts underpin PETRONAS' transition towards future energy solutions, enabling PETRONAS to adapt to evolving market dynamics while maintaining leadership in the downstream sector.

For Gas and Maritime business, the short-term outlook is to focus on Malaysia's energy supply by leveraging existing infrastructure and liquefied natural gas (LNG) facilities, ensuring reliable gas delivery and power generation. It will optimise operations at Bintulu and floating liquefied natural gas (FLNG) units while exploring value-added options such as converting vessels into floating storage units. In the medium to long term, focus areas include transforming the portfolio for sustainability by expanding regasification, adding a third FLNG facility, upgrading pipelines, and exploring gas-to-power and energy transition investments. Decarbonisation efforts will accelerate through green shipping technologies and alternative fuels, targeting a 50 per cent cut in shipping greenhouse gas (GHG) intensity by 2030, positioning gas as the destination fuel for the energy transition.

6.2 Upstream Outlook

Business Overview

The role of Upstream business function in Malaysia is to intensify oil and gas exploration, development and monetisation to serve domestic energy demands, promote investment opportunities, prioritise commercial viability, maximise the integrated value chain, and sustain the vibrancy of the domestic oil and gas ecosystem.



Platform and subsea structures

405 Offshore Platforms (including facilities under preservation)

3,166 Wells

Pipelines

~10,700 km Pipelines

Terminals

4 Onshore Crude Terminals
7 Onshore Gas Terminals
2 Onshore Crude and Gas Terminals

Supply bases

12 Supply Bases (including jetty terminal and helibase)

Floaters

8 Floating Production Storage and Offloading (FPSOs)
9 Floating Storage and Offloading (FSOs)
5 Mobile Offshore Production Units (MOPUs)
1 Floating Production System (FPS)
1 Single Point Anchor Reservoir (SPAR)
1 Tension-Leg Platform (TLP)
2 Floating Liquified Natural Gas (FLNGs)

Short-term Outlook

In the short term between 2026 and 2028, Upstream will continue to revitalise the exploration and production (E&P) activities landscape in Malaysia.

Its strategy of supporting domestic energy security includes intensifying exploration activities of new plays and in matured areas, while expediting appraisal programmes for recently discovered resources to replenish resources and sustain production.

Timely maturation of resources, development of reserves, and attaining optimum recovery from PETRONAS' producing assets remain vital to deliver base production. Projects such as those at the Belud, Sepat and Kurma Manis clusters are among the key projects undertaken, which are instrumental for the nation's energy security.

While Upstream remains focused on growing resources and meeting production targets at lower costs and lower emissions, it is also making significant progress in decarbonising operations in line with PETRONAS' Net Zero Carbon Emissions (NZCE) by 2050 Pathway. Bujang, Inas, Guling, Sepat, and Tujoh (BIGST) project is one of the projects aimed to achieve those targets by embedding carbon abatement solution to ensure lower carbon energy security for Peninsular Malaysia.

Additional projects are in the pipeline to realise new values and contribute towards lower carbon goals.

Along with this, Upstream aspires to establish CCS solutions as a new revenue stream and position Malaysia as a regional CCS hub.

Internationally, the Upstream Business will add value to its Upstream portfolio by monetising high-value and low-carbon intensity resources, and expanding its unconventional gas presence in Canada and Abu Dhabi. These efforts are aimed at reinforcing long-term value creation and energy resilience.

Medium to Long-term Outlook

Looking forward, Upstream is committed to safeguarding production supply by meeting production targets and maximising value domestically. At the same time, the Business is dedicated to decarbonising every step of the value chain.

The Upstream Business is reshaping the way it operates to remain competitive in a low-price environment. Projects are designed to deliver positive returns even under challenging market conditions, with a focus on maintaining financial discipline, accelerating cash generation, and ensuring capital efficiency.

The Upstream Business intends to achieve these through innovation, technology deployment, and close collaboration with industry partners in Malaysia and abroad, laying the foundation for PETRONAS to be a trusted and integrated energy solutions provider by 2035.

06 PETRONAS Activity Outlook

Lebah Emas-1 Marks a New Chapter for Matured Fields

PETRONAS has made a landmark discovery with the Lebah Emas-1 well, located offshore Peninsular Malaysia in Block PM6/12. Drilled between May and June 2025, this wildcat well revealed a new geological play near the mature Duyong field, challenging long-standing perceptions of Malaysia's upstream potential. The find not only adds valuable hydrocarbon resources to the nation's reserves but also showcases PETRONAS' continued commitment to innovation and exploration excellence. This achievement underscores Malaysia's relevance in the global energy landscape and reflects PETRONAS' strategic focus on unlocking new opportunities within domestic waters.

The implications of Lebah Emas extend beyond national borders. The geological characteristics of the discovery mirror similar structures in Vietnam, positioning PETRONAS as a leader in regional exploration expertise. As part of its broader strategy, PETRONAS continues to attract global interest through initiatives like the Malaysia Bid Round 2025, reinforcing the country's role as a vibrant and competitive exploration hub. Lebah Emas stands as a testament to PETRONAS' resilience, technical capability, and vision for sustainable energy development.

One Step Closer to Gas Monetisation with Bindu

PETRONAS Carigali Sdn Bhd (PCSB) has successfully commenced hydrocarbon production from the Bindu Field, located 210 kilometres offshore Terengganu, Malaysia. This milestone marks the final greenfield development under the current Gas Production Sharing Contract (GPSC) terms. The project features a newly commissioned wellhead platform connected via a 62-kilometre subsea pipeline to the Guntong E production hub.

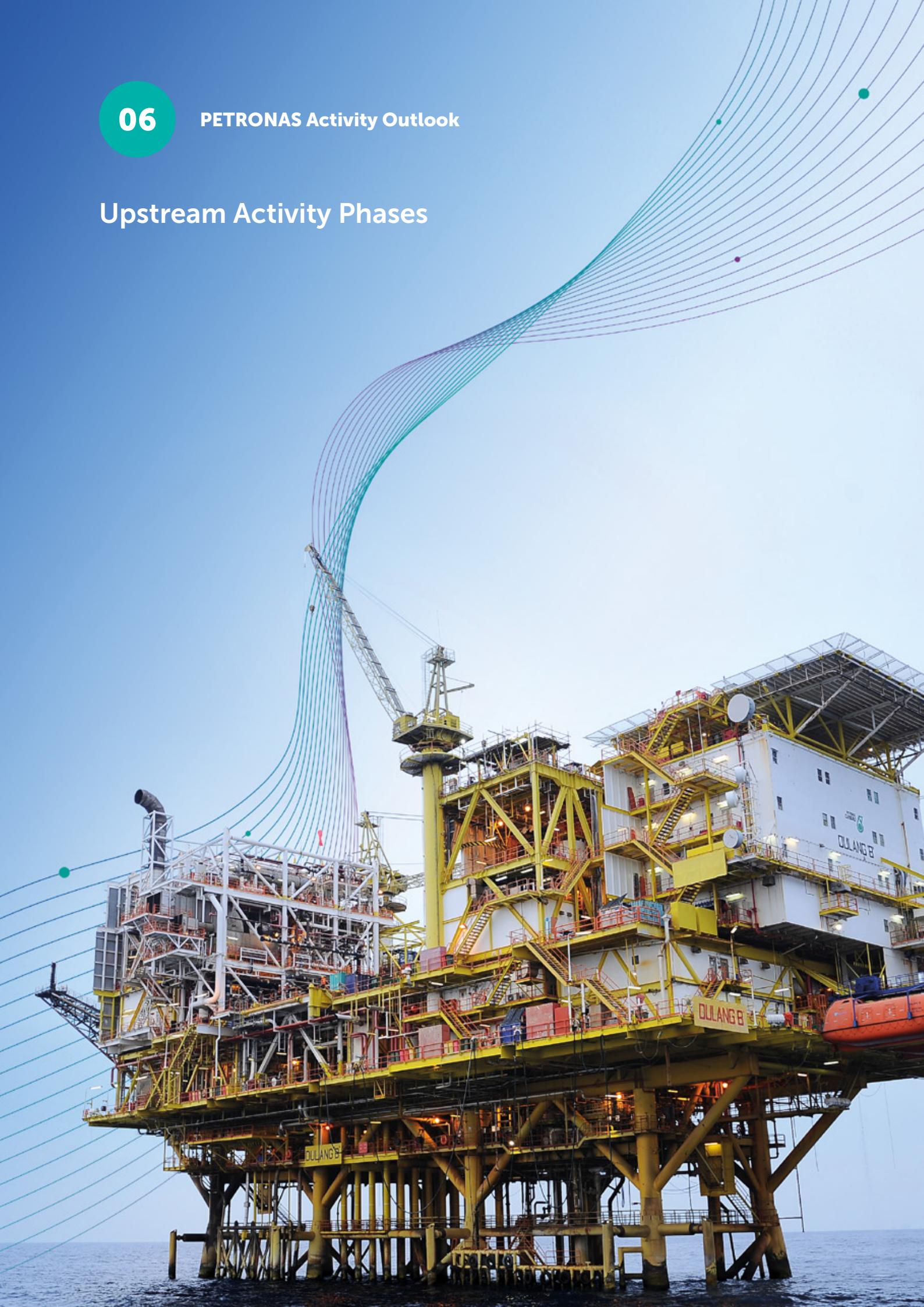
Designed to operate unmanned and powered by solar energy, the platform reflects PETRONAS' commitment to innovation and sustainability. At peak production, the field is expected to deliver 75 million standard cubic feet of gas per day from two wells.

This achievement not only demonstrates PCSB's operational readiness as a GPSC operator but also reinforces its technical capabilities and strategic focus on domestic gas monetisation. The Bindu Field plays a vital role in meeting Peninsular Malaysia's energy needs, with GPSC operations supplying nearly half of the region's gas demand.

By leveraging local fabrication and renewable energy integration, PETRONAS continues to drive value creation while upholding high standards of safety and efficiency. The success of Bindu underscores PETRONAS' leadership in upstream development and its dedication to maximising national resource potential.

06 PETRONAS Activity Outlook

Upstream Activity Phases



Upstream Outlook
Upstream Activity Phases

6.2

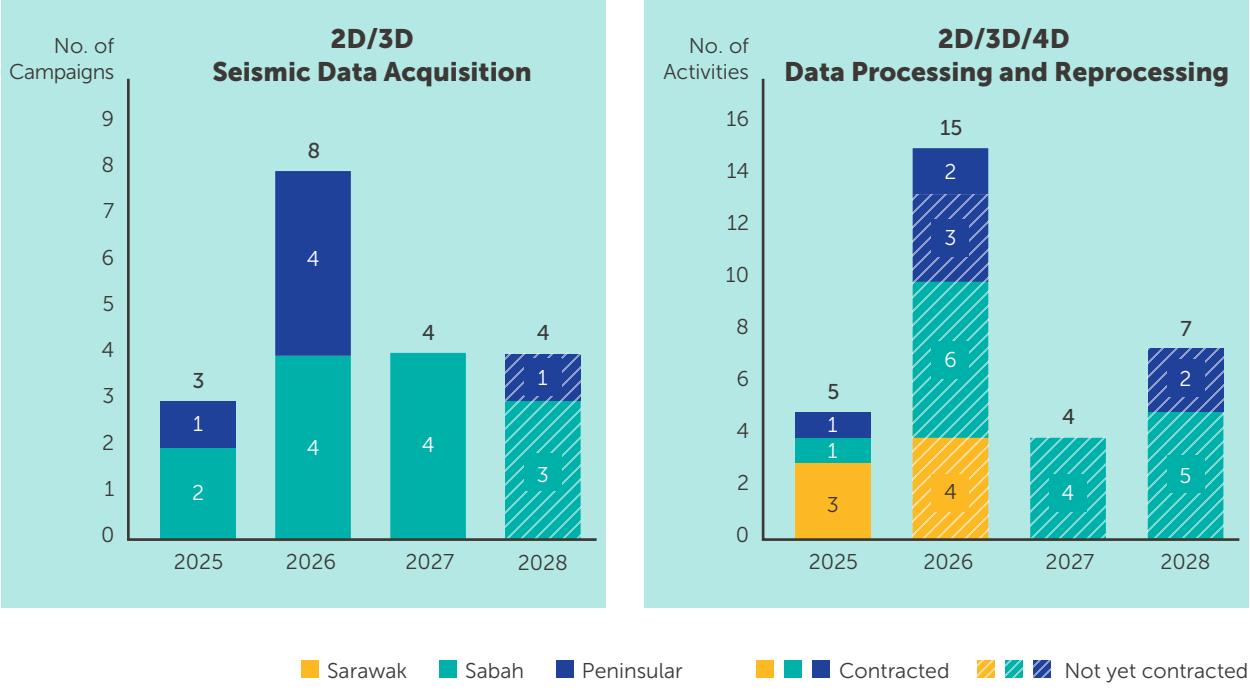
Exploration	Development/ Project	Production/ Operations	Abandonment
Geological and Geophysical			
Oil Country Tubular Goods			
Drilling/Wells Services			
Drilling Rigs			
	Linepipe		
	Gas Turbines		
	Fabrication and Construction		
	Transportation and Installation		Transportation and Installation
	Hook-Up and Commissioning		
	Subsea Structures		
	Floating Production Systems		
	Underwater Services		
		Offshore Maintenance, Construction, and Modification	
		Pipeline In-line Inspection	
Offshore Helicopter Services			
Offshore Support Vessels			
Supply Base			
Chemicals			
		Terminal Turnaround	
			Decommissioning

A. Geological and Geophysical

Geological and Geophysical (G&G) involves exploring and analysing the earth's subsurface to locate, evaluate, and manage natural resources such as oil and gas.

The related services cover a range of specialised activities including G&G studies, seismic data acquisition and processing/reprocessing services, marine site investigations, offshore surveying and positioning, geochemistry analysis, core analysis, and more, all aimed at providing detailed insights into subsurface conditions for resource exploration and development.

Activity Outlook

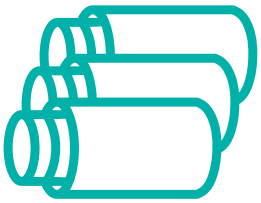


Key Contract List

Contract Name	Contract Duration	Scope
Integrated — Upstream		
Umbrella Contract for the Provision of Marine Streamer and Ocean-Bottom Seismic (OBS) for 2D & 3D/4D Seismic Data Acquisition Services for Petroleum Arrangement Contractors (PACs)	2022 – Q4 2027	Conduct 2D/3D/4D marine streamer and ocean-bottom seismometer (OBS) seismic data acquisition
Individual — Upstream		
Umbrella Contract for the Provision of Seismic Data Processing/Reprocessing Services	2021 – Q2 2026	Conduct and deliver high quality seismic product (stacks, gathers, velocities, and other activities) via reprocessing/processing
Provision of Marine Site Investigation Survey Services	2023 – Q2 2026	Carry out the marine site investigation survey and associated activities
Provision of Offshore Surveying and Positioning Services	2023 – Q3 2026	Cover activities of rig move and positioning, integrated positioning services for vessels and landing craft tank (LCT) buoy deployments/ installation, and other associated activities
Provision of Geochemistry Analysis Services	2023 – Q3 2026	Comprehensive geochemistry analysis which includes base analysis for downhole gas samples and additional analysis
Provision of Geological and Geophysical (G&G) Studies	2024 – Q2 2029	Conduct G&G studies such as prospect maturation, fieldtrip and G&G data interpretation, stratigraphic modelling, structural analysis, seismic quantitative interpretation (QI) and other activities
Provision of Geophysical, Geomatics, Health, Safety & Environment (HSE), Rock Physics & Technical Auditor Consultancy Services	2024 – Q3 2027	Provide specialised consultancy services in geophysics, geomatics, HSE, rock physics, and technical auditing to support operations, ensuring contractor's compliance with specifications and standards
Provision of Pressure-Volume-Temperature (PVT), Fluid & Flow Assurance Analysis and Chemical Tracer Services	2024 – Q1 2029	Conduct PVT analysis, fluid and flow assurance sampling and analysis, and design chemical tracer injection programmes, including providing expert consultancy across the scope

B. Oil Country Tubular Goods

Oil Country Tubular Goods (OCTG) are specialised tubulars used in the exploration and production of oil and gas. These tubular goods are essential to the drilling and well construction as they provide a conduit for the extraction and transportation of crude oil and natural gas from wellbore to the surface.

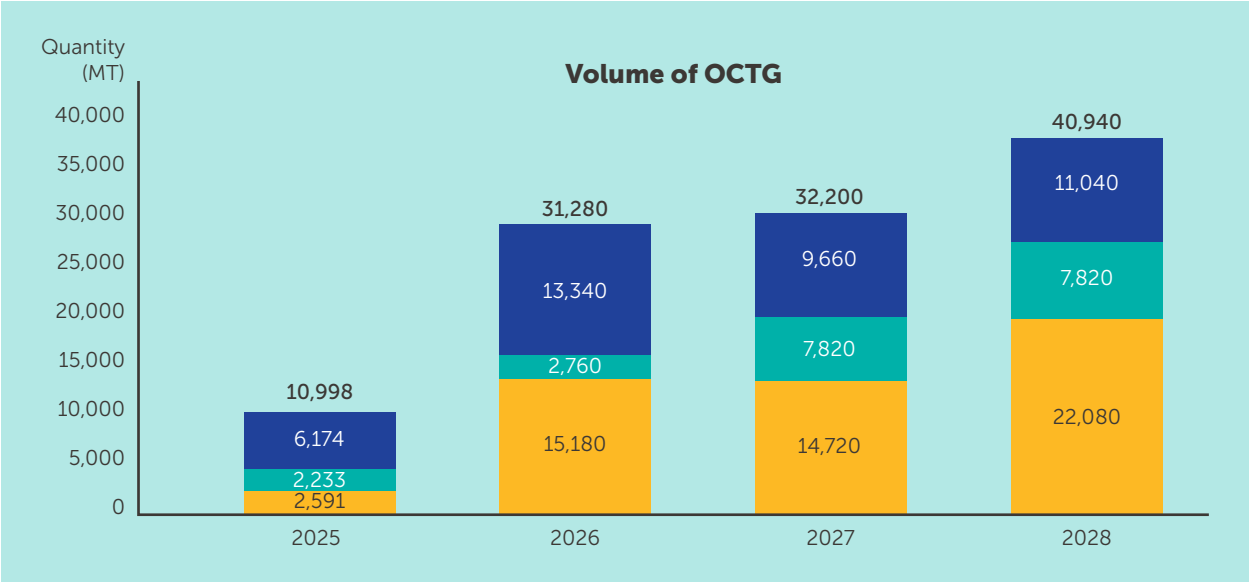


Application:
OCTG refers mainly to conductor, casing, and tubing which are used in the construction of oil and gas wells.

Conductor and casing:
Tubular that is lined in the wellbore to keep the hole from collapsing during drilling and throughout its lifespan.

Tubing:
Tubular that is inserted in the well during well completion operations and serves as the conduit for extracting the oil and gas to the surface. OCTG tubulars are normally joined to threaded connectors. These connectors come in various sizes and thread profiles depending on the use.

Activity Outlook



Note:
OCTG demand is derived based on the number of development wells. The final demand may vary, as surplus material may be utilised.

Key Contract List

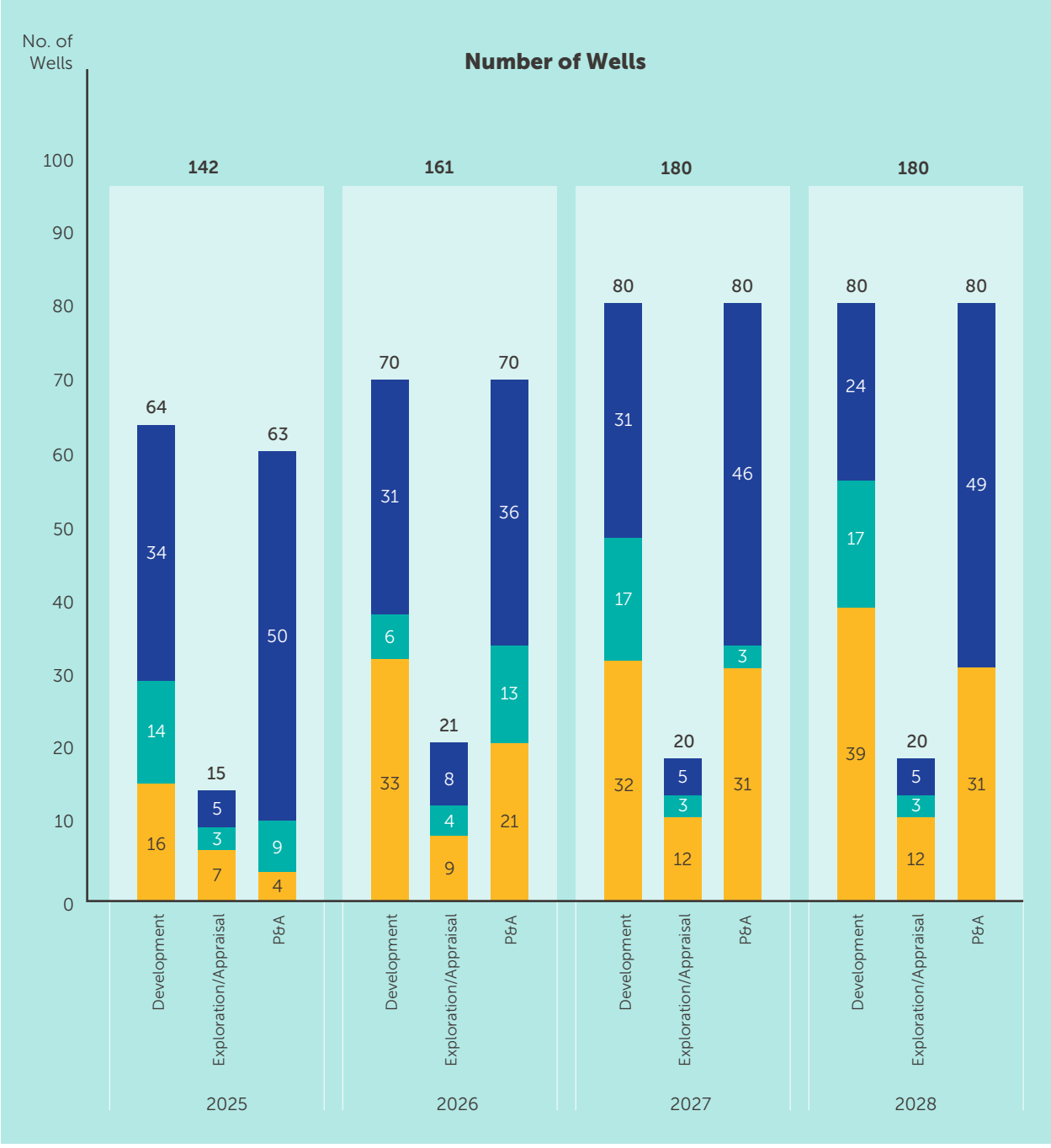
Contract Name	Contract Duration	Scope
Integrated — Upstream		
Supply and Delivery of Oil Country Tubular Goods (OCTG) and Conductor with Connectors (CWC)	2023 – Q4 2032	OCTG

C. Drilling/Wells Services

Wells Services

Exploration	Search for hydrocarbon resources in new and existing fields. Includes activities such as seismic surveys, drilling of exploration wells, and data analysis to determine presence of hydrocarbons.	Key services i.e. directional drilling (DD)/measurement while drilling (MWD)/logging while drilling (LWD), cementing, fluids, completion, drilling bits, electric logging, fishing, mudlogging, tubular handling, well testing, wellhead, and tree
Appraisal	Further evaluation to assess the size, quality, and commercial viability of the discovered reservoir. Additional appraisal wells may be drilled to gather more data.	
Development	This phase begins after appraisal result is positive and commercially viable. During this stage, infrastructure and facilities are constructed, transported and installed to extract the oil and gas from reservoir.	
Intervention Workover	Interventions or maintenance performed on the production wells to enhance or restore their productivity. Operations may include workover, well stimulation, repair downhole equipment, or other well performance remedial works.	Key services i.e. coiled tubing unit, electric logging, slickline, cementing, fishing, and braided line
Abandonment	This phase includes plugging and abandoning (P&A) the well, removing the equipment, and restoring the site to its original condition. Decommissioning of wells, platforms, pipeline, and other infrastructure once oil and gas fields mature and production declines.	

Activity Outlook



Key Contract List

Contract Name	Contract Duration	Scope
Integrated — Upstream		
Pan Malaysia Umbrella Contract for the Provision of Directional Drilling (DD)/ Measurement While Drilling (MWD)/Logging While Drilling (LWD) (DD/MWD/LWD) Equipment and Services for Petroleum Arrangement Contractors (PACs)	2025 – Q1 2026	DD/MWD/LWD tools and personnel to perform planning, engineering, inspecting, monitoring, and directionally controlling the drilling of exploration, appraisal, and development wells
Pan Malaysia Integrated Contract for the Provision of Drilling Fluids Equipment & Services for Petroleum Arrangement Contractor (PACs)	2023 – Q3 2028	Drilling fluids including barites, equipment, and services
Pan Malaysia Integrated Contract for the Provision of Cementing Equipment & Services for Petroleum Arrangement Contractor (PACs)	2023 – Q3 2028	Cementing pumping equipment, downhole tools, and associated services
Pan Malaysia Integrated Contract for the Provision of Drilling Waste Management (Solid Control) Equipment & Services for Petroleum Arrangement Contractor (PACs)	2023 – Q3 2028	Solid control equipment and associated services for drilling waste management
Pan Malaysia Integrated Contract for the Provision of Drilling Waste Management (Solid Control) Equipment & Services for Petroleum Arrangement Contractor (PACs)	2022 – Q2 2027	Upper completion and intelligent well completion system
Provision of 5K Surface Wellhead and Christmas Tree Equipment, Tools & Services	2022 – Q3 2027	Provide complete set of 5K surface subsea wellhead equipment, tools, and services
Umbrella Contract for the Provision of Mudlogging Equipment and Services for Petroleum Arrangement Contractors (PACs)	2022 – Q4 2027	Geological or formation evaluation such as evaluation logs, gas ratio log, composite master logs, plots, and prints including real time data processing/transmission system

Contract Name	Contract Duration	Scope
Integrated — Upstream		
Provision of Mud Cooler for Petroleum Arrangement Contractors (PACs)	2023 – Q2 2028	Mud cooler equipment package and services to reduce the temperature of drilling fluid. Full filtration equipment package and services to filter the completion fluids
Pan Malaysia Contract for Provision of Liner Hanger Equipment and Services for Petroleum Arrangement Contractors (PACs) Operators' Drilling Programmes	2023 – Q4 2028	Conventional liner hanger and expandable liner hanger equipment and services
Panel Contract for the Provision of Drill Bits, Specialised Bits, Hole Enlargement Tools and Associated Tools/Services for Petroleum Arrangement Contractors (PACs)	2024 – Q1 2029	Drill bits, specialised bits, hole enlargement tools, and associated tools/services
Pan Malaysia Umbrella Contract for the Provision of Integrated Well Continuity Services for Intervention, Workover and Abandonment for Petroleum Arrangement Contractor (PACs)	2024 – Q4 2029	Integrated well intervention and completion services. Filtration equipment package and services to filter the completion fluids to the required specifications
Provision of Filtration Equipment & Services	2023 – Q2 2028	Filtration equipment package and services to filter the completion fluids to the required specifications
Individual — Upstream		
Provision of Fishing Equipment and Services	2025 – Q3 2026	Fishing equipment and services for conventional wells
Provision of Tubular Handling, Conductor Installation and Slot Recovery Equipment and Services for Drilling Programmes	2022 – Q1 2026	Tubular running, conductor driving, and slot recovery services

Key Contract List

Contract Name	Contract Duration	Scope
Individual — Upstream		
Provision of Wellbore Gyroscopic Surveying & Services	2024 – Q4 2029	Wellbore gyroscopic surveying equipment and services including gyro while drilling and borehole survey for exploration, appraisal, and development wells
Provision of Managed Pressure Drilling Equipment and Services	2025 – Q2 2030	Provision of managed pressure drilling — constant bottom hole pressure and pressurised mud cap drilling packages and personnel
Provision of Electric Wireline Logging (EWL) Open Hole Services	2024 – Q3 2027	To provide open hole EWL equipment and services for exploration, appraisal, development, production, workover, and P&A wells
Provision of Electric Wireline Logging (EWL) Cased Hole Services	2025 – Q2 2028	EWL cased hole equipment and services for development, production, and P&A including workover, completion, well intervention, and data acquisition
Provision of Slickline Equipment and Services	2025 – Q2 2030	Slickline services for non-rig and/or rig assisted operations (including slickline fishing, braided line), well completion activities, slickline surveys, memory logging, and remedial well intervention
Provision of Downhole Well Integrity Evaluation	2025 – Q2 2026	Provide well leak detection including personnel and equipment including surface diagnostic services
Provision of Cement Evaluation Services	2024 – Q1 2027	Evaluation of cement quality and conditions behind casing with logging application for deployment inside existing completion tubing

Contract Name	Contract Duration	Scope
Individual — Upstream		
Provision of Well Leak Repair Equipment and Services (Sealant Based)	2024 – Q1 2029	Well leak rectification services including personnel, product, and equipment
Provision of Casing Accessories and Auxiliary Cementing Equipment and Services	2024 – Q3 2029	For cementing and remediation applications for drilling, and P&A of wells
Provision of Project Management Services (Exploration)	2023 – Q3 2026	Manpower for technical and non-technical position for wells and exploration
Provision of Electric Submersible Pump (ESP) Equipment and Services	2023 – Q1 2026	Design, supply, install, and retrieve if required, and maintenance, monitoring, and troubleshooting of the ESP system
Provision of Gas Lift Valves (GLV) & Insert Strings Equipment, Accessories and Services	2023 – Q1 2026	Provision of GLV equipment and services
Provision of Drilling Rig Integrity and Inspection for Program	2025 – Q3 2030	Scope includes inspection of equipment and systems installed/planned to be installed on the drilling rig
Provision of Maintenance for Permanent Downhole Gauge (PDG)	2021 – Q4 2026	Supply complete PDG unit including surface equipment and software
Provision of Sand Control & Stimulation Equipment and Services	2022 – Q1 2027	Provision of sand control downhole tools, surface pumping services, and mechanical retrievable packer, and bridge plug
Provision of Surface Sand Management	2023 – Q1 2028	Perform sand management monitoring and study. Scope includes rental, purchase, and maintenance of surface sand equipment

D. Drilling Rigs

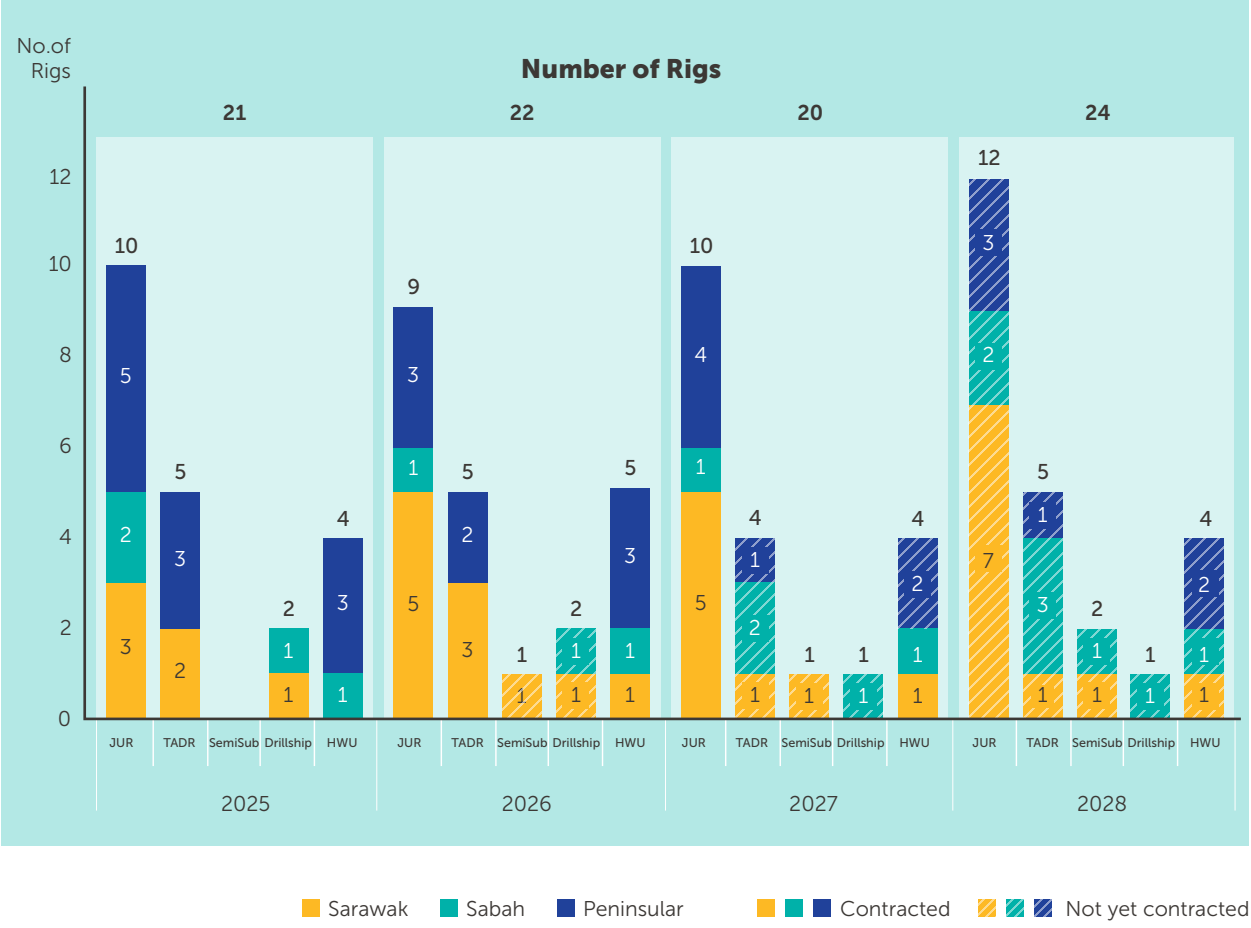
An activity outlook is provided for the different types of rigs operating in Malaysia i.e. Jack-up Rigs (JURs), Tender Assisted Drilling Rigs (TADRs), Semi-Submersible Rigs, and Drillships.

Workover refers to any well intervention process which uses invasive techniques to repair the well.

The hydraulic workover units (HWUs) are utilised to perform workover for recompletion and plugged abandonment work. They can also function as an alternative to the rigs mentioned above.

Type of Rigs	Activity Phase	Application	Associated Services
 JUR	• Exploration • Development • Abandonment	The most common type of offshore rig due to its flexibility. Typically used for drilling in shallow water.	Supporting vessels, oil country tubular goods (OCTG), third party drilling services e.g. drilling fluids, directional drilling (DD)/measurement while drilling (MWD)/logging while drilling (LWD), wellheads, drill bits, cementing, fishing, slickline, and other services.
 TADR	Development	Typically used in deeper water with space/load/approachability limitations e.g. deepwater spars, tension-leg platform (TLP), and other applications.	
 Semi-Submersible	Exploration	The most stable type of rig, typically used for drilling in deepwater and/or harsh environment.	
 Drillship	Exploration	Typically used for drilling in deepwater/ultra deepwater. Can also be used for well maintenance, completion, and capping works.	OCTG and third party drilling services.
 HWU	• Production • Abandonment	Typically used for workover operations e.g. recompletion, well repair, and barrier placement.	Supporting vessels, production logging, slickline, wellhead, fishing, cementing, and other services.

Activity Outlook



06 PETRONAS Activity Outlook

Key Contract List

Contract Name	Contract Duration	Scope
Individual — Upstream		
Provision of Jack-up Drilling Rig for Petroleum Arrangement Contractor (PAC) - Contract 1	2024 – Q1 2026	Jack-up rig
Provision of One (1) 10k Jack-up Drilling Rig for Petroleum Arrangement Contractors' (PAC) 2025-2026 Drilling Programme	2025 – Q4 2026	
Provision of Jack-up Drilling Rig for Petroleum Arrangement Contractor (PAC) - Contract 2	2026 – Q1 2028	
Provision of Low-Cost Jack-up Drilling Rig for Plug and Abandonment (P&A) Programme	2024 – Q1 2027	
Provision of Tender Assisted Drilling Rig for Petroleum Arrangement Contractor (PAC)	2025 – Q2 2027	Tender assisted drilling rig
Provision of Tender Assisted Drilling Rig for Petroleum Arrangement Contractor (PAC)	2025 – Q1 2026	
Hydraulic Workover Unit (HWU) and Services	2023 – Q2 2026	HWU

E. Linepipe

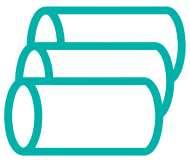
Supply of Linepipe

Rigid linepipe and flexible pipes are used to transport oil or gas between two or more facilities to cater for both upstream and downstream requirements. In this report, pipeline requirements are indicated by its type, i.e. rigid linepipe, flexible pipe, or both.

Rigid linepipe application:
Generally used for longer distances, typically from platforms to onshore plants. Rigid linepipes are the veins of the oil and gas industry and are mainly used to transport high pressure water and chemicals to maintain hydrocarbon pressure in the reservoir as well as to transport produced hydrocarbons to onshore facilities.

Flexible pipes application:
Generally used for shorter distances, typically for floating production systems with high-pressure production risers, export risers, chemical/water/ injection lines, and gas lift lines.

Associated services:
Engineering, pre-commissioning services, logistics, coating services (only for linepipe).



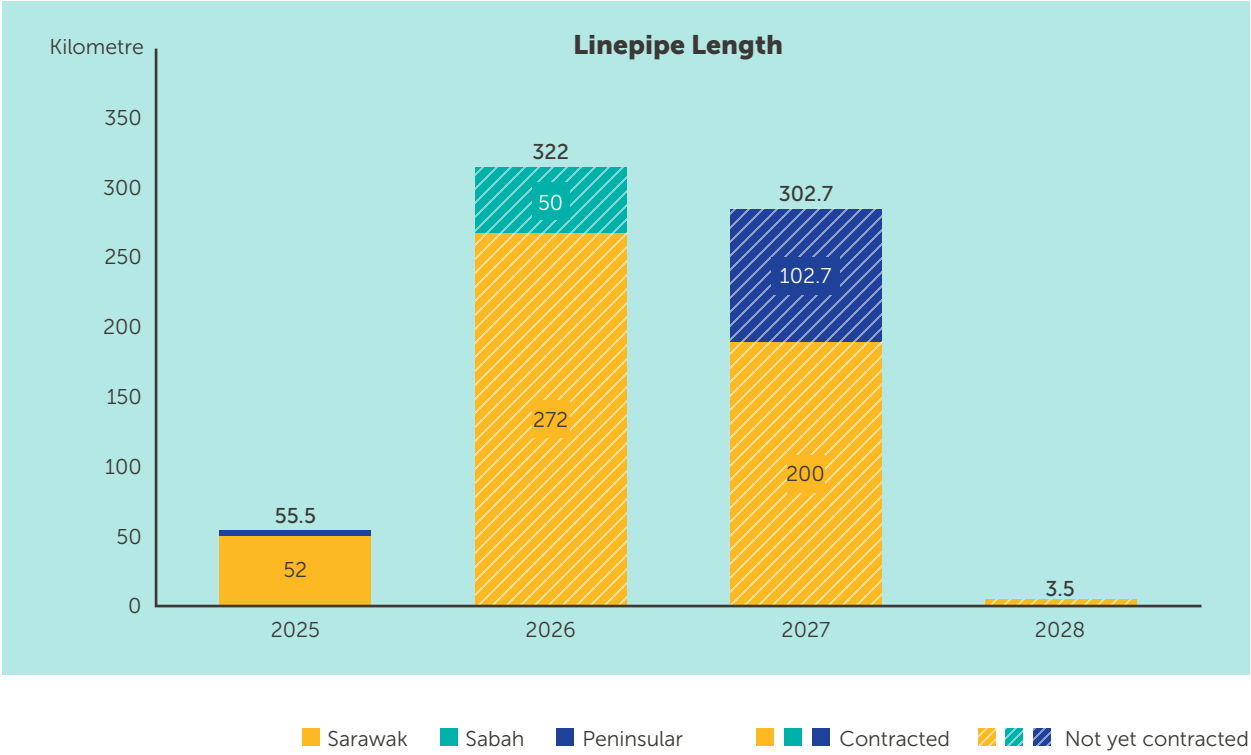
Rigid Linepipe

Rigid linepipe, generally made of carbon steel material or corrosion-resistant alloy (CRA).

Flexible Pipes

Flexible pipes are strong and adaptable pipes that are high-pressure resistant, bendable, adjustable, and retrievable.

Activity Outlook



Key Contract List

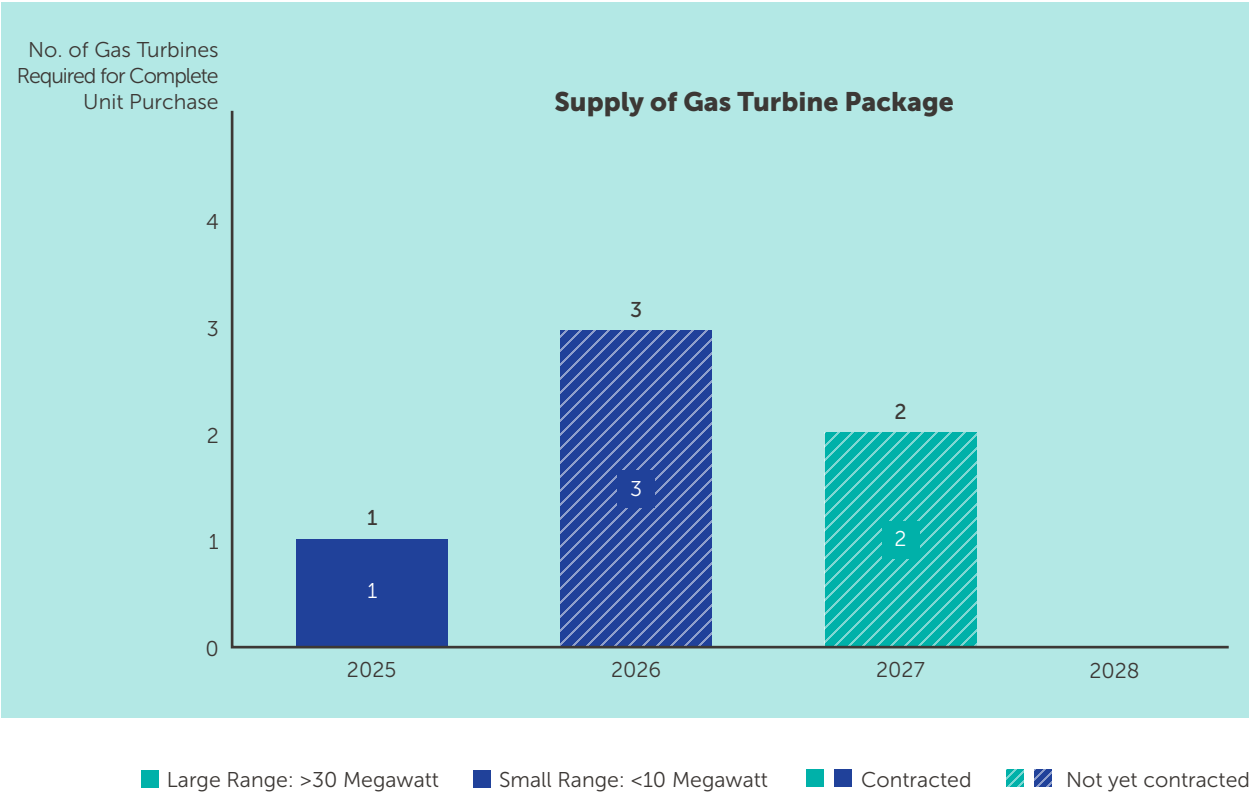
Contract Name	Contract Duration	Scope
Integrated — Upstream		
Price Agreement for Coating Services of Linepipe and Bends for PETRONAS Group of Companies (PGOC) and Petroleum Arrangement Contractors (PACs)	2022 – Q4 2026	Linepipe coating services
Individual — Upstream and Downstream		
N/A		

F. Gas Turbines

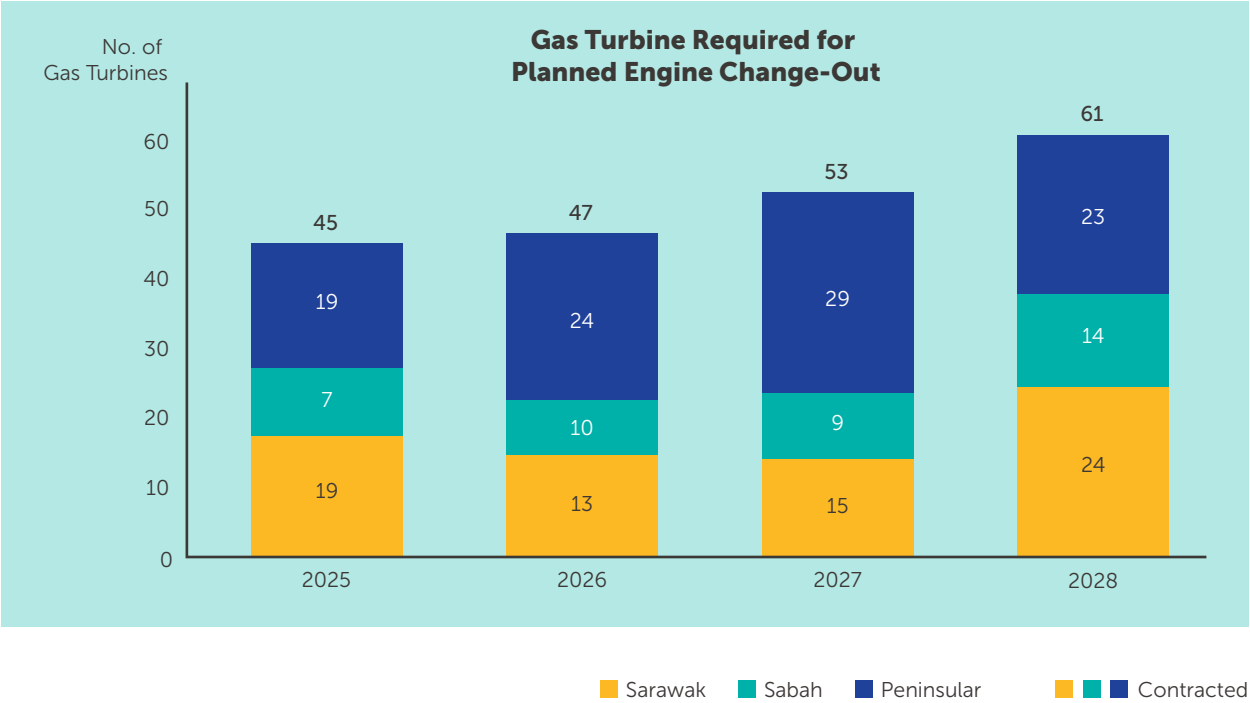
A gas turbine is a type of internal combustion engine that uses pressurised hot gases to produce mechanical power and electricity.

It consists of three main components: a compressor, a combustion chamber, and a power turbine. The compressor sucks in air and compresses it, the combustion chamber burns fuel with the compressed air, and the turbine converts the hot gases into mechanical energy. Gas turbines are used in a variety of applications, including power generation and mechanical drive in industrial machinery.

Activity Outlook



Activity Outlook



Key Contract List

Contract Name	Contract Duration	Scope
Integrated — Upstream		
Global Frame Agreement — Supply & Delivery of Gas Turbine for PETRONAS Group of Companies and Petroleum Arrangement Contractors (PACs)	2023 – Q3 2030	Gas turbine complete equipment supply
Individual — Upstream		
Individual Gas Turbine Maintenance Contracts by respective Operating Plant Units (OPUs) and Petroleum Arrangement Contractors (PACs)	Various contract durations	Gas turbine maintenance, repair, overhaul, and supply of spare parts which encompass project management, corrective maintenance, preventive maintenance, personnel, engineering, technical support services, overhaul, equipment exchange, spare parts, and other related scopes

G. Fabrication and Construction

A typical upstream project development process comprises Engineering, Procurement, Fabrication and Construction, Installation, and Hook-up and Commissioning stages.

The following portfolio of projects showcases abundant investment opportunities in Malaysian waters over a longer period. A large pool of projects are continuously and rigorously reviewed to materialise a steady pipeline of feasible and economically viable projects for production sustainability.

The fields to be developed include marginal fields, late life assets, fields with high contaminants, high complexity reservoirs, and stranded fields that offer opportunities for investors to turn the projects' viability through innovative, disruptive, and cost-effective solutions. This is a niche play that can create a marketspace for greater opportunities.

For the purpose of this report, the timeline for each project is segregated into four stages, i.e. (i) Engineering (ii) Fabrication and Construction (iii) Installation and (iv) Hook-up and Commissioning (HUC). Also provided are indicators for the type of facilities and installation requirements.

Legend for Project Activities

Engineering | Fabrication and Construction | Installation | HUC

Legend for Facilities Type

Fixed Structure	**L** Wellhead Platform (WHP) Lightweight - Total Tonnage ≤ 1,000 tonnes	**H** Wellhead Platform (WHP) Heavyweight - Total Tonnage > 7,500 tonnes
	M Wellhead Platform (WHP) Mediumweight - Total Tonnage ≤ 7,500 tonnes	**C** Central Processing Platforms (CPP) Weight - Total Tonnage from 5,000 to 7,000 tonnes
Floating Structure	**F** Floaters - Floating Production Storage and Offloading (FPSO)/Floating Storage and Offloading (FSO)/Mobile Operating Production Unit (MOPU)	
Subsea Structure	**S** Subsea Production System and Subsea Umbilical Riser and Flowline (SURF)	

Project	Greenfield/Brownfield	2026	2027	2028	L	M	H	C	F	S
Projects Under Execution										
Kurma Manis	Greenfield									
Block H - Alum, Bemban, Permai	Greenfield									
Kikeh Ph3B	Brownfield									
Belud	Greenfield					1				
Sepat Integrated	Brownfield					3			1	
Kasawari Ph2	Greenfield									
Berantai-E	Greenfield									
Irong Timur	Greenfield									
Rosmari Marjoram	Greenfield									
Kikeh FPSO Replacement	Brownfield								1	
Upcoming Projects										
Project 1	Greenfield					1				
Project 2	Greenfield							1		
Project 3	Greenfield					1				
Project 4	Greenfield					1				
Project 5	Greenfield					1				
Project 6	Greenfield					1				
Project 7	Greenfield					1				
Project 8	Onshore									
Project 9	Greenfield				1					
Project 10	Greenfield					1				
Project 11	Greenfield					1				
Project 12	Greenfield					1				
Project 13	Greenfield					1				
Project 14	Greenfield					6				
Project 15	Brownfield						1			

G. Fabrication and Construction

The outlook for fabrication and construction is provided for fixed and floating structures, with actual or planned contract award date to indicate the start of fabrication activity.

Fixed Structures

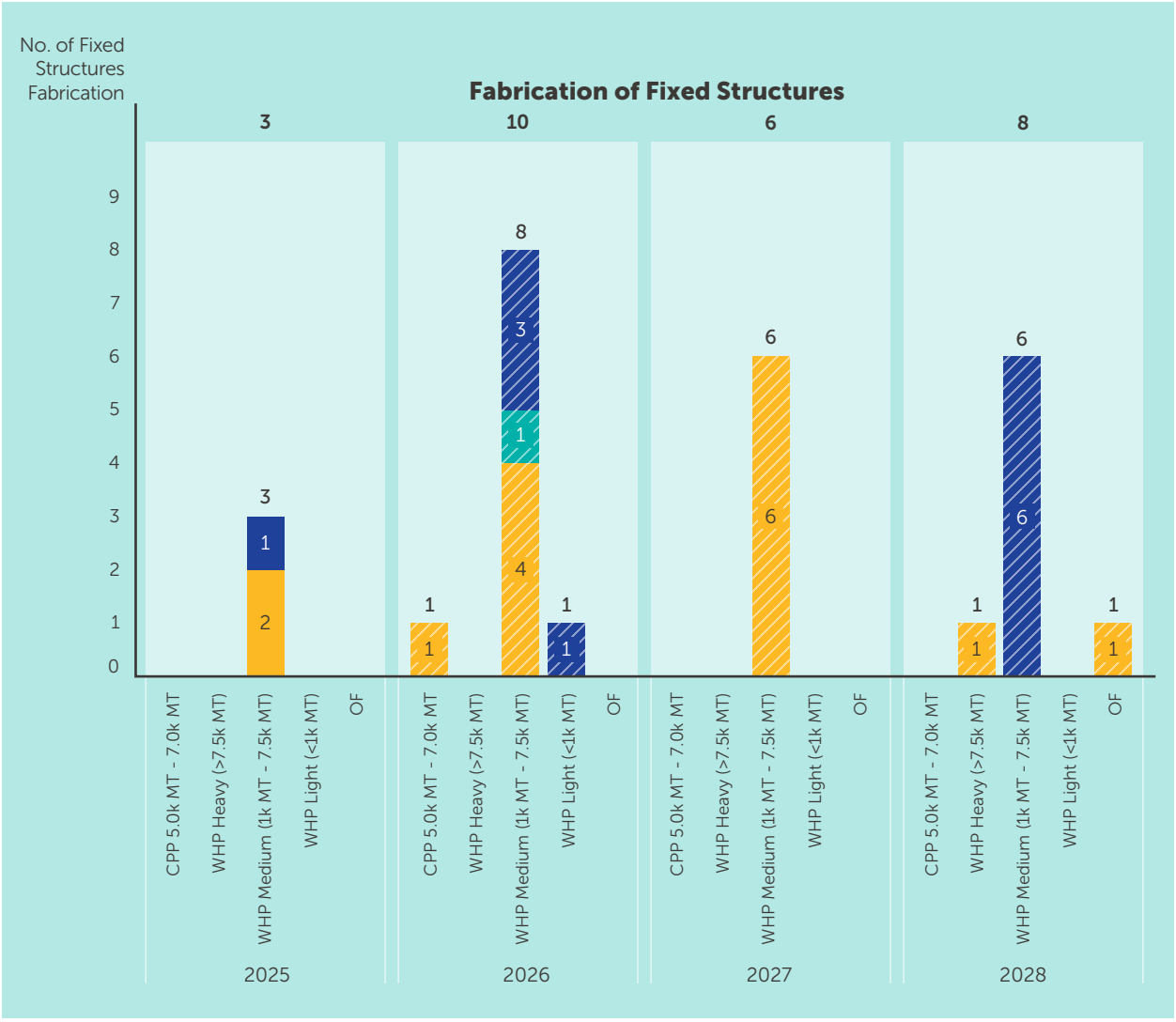
Wellhead platform application:
Wellhead Platform (WHP) is used to house wellheads and machinery to extract oil and gas from the seabed and serve as a platform for drilling activities. Typically, it is designed to include an integral deck, utility system, wellhead system, helideck, and drilling facilities.

Central Processing Platform:
Central Processing Platform (CPP) is used to receive and process the extracted hydrocarbons before sending to shore or evacuation through tankers. CPP typically acts as the central hub for the entire field complex.

Onshore Facility

An Onshore Facility (OF) is a range of land-based structures that support the safe and efficient handling of hydrocarbons, comprising crude terminals that serve as reception and evacuation nodes for produced crude, gas terminals that function as receiving, conditioning and metering points for natural gas, integrated crude–gas terminals that provide multi-stream processing and handling capabilities, and onshore processing and turnaround facilities that act as operational hubs for plant activities, maintenance and statutory shutdown programmes.

Activity Outlook



Key Contract List

Contract Name	Contract Duration	Scope
Integrated — Upstream		
PETRONAS Frame Agreement for the Provision of Engineering, Procurement and Construction (EPC) of Fixed Offshore Structure Works	2018 – Q4 2025	EPC/EPCC/EPCIC of fixed offshore structure works or fixed offshore structure works

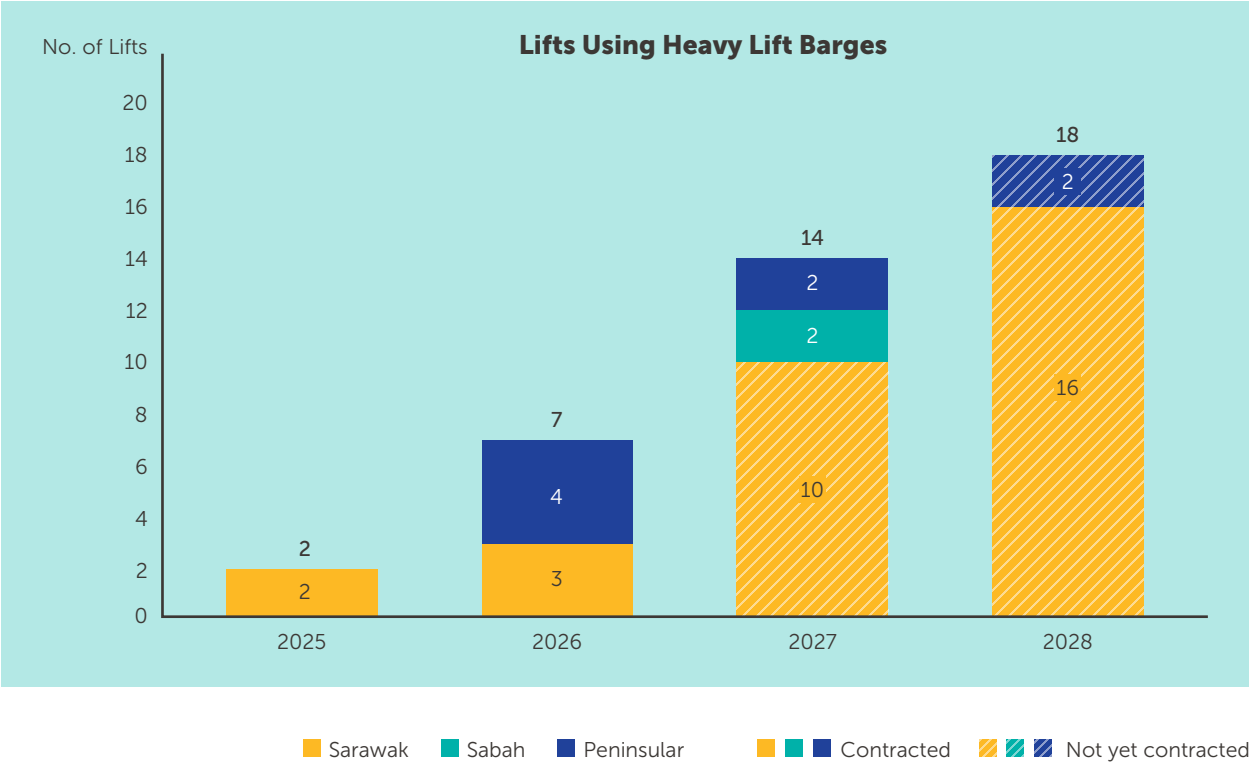
H. Transportation and Installation

Structural Installation – Heavy Lift

Application:
Used for installation of jackets (for WHPs and CPPs) and topsides (for WHPs).

Associated services:
Supporting vessels, diving and remotely operated vehicles (ROVs), welding, and non-destructive testing (NDT).

Activity Outlook



Key Contract List

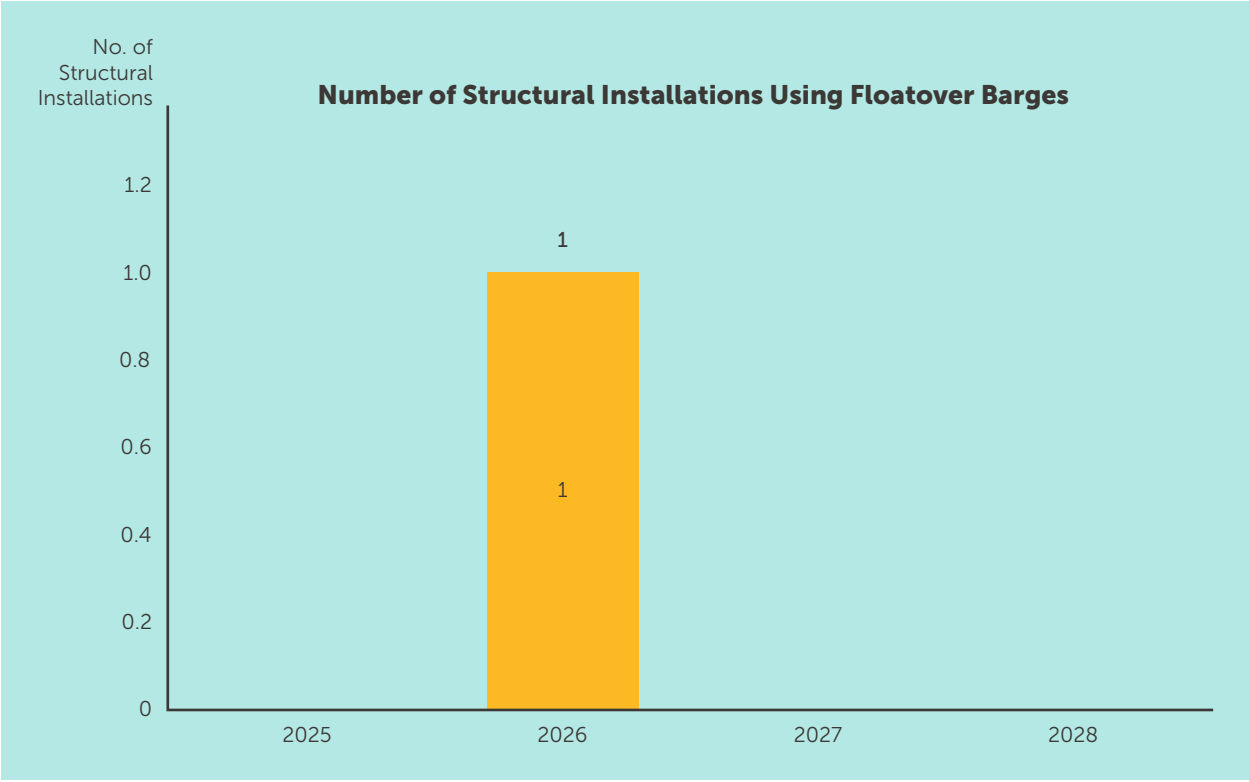
Contract Name	Contract Duration	Scope
Integrated — Upstream		
Provision of Transportation and Installation (T&I) of Offshore Facilities	2023 – Q2 2028	T&I services
Individual — Upstream		
Provision of Engineering, Procurement, Construction, Installation and Commissioning (EPCIC) of Wellhead Platforms (WHP) for Petroleum Arrangement Contractor (PAC) 1	2024 – Q3 2026	EPCIC of WHP

Structural Installation – Floatover

Application:
Used for installation of heavier or integrated topsides (for CPPs).

Associated services:
Supporting vessels, diving and remotely operated vehicles (ROVs), welding, and non-destructive testing (NDT).

Activity Outlook



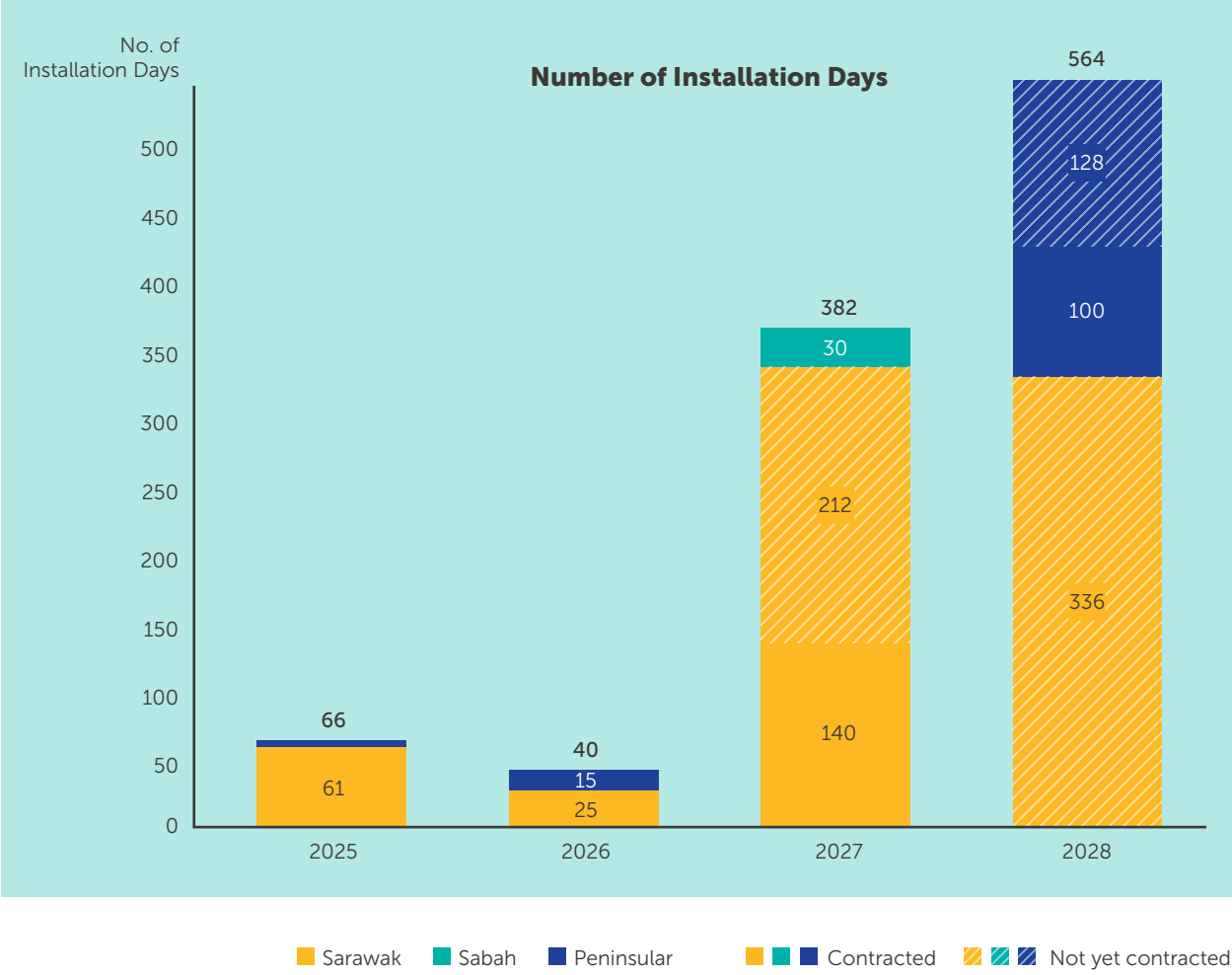
Pipeline Installation – Pipelay

Application:
Used to install linepipes, such as carbon steel and corrosion resistant alloy (CRA), among others, for offshore projects.

Associated services:
Supporting vessels, diving and remotely operated vehicles (ROVs), fill joint coating services, welding, and non-destructive testing (NDT).

Project	Length (km)
Projects Under Execution	
Kurma Manis	32
Belud	50
Sepat Integrated	22
Kasawari Ph2	135
Berantai - E	3.6
Irong Timur	20
Upcoming Projects	
Project 1	40
Project 2	13
Project 3	70
Project 4	2
Project 5	12
Project 6	28
Project 7	16
Project 9	7
Project 10	12
Project 11	78
Project 12	53
Project 13	6
Project 14	109
Project 16	120
Project 17	55

Activity Outlook



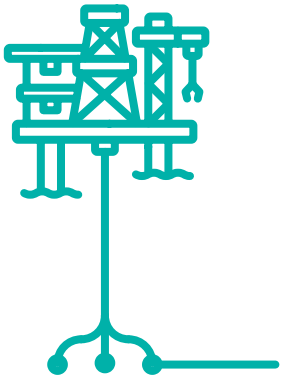
Key Contract List

Contract Name	Contract Duration	Scope
Integrated — Upstream		
Provision of Transportation and Installation (T&I) of Offshore Facilities	2023 – Q2 2028	T&I services
Individual — Upstream		
Provision of Engineering, Procurement, Construction, Installation and Commissioning (EPCIC) of Pipeline System for Petroleum Arrangement Contractor (PAC) 1	2024 – Q3 2026	EPCIC of pipeline

I. Hook-Up and Commissioning

Hook-up and commissioning (HUC) ties in all components of the facilities including all function tests and start-up of facilities.

Outlook is stated in man-hour units as the activities are labour intensive.

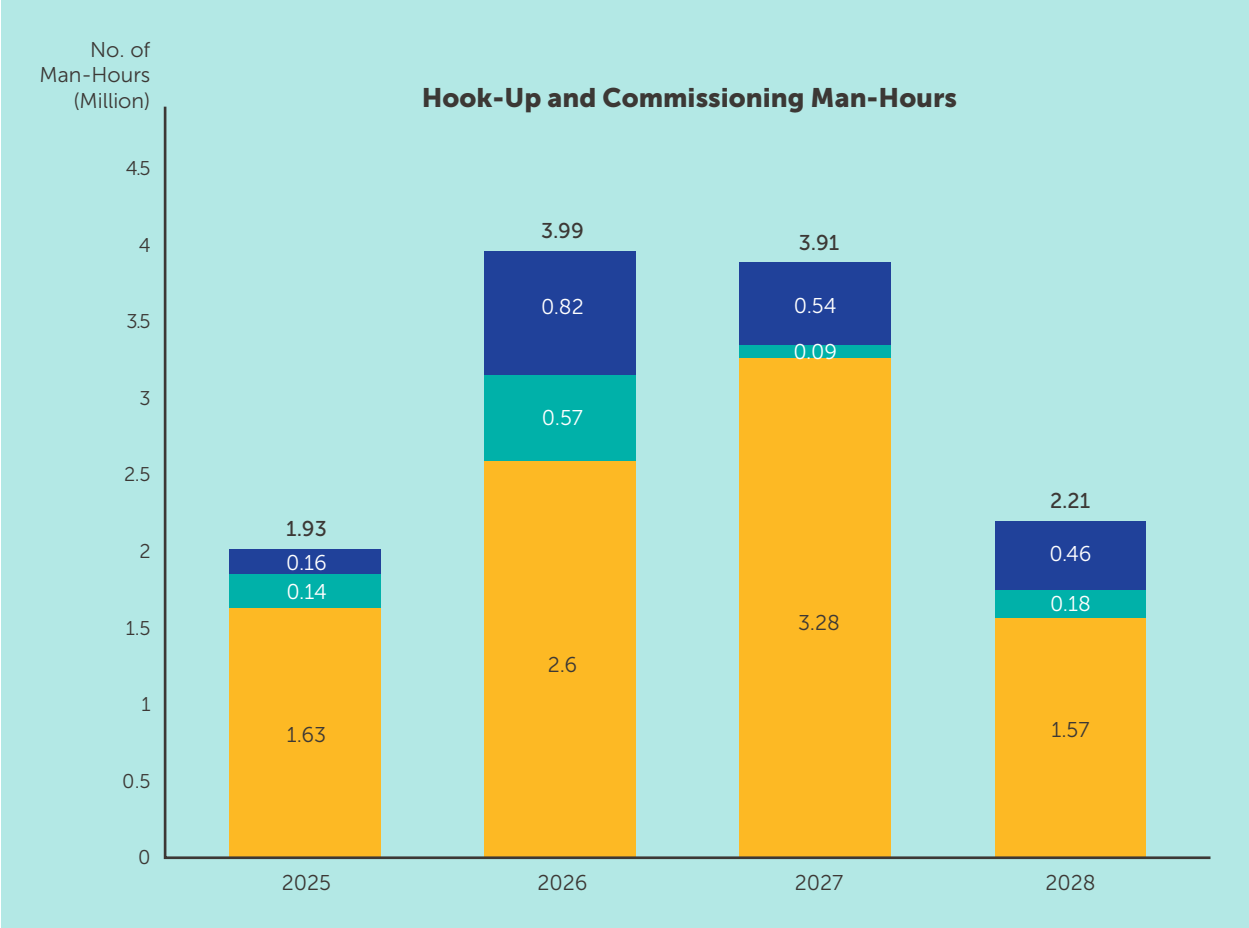


Activity phase: Development and Production

Application:
Greenfield HUC involves works on newly installed platforms during Development stage. Brownfield HUC involves works on existing offshore facilities and equipment, including rejuvenation/redevelopment, general topside modification, and infill drilling activity, among others.

Integrated services:
Associated services: Marine spread (accommodation work barge, workboat, fast crew boat), logistics services, pre-commissioning services, inspection services, and others.

Activity Outlook



Did You Know?

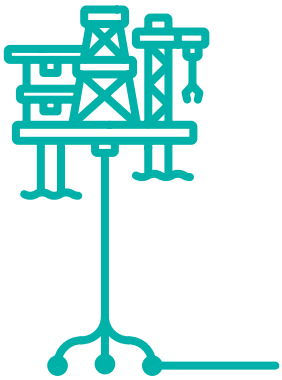
HUC works for 2025 to 2027 have been contracted through dedicated HUC contracts or integrated with offshore maintenance, construction and modification (MCM) scope under Pan Mal MCM-HUC contracts awarded in 2024, which are valid until Q4 2029. Nevertheless, there are still opportunities for HUC works in (i) Sabah waters which were not included in the earlier Pan-Mal MCM-HUC setup, (ii) other non-participating PACs or (iii) new greenfield projects.

Key Contract List

Contract Name	Contract Duration	Scope
Integrated — Upstream		
Provision of Pan Malaysia Offshore Maintenance, Construction, Modification (MCM) and Hook-Up & Commissioning (HUC) Services- Petroleum Arrangement Contractors (PACs)	2024 – Q3 2029	• Maintenance, construction, and modification (MCM) • Hook-up and commissioning (HUC) services
Individual — Upstream		
Provision of Pan Malaysia Offshore Hook-Up & Commissioning (HUC) Services	2024 – Q3 2029	Hook-up and commissioning (HUC) services

J. Subsea Structures

Subsea structures are facilities located on the sea floor, where petroleum is extracted and "tied-back" to an existing production platform using subsea umbilical, riser, and flowline (SURF) facilities.



Application:
Used to provide safe and efficient interconnection from the topside platforms and vessels to the wellheads and pumps on the sea floor, and vice versa for reliable oil and gas extraction from subsea wells.

Associated services:
Engineering, equipment supplies (e.g. mechanical, electrical, instruments, etc.), assembly of subsea system, and installation.

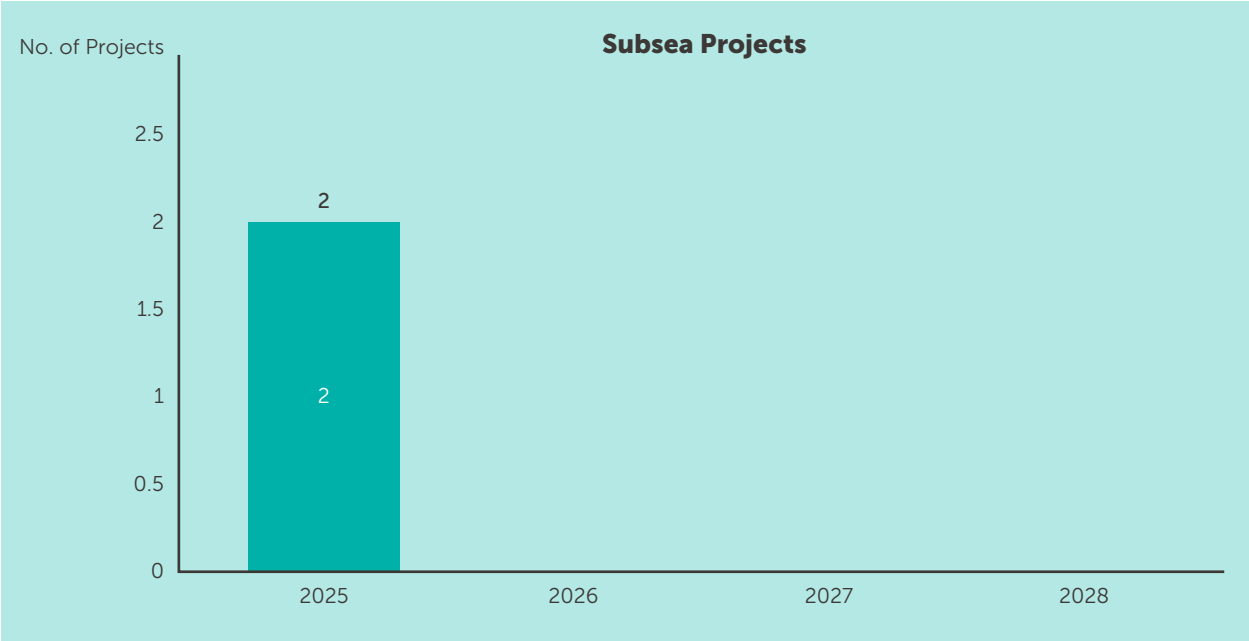
Subsea, Umbilical, Riser and Flowline (SURF)
Comprises subsea completed wells, subsea Christmas trees and wellhead systems, subsea tie-in to flow line system, jumpers, umbilical and riser system, and subsea equipment to operate the well.

Subsea Umbilicals:
Cables that provide power, control, and communication between the surface and subsea equipment.

Risers:
Pipelines or conduits that transport produced fluids (oil, gas, and water) from the seabed to the surface facilities. Could be rigid or flexible, depending on the specific requirements of the project.

Flowline:
Pipelines that transport the produced fluids between subsea wells and risers or between subsea processing facilities.

Activity Outlook



Key Contract List

Contract Name	Contract Duration	Scope
Integrated — Upstream		
	N/A	
Individual — Upstream		
	N/A	

K. Floating Production Systems

Floating production systems (FPS) or floaters, refer to the non-fixed structures involved in processing and/or storage of hydrocarbons, i.e. Floating Production Storage and Offloading (FPSO), Floating Storage and Offloading (FSO), including Mobile Offshore Production Units (MOPU).

Application:
Used as relocatable production facilities, generally to evacuate hydrocarbons from marginal or isolated oil and gas fields without connectivity to export facilities (pipeline or tie-back) in the vicinity.

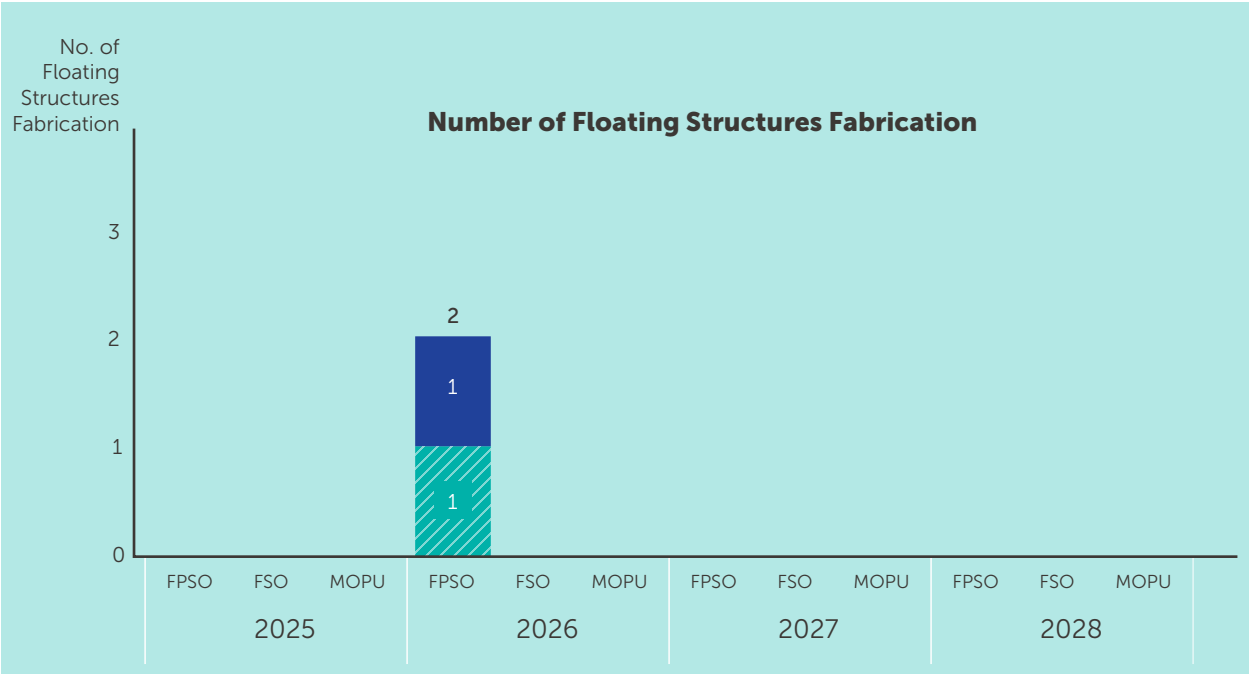
Associated services:
Engineering, structural steel/bulk material, equipment supplies (e.g. mechanical, electrical, instrument, station-keeping, etc.), fabrication yards, shipyards, transportation and installation, hook-up and commissioning, marine warranty surveyor, operations and maintenance (O&M), and demobilisation/decommissioning.

Floating Production, Storage and Offloading (FPSO)
A floating facility used for the processing of hydrocarbons and oil storage before being offloaded onto a tanker for transportation at specified intervals.

Floating Storage and Offloading (FSO)
A floating facility to receive processed crude from other processing facilities, for oil storage and subsequently offloading onto a tanker at specified intervals.

Mobile Offshore Production Unit (MOPU)
A portable structure in offshore well production, referring to a movable processing facility or self-elevating production (including injection) facility.

Activity Outlook



Did You Know?

The first oil FPSO was constructed in 1977 and deployed at Shell's Castellon field in the Spanish Mediterranean. Recognised as an ideal standalone solution for frontier areas and marginal fields, there are currently over 270 oil FPSO vessels operating globally.

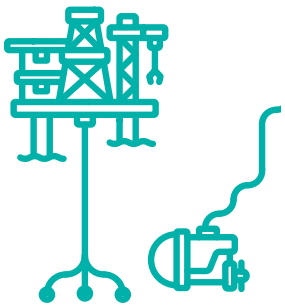
Key Contract List

Contract Name	Contract Duration	Scope
Individual — Upstream		
N/A		

L. Underwater Services

Underwater services cover inspection, maintenance, and repair activities performed for underwater structures such as major platform jacket inspection, offshore pipeline inspection, and debris survey and removal.

For the purpose of resources planning and optimisation, the outlook is represented by the number of days for underwater activities execution by Petroleum Arrangement Contractors (PACs).

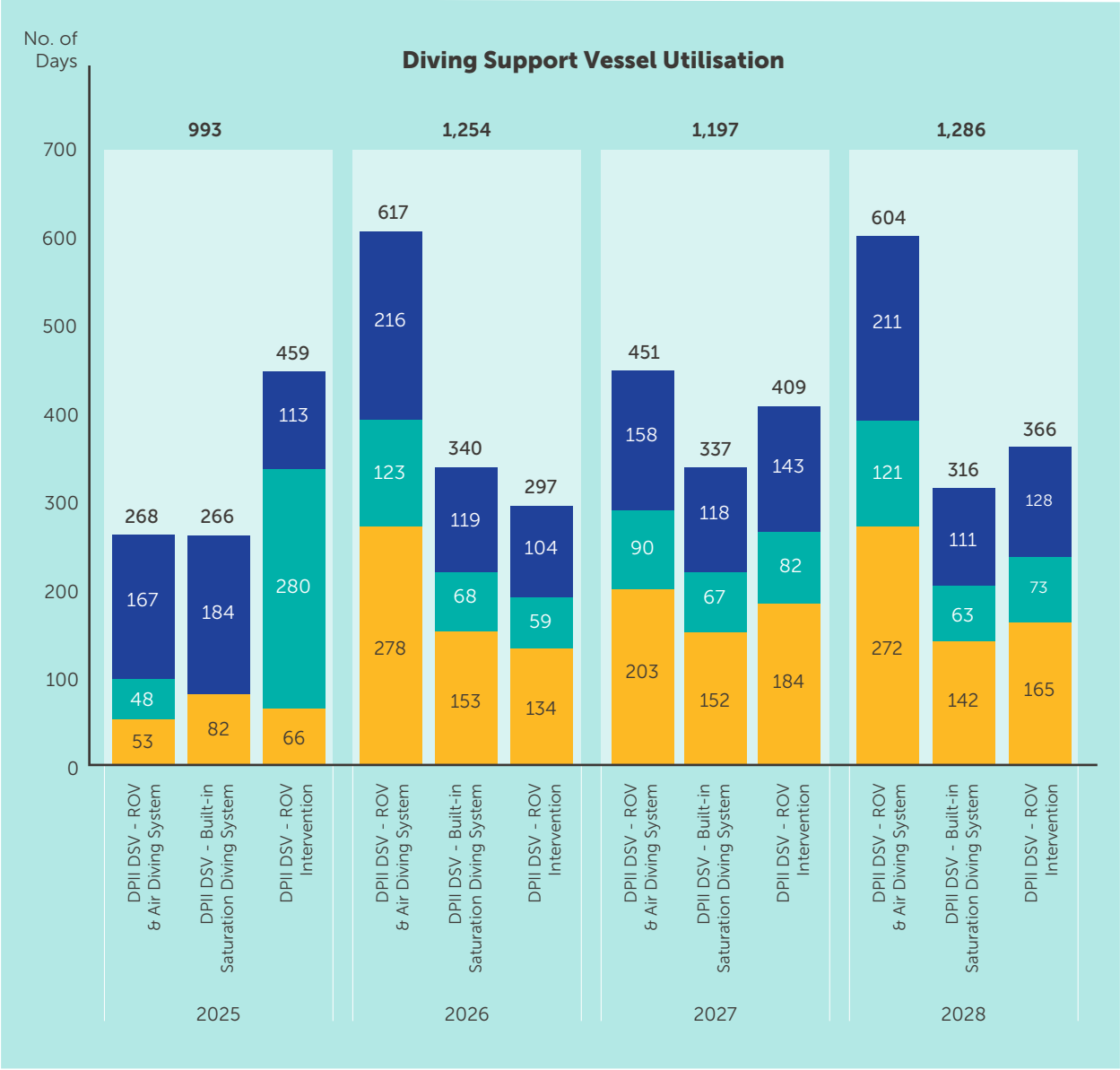


Activity phase: Development and Production

Application:
Inspection, repair and maintenance (IRM) activities for continuity of services, safety and integrity of underwater structures e.g. platform jackets, pipelines, subsea intervention, underwater inspection in lieu of drydocking (UWILD) for floating production, storage and offloading (FPSO), and other related applications.

Associated services:
Diving and support vessel, air diving system, saturated diving system (SAT), remotely operated vehicles (ROV), and project management team (PMT) including specialised manpower (air diver, saturation diver, ROV, supervisor/ pilot, among others).

Activity Outlook



Did You Know?

The Pan Malaysia Underwater Services contract awarded in Q1 2024 will still be effective for the next three years. Despite the current integrated contract approach for underwater services, there are opportunities for other services such as divers, mini ROV, autonomous underwater vehicle (AUV), uncrewed surface vessel (USV), and supply of ROV for well services intervention.

Key Contract List

Contract Name	Contract Duration	Scope
Individual — Upstream		
Provision of Underwater Services for PETRONAS Group of Companies and Petroleum Arrangement Contractors (PACs)	2024 – Q1 2029	Inspection, repair and maintenance (IRM) for underwater facilities such as platform jackets, pipelines, subsea equipment, and offloading facilities. Resources required: I. Air and saturation diving system II. Remotely Operated Vehicle (ROV) system III. Project Management Team (PMT), onshore and offshore personnel IV. Inspection and supporting equipment V. Diving and support vessel • Dynamic Positioning (DP) II Support Vessel – 300m² • DP II Diving Support Vessel (DSV) – 500m² • DP II ROV Intervention Support Vessel – 500m² • DP II DSV – 500m² (Built-in Saturation Diving System) • DP II DSV – 700m² (Built-in Saturation Diving System) • DP II Intervention Support Vessel – 700m² • DP II DSV – 1,000m² (Built-in Saturation Diving System) • DP II Intervention Support Vessel – 1,000m²


PETRONAS

M. Offshore Maintenance, Construction and Modification

Offshore maintenance, construction and modification (MCM) covers activities related to the repair and maintenance of existing topside facilities.

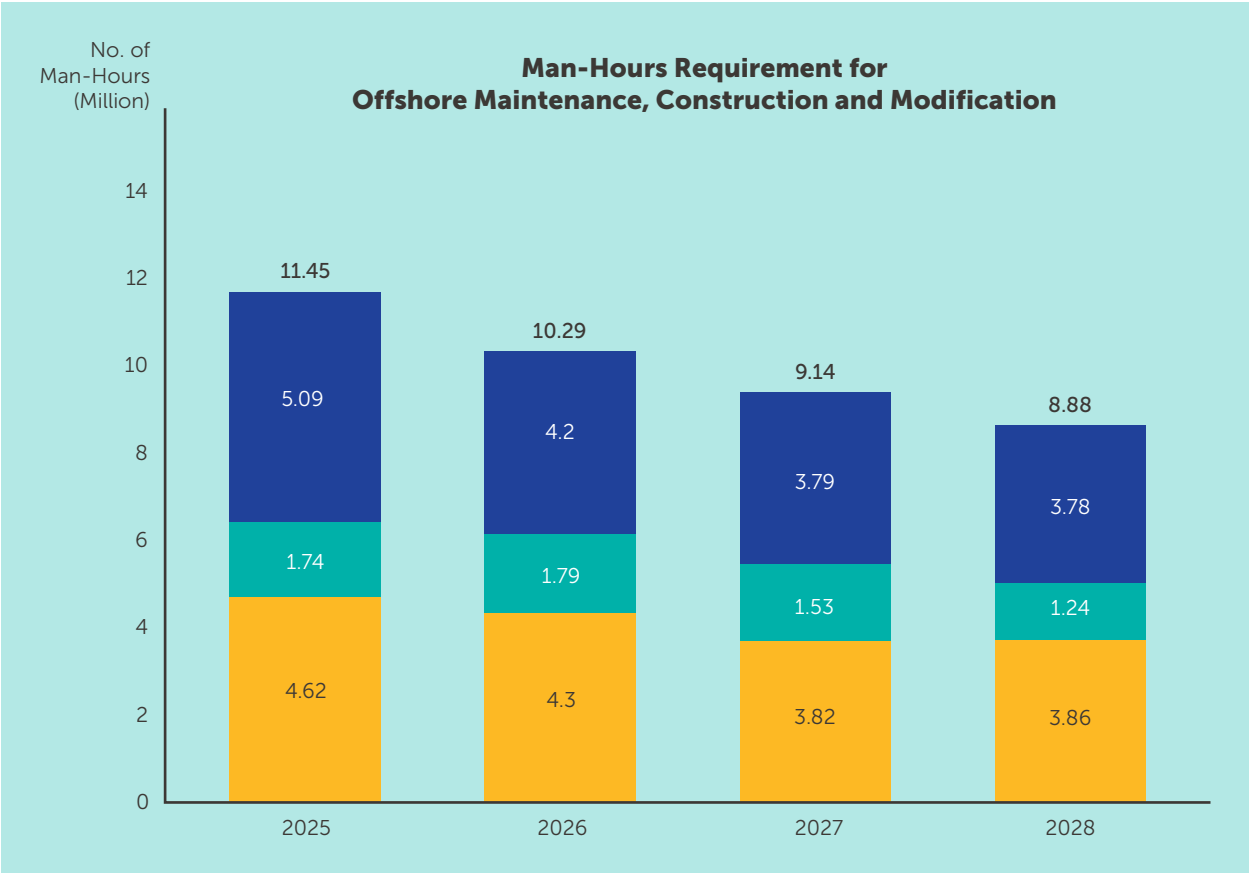
Outlook is stated in man-hour units as the activities are labour intensive.

Activity phase: Production

Application:
MCM involves two types of activities:
i. Scheduled maintenance: Planned activities
ii. Corrective maintenance: Unplanned activities arising from unforeseen circumstances

Associated services:
Supply vessel, inspection services, blasting, painting services, riser, and pig trap system maintenance.

Activity Outlook



Did You Know?

The main integrated contract for offshore MCM scope for Petroleum Arrangement Contractors (PACs) has just been awarded for a period of five years until Q4 2029. There are sub-contracting scope of opportunities e.g. welding habitat, vessel cleaning, engineering design, and many others.

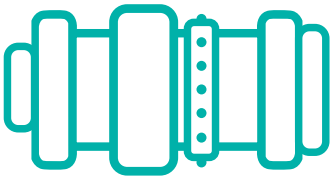
Key Contract List

Contract Name	Contract Duration	Scope
Integrated — Upstream		
Provision of Pan Malaysia Offshore Maintenance, Construction and Modification (MCM), and Hook-Up & Commissioning (HUC) Services - Petroleum Arrangement Contractors (PACs)	2024 – Q3 2029	• Maintenance, construction, and modification (MCM) • Hook-up and commissioning (HUC) services
Individual — Upstream		
Provision of Rectification Works and Associated Services for Asset Integrity Findings (AIF)	2023 – Q4 2026	Maintenance and rectification works
Provision of Pan Malaysia Offshore Maintenance, Construction and Modification (MCM)	2024 – Q3 2029	Maintenance, construction, and modification (MCM)

N. Pipeline In-Line Inspection

Within a pipeline integrity management system (PIMS), the inspection and maintenance element is fundamental to ensuring safe and reliable pipeline operations throughout its service life. Among the key inspection technologies, pipeline in-line inspection (ILI) or intelligent pigging is one of the core integrity management activities in determining the extent of damage or anomalies on pipelines.

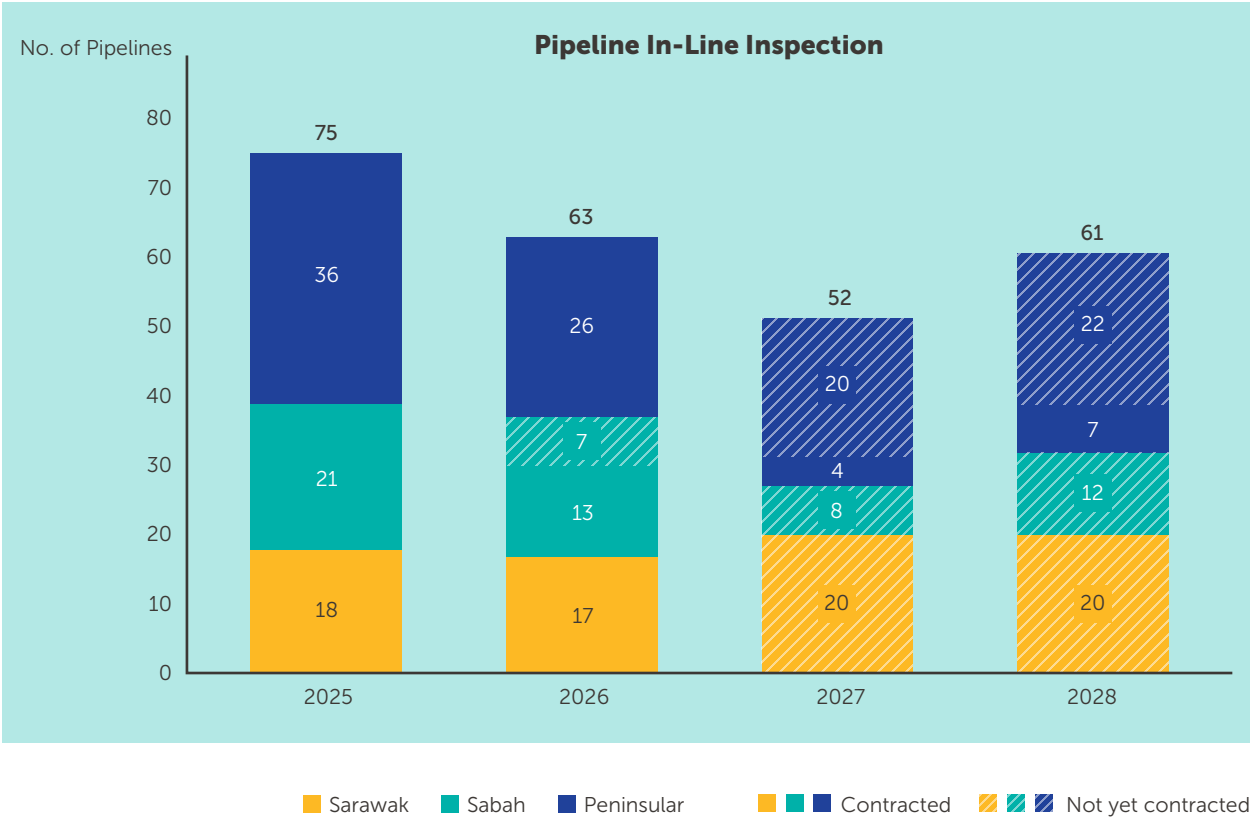
ILI technology enables non-intrusive, internal inspection of pipelines by deploying sensor-equipped tools that traverse the line under normal operating conditions. ILI tools utilise a range of advanced sensing technologies including magnetic flux leakage (MFL), caliper, and ultrasonic testing (UT) to accurately detect, locate, and characterise potential anomalies such as metal loss, cracks, deformation, and dents. ILI inspections are governed by international standards like ASME B31.8S and API 1160, ensuring compliance while improving reliability, safety, and environmental protection.



Activity phase: Production

Associated services:
Manpower, equipment rental, decontamination service.

Activity Outlook



Did You Know?

Currently ILI scope is contracted under an integrated contract called Pan Malaysia for Pipeline In-line Inspection (PM ILI) since Q1 2022 and will be valid until Q1 2027 for conventional ILI technologies. Despite the existing contract coverage, there are still opportunities for ILI contract participation, especially for non-conventional ILI technologies and non-participating PACs.

Key Contract List

Contract Name	Contract Duration	Scope
Integrated — Upstream and Gas		
Pan Malaysia for Pipeline In-Line Inspection Services for PETRONAS Group of Companies and Petroleum Arrangement Contractors (PACs)	Q1 2022 – Q3 2027	Pipeline ILI
Individual — Upstream		
Provision of Pipeline In-line Inspection (Intelligent Pigging)	Q1 2025 – Q1 2026	Pipeline ILI
Provision of Intelligent Pigging Services for PAC	Q1 2025 – Q1 2028	
Individual — Downstream and Gas		
Term Contract for In-line Inspection (ILI) via Enhanced Magnetic Flux Leakage for PETRONAS Gas Berhad Gas Transmission & Regasification (PGB-GTR)	Q1 2024 – Q1 2027	Pipeline ILI
Provision of Internal Inspection Services for Submarine Pipeline at OPU	Q4 2025 – Q1 2026	

O. Offshore Helicopter Services

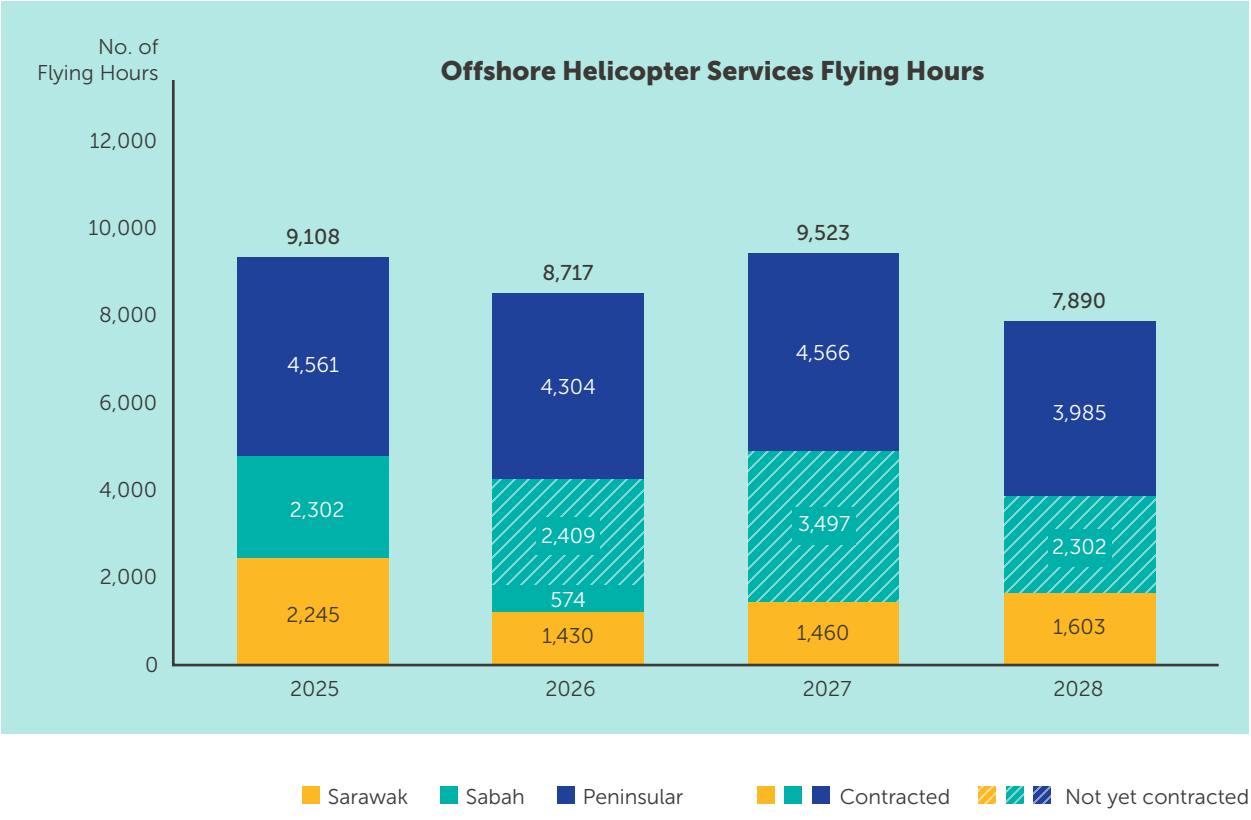
Offshore helicopter services (OHS) scope mainly cover the requirement of fully equipped aircraft(s), crew, and facilities to undertake the following services in Malaysia:

Crew Change
Transport outbound and inbound passengers to offshore installations.

Medical, Search & Rescue
Provide 24-hour medical evacuation (MEDEVAC), body evacuation (BODEVAC) and limited search and rescue (LIMSAR) coverage from offshore.

"Hotshot" Items
Transport urgent materials with allowable conditions and payload of <20kg.

Activity Outlook



Key Contract List

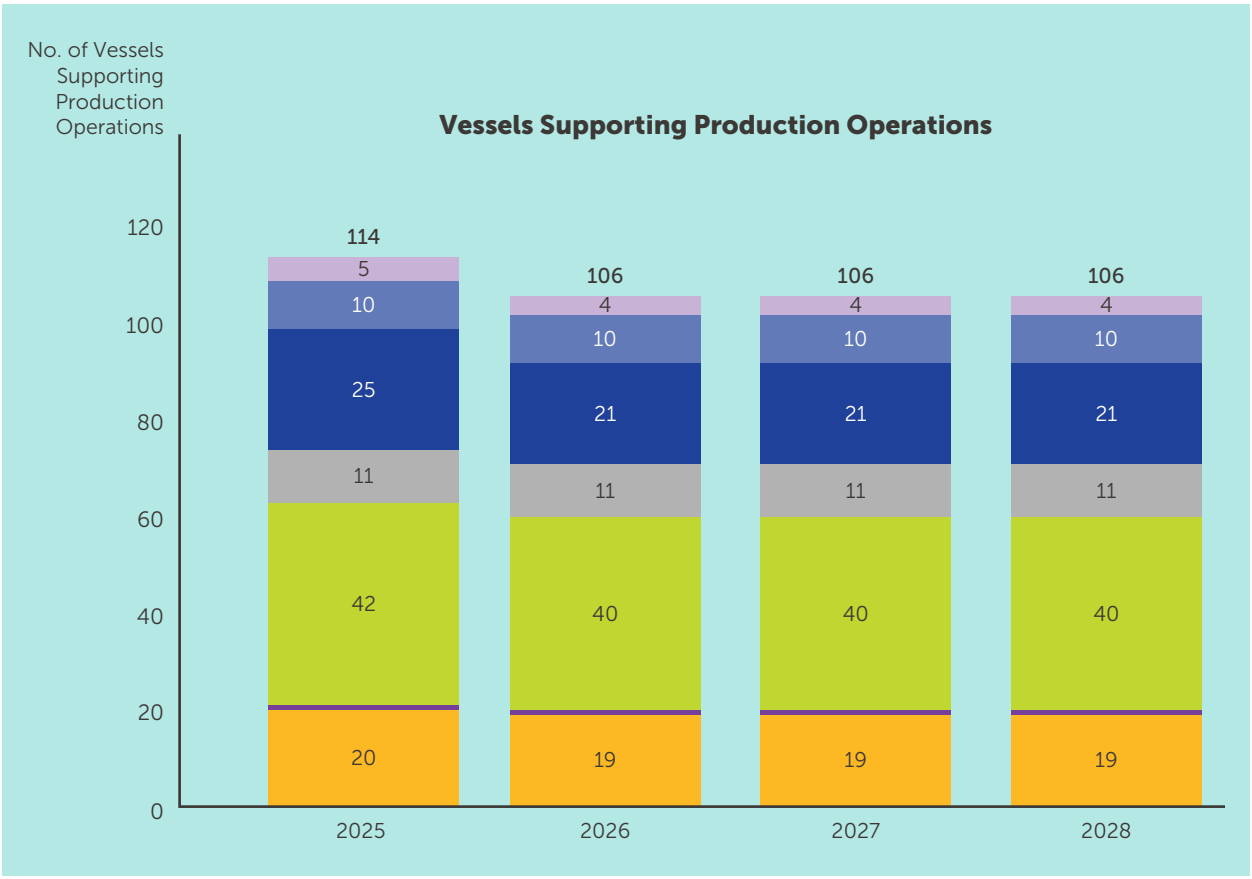
Contract Name	Contract Duration	Scope
Integrated — Upstream		
Provision of Rotary Wing Aircraft, Equipment and Services (for Medium Type Aircraft) for Kertih Operations	Q2 2021 – Q1 2026	Helicopter services scope cover transportation of personnel between helibases and any onshore/offshore locations for Malaysia operations
Provision of Rotary Wing Aircraft, Equipment and Services (for Medium Type Aircraft) for Kota Bharu	Q2 2021 – Q1 2026	
Provision of Aviation Services (Monsoon Season) for Kertih Operations	Q2 2021 – Q1 2026	
Provision of Aviation Services for Sabah Operations	Q2 2021 – Q1 2026	
Provision of Offshore Helicopter Services for Miri Operations	Q2 2023 – Q1 2028	
Provision of Offshore Helicopter Services (OHS) for Peninsular Malaysia Operations	Q2 2026 – Q1 2033	

P. Offshore Support Vessels

Type of Vessel	 Anchor Handling Tug Supply (AHTS)	 Platform Supply Vessels (PSVs)/ Straight Supply Vessels (SSVs)	 Fast Crew Boat (FCB)
Activity Phase	• Exploration • Development • Production • Abandonment		• Development • Production • Abandonment
Application	Used to assist in anchor handling operation, towing, and transport of supplies to and from offshore platforms/drilling rigs	Transport of equipment and supplies to offshore platforms/drilling rigs	High speed vessel for the transportation of crew to offshore facilities and inter rigs
Associated Services	Vessel inspection services, bunkering services, port services, and tank cleaning services		

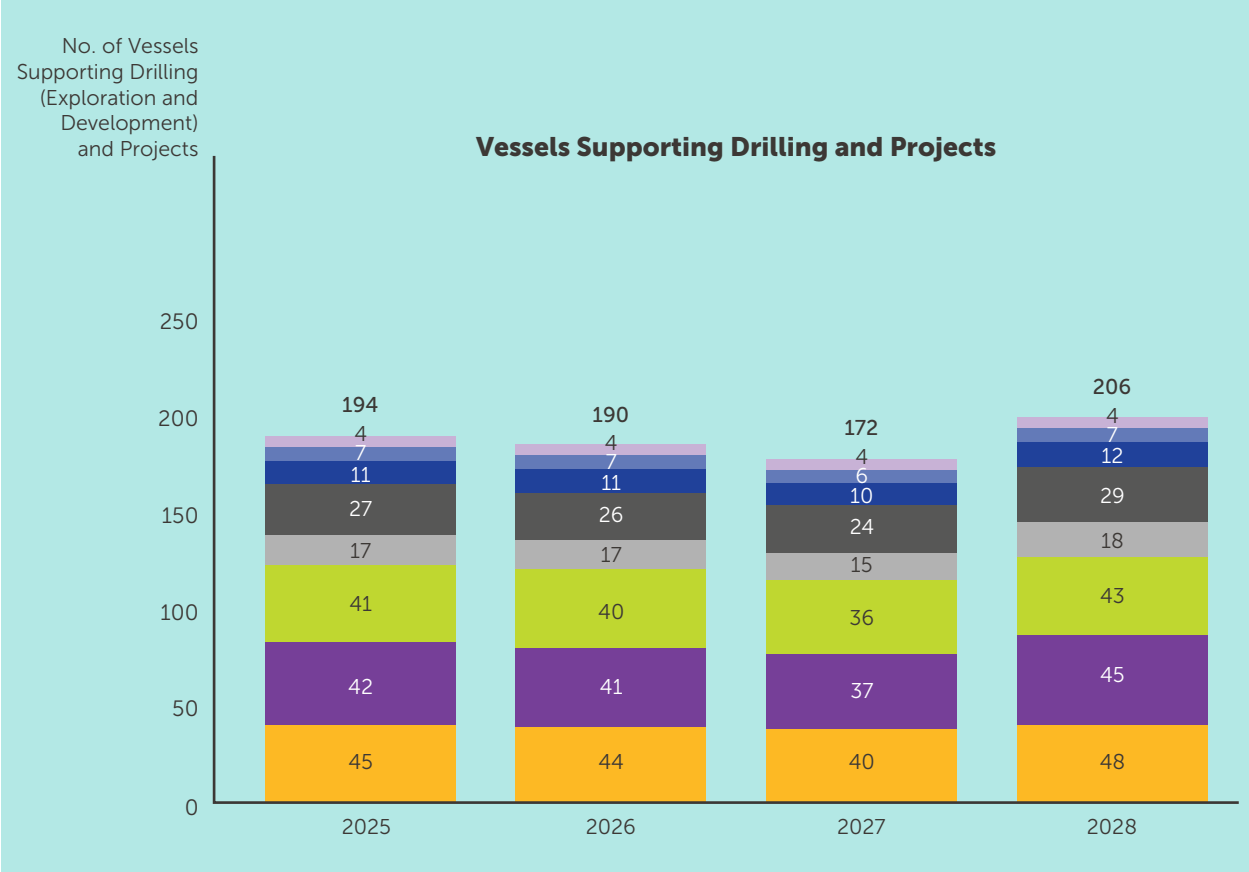
Type of Vessel	 Workboat/ Work Barge	 General Purpose Vessel (GPV)/Standby Vessel (SBV)	 Utility Vessel (UV)	 Fast Crew Boat (FCB)
Activity Phase	• Development • Production • Abandonment	• Development • Production		• Production
Application	Accommodation for personnel	Standby support, rescue, and emergency duties		Transport of equipment and supplies to offshore platforms/drilling rigs
Associated Services	Vessel inspection services, bunkering services, port services, and tank cleaning services			

Activity Outlook



06 PETRONAS Activity Outlook

Activity Outlook



Key Contract List

Contract Name	Contract Duration	Scope
Integrated — Upstream		
Panel Contractor Contract (PCC) for Offshore Support Vessel (OSV) Services	2024 – Q2 2027	Vessels supporting drilling and projects
Provision of Production Operations Vessels (POVs)	2024 – Q4 2027	Vessels supporting production operations
Provision of Offshore Support Vessel for Petroleum Arrangement Contractors (PACs) Operations (Project SAFINA)	2023 – Q3 2030	Vessels supporting production operations

Q. Supply Base

Oil and gas supply bases are strategically positioned to facilitate extensive exploration and production operations in both East and West Malaysia. These bases function as logistical hubs for the storage, consolidation, and transportation of supplies and equipment to ensure seamless offshore operations.

Currently there are four locations as follows:

1. Kemaman Supply Base (KSB), Terengganu
2. Asian Supply Base (ASB), Wilayah Persekutuan Labuan
3. Tok Bali Supply Base (TBSB), Kelantan
4. Borneo Oil and Gas Supply Base (BOGSB), Sarawak (formerly known as Bintulu Port)

Key Contract List

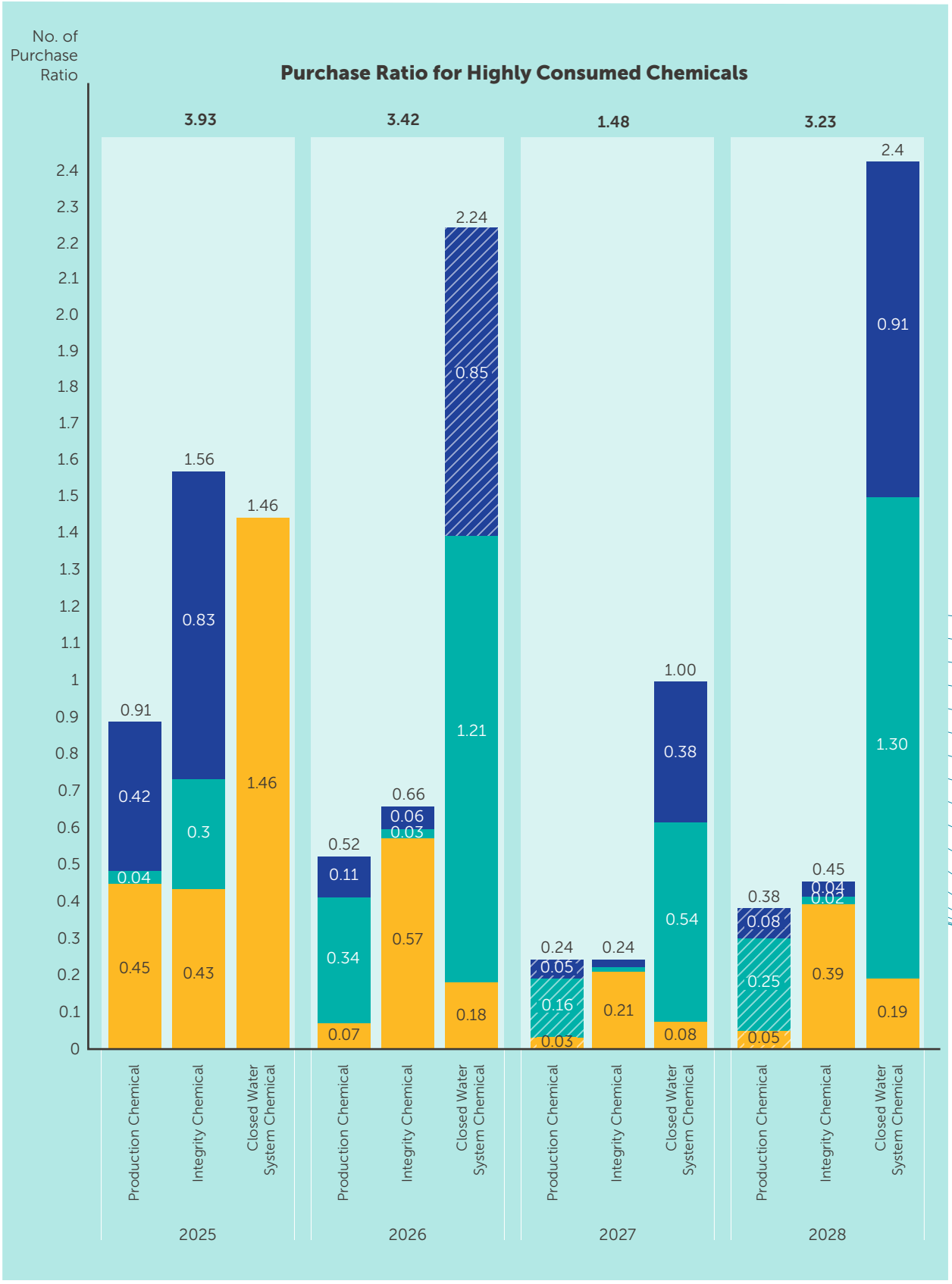
Contract Name	Contract Duration	Scope
Integrated — Upstream		
Provision of Supply Base Facilities with Associated Services and Lease of Premises at Tok Bali Supply Base (TBSB)	Q4 2025 – Q2 2026	Supply base covers the provision of supply base facilities such as warehouse, open yard, offices, and its associated services such as material handling equipment, crew change operations, berth facility, scheduled waste management, and manpower services
Provision of Supply Base Facilities, Services and Tenancy of Premises for Petroleum Arrangement Contractors (PACs) at Bintulu Port Sdn Bhd (BPSB)	Q2 2025 – Q2 2027	
Provision of Supply Base Facilities, Services and Tenancy for Petroleum Arrangement Contractors (PACs) at Asian Supply Base (ASB)	2022 – Q2 2031	
Provision of Supply Base Facilities, Services and Tenancy for Petroleum Arrangement Contractors (PACs) at Kemaman Supply Base (KSB)	2023 – Q3 2032	

R. Chemicals

Chemicals are consumed in upstream business, mainly during operation and maintenance activities.

	Process Chemicals
Description	Chemicals that are specialised and used to accelerate plant processes, maximise asset reliability, and/or improve productivity.
Examples	i. Production chemicals ii. Integrity chemicals iii. Closed water system chemicals

Activity Outlook



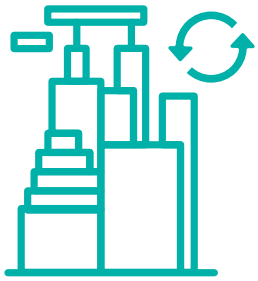
Note: Chemicals' purchase ratio is based on the forecasted purchase in comparison to actual purchase in base year 2024 covering only PETRONAS Upstream activities.

Key Contract List

Contract Name	Contract Duration	Scope
Individual — Upstream		
Provision of Production Chemicals and Services for PAC	2025 – Q1 2026	Production chemicals delivery and associated services
Supply of Integrity Chemicals (Biocide & Corrosion Inhibitor) and Associated Services	2023 – Q3 2030	Integrity chemicals delivery
Provision of Chemical Treatment and Chemical Cleaning Services of Closed Loop Cooling Water (CLCW) Systems	2023 – Q3 2028	Closed water system chemicals delivery and associated services

S. Terminal Turnaround

Terminal turnaround refers to the planned turnaround of an onshore process terminal to perform equipment maintenance, overhaul, inspection, repairs, replacement, catalyst change out, and other activities. These operations are meticulously planned and executed to minimise downtime and optimise the terminal's performance. The critical aim of turnaround is to enhance the terminal's efficiency, ensure regulatory compliance, and extend the lifespan of the equipment. Turnaround activity is a labour intensive work, hence activity outlook is stated in man-hour units.

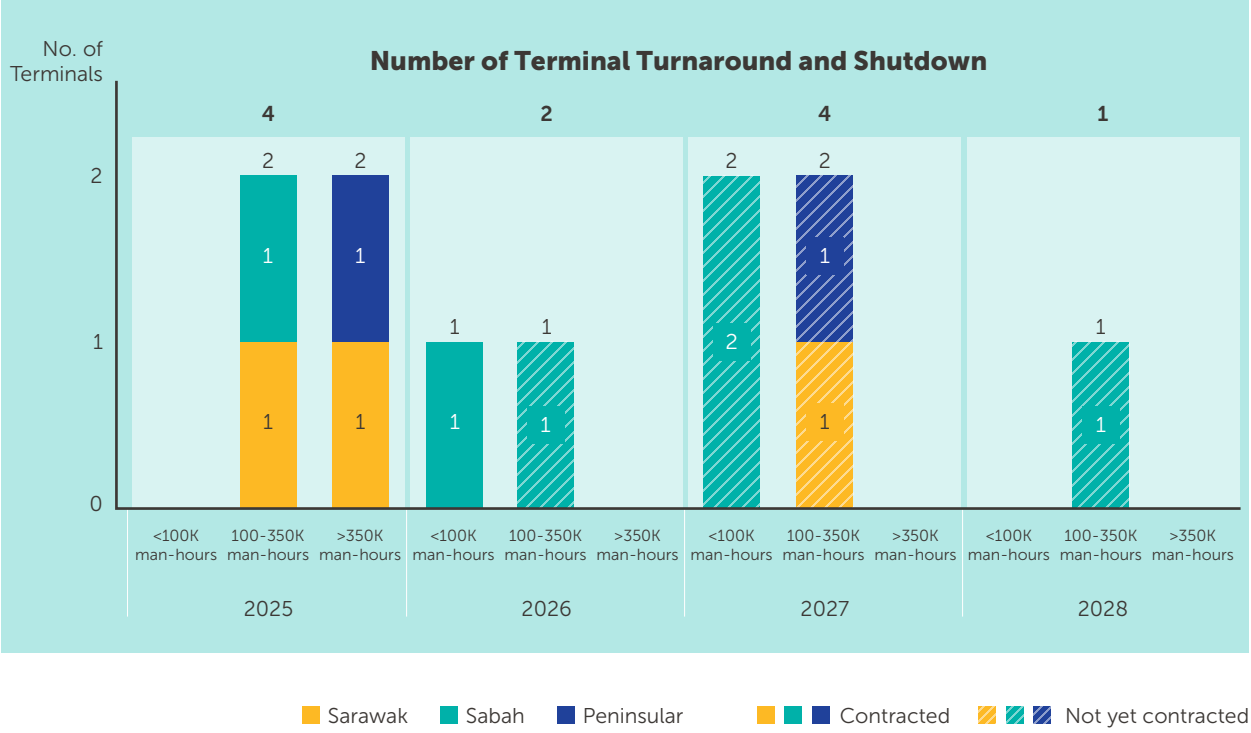


Activity phase: Operations

Application:
Terminal turnaround is scheduled periodically in which the entire facility is taken off-stream for a certain period to conduct maintenance and inspection activities in achieving smooth functioning, safety, and efficiency of plant facilities.

Associated services:
Equipment services (e.g., mechanical, electrical, instruments, etc.), inspection services, manpower, and equipment supply and rental.

Activity Outlook



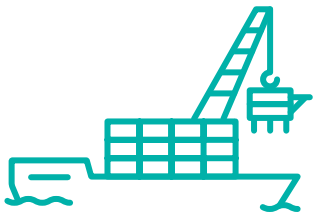
Note: Terminal turnaround covering only PETRONAS Upstream activities.

Key Contract List

Contract Name	Contract Duration	Scope
Integrated — Upstream, Downstream, and Gas		
Groupwide Master Service Agreement (MSA) for Integrated Turnaround Main Mechanical Works & Maintenance Mechanical Static (TA4MS)	2024 – Q1 2026	Turnaround, shutdown, and maintenance for static mechanical works including piping and structures i.e. equipment maintenance, replacement, overhaul, inspection, repair, and other services

T. Decommissioning

Decommissioning in the oil and gas industry represents the end of productive lives of wells and facilities, comprising permanently closing wells and the removal of assets as approved and/or directed by PETRONAS, and in doing so minimising further impact to the environment.

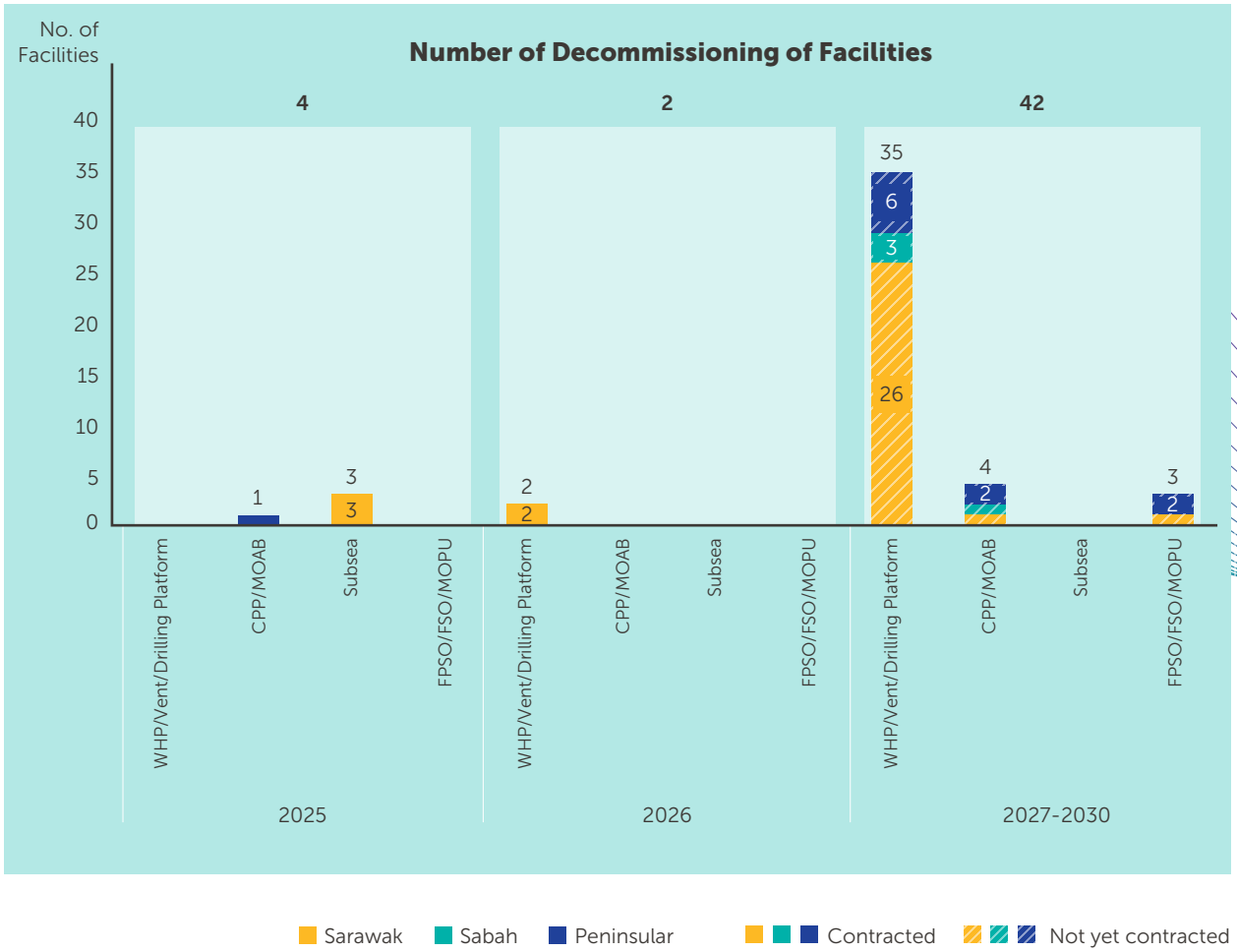


Activity phase: Abandonment

Application:
Permanent make safe of facilities, including wellhead platform (WHP), central processing platform (CPP), subsea facilities, floaters, pipeline, and onshore receiving terminals.

Associated services:
Drilling rigs and hydraulic workover unit (HWU), wireline and slickline services, third-party drilling services, offshore support vessels, heavy lift vessels, engineering services, cutting services, pipeline flushing, conductor removal, transport, yard facility, and many others.

Activity Outlook



MOAB : Mobile Offshore Application Barge
WHP : Wellhead Platform
CPP : Central Processing Platform
FPSO : Floating Production, Storage and Offloading
FSO : Floating Storage and Offloading
MOPU : Mobile Offshore Production Unit

Note: For a comprehensive view of Decommissioning activities, please refer to page 44 for P&A wells outlook.

Did You Know?

PETRONAS, in collaboration with the Department of Fisheries, launched the 10-year Malaysia Master Reefing Plan (MMRP) in December 2024, which outlines potential reefing candidates and reefing locations, as part of sustainability efforts.

Key Contract List

Contract Name	Contract Duration	Scope
Integrated — Upstream		
N/A		

6.3 Downstream Outlook

Business Overview

PETRONAS' Downstream Business maximises and transforms its resources into high-quality, value-added products, catering to over 100 markets globally. In doing so, it continues to create opportunities for collaboration and value creation within the oil and gas services and equipment (OGSE) ecosystem.

It encompasses a diverse set of activities, including refining, marketing and trading of crude oil and petroleum products, as well as manufacturing and marketing of chemical products.
These include:

Petroleum Products

- Petrol
- Diesel
- Lubricants
- Aviation Fuel

Convenience Businesses

- Setel
- Café Mesra

Chemical Products

Specialty Chemicals
- Coating Solutions
- Engineered Fluids Solutions
- Personal Care Solutions
- Advanced Polymer Solutions

Commodity Chemicals
- Methanol, Aromatics & Methyl Tertiary Butyl Ether (MTBE)
- Ammonia & Fertilisers
- Olefins, Glycols & Derivatives
- Polymers

The current immediate focus for Downstream is sustaining operational and commercial excellence to capture growing market opportunities while diversifying its product portfolio to align with evolving customer preferences.

Refining and Trading

3

Melaka, with a capacity of more than 275 thousand barrels per day (kbpd)

Terengganu, with a capacity of more than 120 kbpd

Johor, with a capacity of approximately 300 kbpd

Petrochemical

21

Manufacturing sites, with a production capacity of approximately 17 million tonnes per annum (MTPA)

Marketing

>1,100 Retail Stations

10 Lube Oil Blending Facilities

6 Joint Venture (JV) Depots and Facilities

10 Bunkering Facilities

36 Terminals

Did You Know?

Pengerang Integrated Complex
Measuring more than 6,000 acres, the Pengerang Integrated Complex (PIC) expands the downstream value chain from refining to steam cracking and further into other petrochemical plants. PIC maximises its value chain through sustainable growth and long-term profitability in the energy sector.

06 PETRONAS Activity Outlook

Specialty Chemicals

PETRONAS has been actively pursuing growth in specialty chemicals since 2017, to future-proof against the cyclical nature and volatility of the oil and gas industry.

Through the Specialty Chemicals division under PETRONAS Chemicals Group Berhad (PCG), which includes the BRB Group and Perstorp Group, PETRONAS offers a diverse portfolio of specialty chemical products and innovative new products to meet evolving market demands, designed to advance customers' daily lives.

PCG aims to expand beyond its current footprint through strategic acquisitions, delivering key growth projects and implementing targeted market expansion to enhance its competitive edge and drive sustainable growth in the specialty chemicals sector.

Biofuels

Through its partnership with Enilive and Euglena, PETRONAS will develop a biorefinery in PIC, scheduled to be operational by the second half of 2028.

The facility will be producing Sustainable Aviation Fuel (SAF) and other biofuels such as Renewable Diesel or Hydrogenated Vegetable Oil (HVO), catering to the growing needs of the global aviation and transportation sectors by leveraging each partner's expertise.

Electric Vehicle Fluids and Thermal Intelligent Fluids for Data Centres

PETRONAS is one of the pioneers in the industry to introduce a dedicated range of fluids for electric vehicles, PETRONAS Iona.

PETRONAS Iona enables customers and businesses to improve the efficiency of their electric vehicles (EVs) while supporting the global transition towards a lower-carbon future.

Building on the success of PETRONAS Iona in driving energy efficiency and sustainability for EVs and beyond, PETRONAS Iona Tera takes this expertise into the digital realm — a groundbreaking range of thermal intelligent fluids redefining the future of data centre cooling worldwide.

PETRONAS Iona Tera is a cutting-edge suite of dielectric fluids engineered for exceptional thermal management across diverse hardware from high-TDP CPUs and GPUs to data centre servers, EDGE, HPC, and blockchain systems. By delivering superior cooling performance, it reduces energy costs while enhancing system reliability, stability, and lifespan; setting a new benchmark for data centre efficiency and long-term performance.

Through solutions developed with key industries, PETRONAS Iona is actively contributing to the goal of overcoming global energy challenges in achieving net zero carbon emissions by 2050.

Beyond Retail

PETRONAS Dagangan Berhad (PDB) continues to evolve as a progressive energy and mobility solutions partner. Beyond retailing fuel, PDB delivers convenience, digital services, and sustainable mobility solutions that cater to the diverse needs of customers and industries alike.

PDB supplies refined petroleum products such as RON95, RON97, diesel and aviation fuel, ensuring customers access to high-quality, reliable fuel options. This is made possible by an extensive network of 36 terminals nationwide. PDB's integrated infrastructure provides various opportunities across logistics, asset maintenance, and digital monitoring.

Besides supplying fuel, PDB enhances customer convenience through its C-Store offerings such as Kedai Mesra and Café Mesra with quality food, beverages, and essential items, transforming PETRONAS stations into lifestyle hubs. On the digital front, SETEL streamlines payments for fuel, EV charging, parking, and vehicle insurance services among others, all within a single app.

Supporting the call for energy transition, PDB continues to expand into lower carbon solutions, focusing on EV two-wheelers, sustainable aviation fuel (SAF), and biodiesel, creating new avenues for collaboration in renewable integration and green technology.

Looking ahead, PDB aims to transform into an all-encompassing 'energy superstore' — from offering conventional fuels to EV charging and sustainable fuel alternatives, all in one place. Through these efforts, PDB remains committed to making everyday life simpler and better.

06 PETRONAS Activity Outlook

Short-term

The Downstream Business is enhancing operational efficiency and reliability to capitalise on the recovery in the global petroleum market and to ensure resilience in an uncertain chemical industry. Despite volatile markets, Downstream works to enhance competitiveness by focusing efforts on optimising production, improving supply chain robustness, and expanding product offerings to meet evolving customer needs.

Medium to Long-term

The Downstream Business is committed to strengthening operational and commercial excellence of its refineries and chemical plants to deliver safe and reliable operations. In ensuring a more diversified and resilient energy mix, investments in advanced processing technologies and infrastructure growth will support the transition towards future energy solutions, enabling PETRONAS to adapt to changing market dynamics while securing leadership in the downstream sector. They also reflect PETRONAS' broader aspiration to become an integrated energy company by 2035, serving the world's energy and solutions needs safely, reliably, and sustainably.

Key Highlights

1. Melaka's energy evolution

- Focuses on further expanding capabilities to fulfil the needs for cleaner and more efficient energy.

2. Sustainable performance unleashed

- Selenia SUSTAINera — a high-performance engine oil designed with sustainability in mind and formulated using premium recycled base oils.
- It delivers top-tier engine protection while reducing environmental impact.
- The packaging is fully recyclable and made from 50 per cent recycled plastics.

3. Expanding global footprint

3.1 Retail brand licensing

- Under the retail brand licensing initiative, PETRONAS has opened over 60 PETRONAS branded stations in partnership with SIM Distribuidora, bringing PETRONAS Primax fuel and further extending PETRONAS Syntium lubricants availability to drivers in Brazil.

3.2 Powering precision in China

- With the launch of the PETRONAS New Energy Technical Service Centre in Jiaxing, China, PETRONAS Lubricants International (PLI) is deepening its commitment to the Chinese market. The centre delivers customised technical services to original equipment manufacturers (OEMs) and auto parts suppliers, ensuring cutting-edge solutions that drive sustained growth and innovation in the region.

4. Stronger operations, smarter petrochemicals growth

- PCG introduced a new olefins and derivatives product, HL701, a high Renewable Carbon Index surfactant, aligning with the industry's shift towards sustainable solutions.

Downstream Activity List

Refinery

Petrochemicals

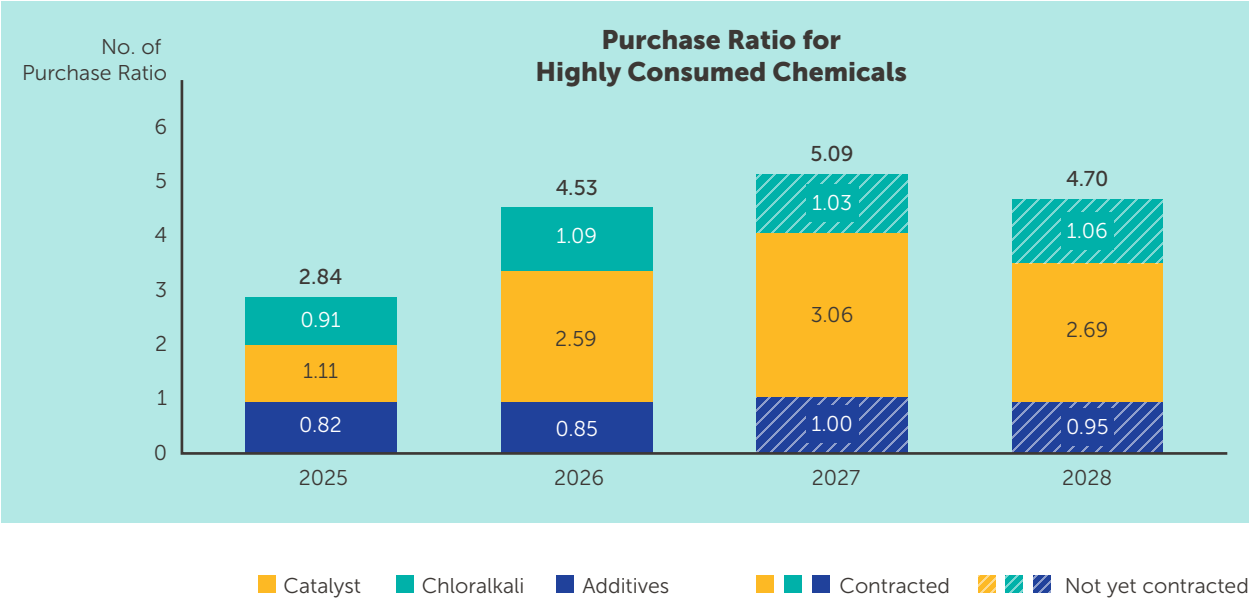
- Chemicals
- Plant Turnaround
- Equipment, Machineries and Facilities Maintenance
- Pipeline In-line Inspection and Maintenance

06 PETRONAS Activity Outlook

A. Chemicals

	Process Chemicals	Commodity Chemicals
Description	Chemicals that are specialised and used to accelerate plant processes, maximise asset reliability and/or improve productivity.	Chemicals that are standardised and commonly used in processes and operations.
Examples	• Additives • Catalyst	• Chloralkali

Activity Outlook



Note: Chemicals' purchase ratio is based on the forecasted purchase in comparison to actual purchase in base year 2024.

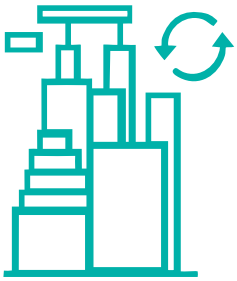
Key Contract List

Contract Name	Contract Duration	Scope
Integrated — Downstream and Upstream		
Price Agreement (PA) for Supply and Delivery of Chloralkali	Q1 2024 – Q4 2026	Supply and delivery of chloralkali
Integrated — Downstream and Gas		
Price Agreement for Supply and Delivery of Catalyst and Adsorbents	Q1 2023 – Q1 2028	Supply and delivery of catalyst
Individual — Downstream		
Price Agreement for Supply and Delivery of Chemical Additives	Q2 2023 – Q2 2026	Supply and delivery of chemical additives

B. Plant Turnaround

Plant turnaround refers to the planned turnaround or periodic shutdown of an onshore process plant to perform equipment maintenance, overhaul, inspection, repairs, replacement, catalyst change-out, and other activities. These operations are meticulously planned and executed to minimise downtime and optimise the plant's performance. The critical aim of plant turnaround is to enhance the plant's efficiency, ensure regulatory compliance, and extend the lifespan of the equipment. The dynamic and resource-intensive nature of turnaround work demands skilled labour, with potential gaps in trades such as mechanical fitters, scaffolders, and welders.

Turnaround activity is labour-intensive work, hence activity outlook is stated in man-hour units.

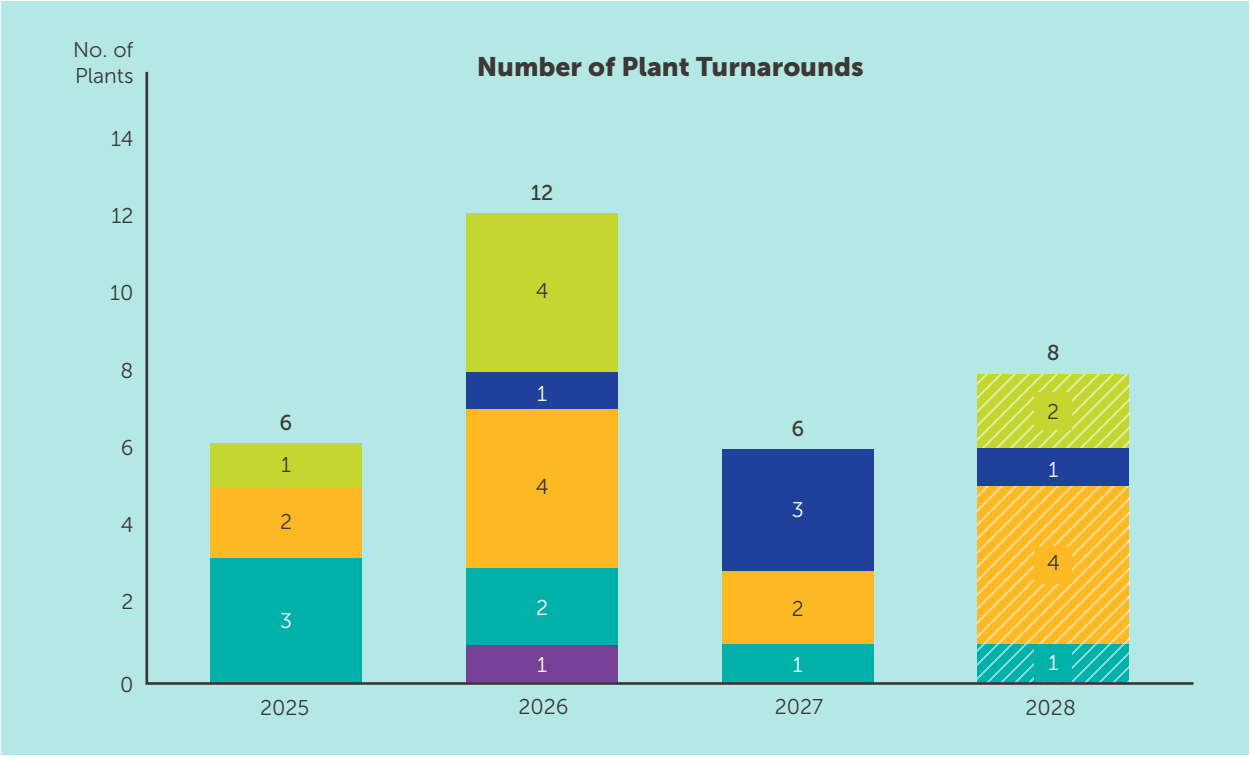


Activity phase: Operations

Application:
Plant turnaround is scheduled periodically in which the entire facility is taken off stream for a certain period to conduct maintenance and inspection activities, ensuring smooth functioning, safety, and efficiency of plant operations.

Associated services:
Equipment services (e.g. mechanical, electrical, instruments, etc.), inspection services, manpower, and equipment supply and rental.

Activity Outlook



Key Contract List

Contract Name	Contract Duration	Scope
Integrated — Upstream and Downstream		
Integrated Turnaround Main Mechanical & Maintenance Mechanical Static (TA4MS)	2019 – Q1 2027	Turnaround, shutdown, and maintenance for mechanical works on static equipment (including piping and structures) i.e. equipment maintenance, replacement, overhaul, inspection, repair, and other services

Did You Know?

PETRONAS is embarking on a Self Regulation (SR) initiative which is expected to reduce the number of turnarounds after SR certification while shifting the focus towards maintenance.

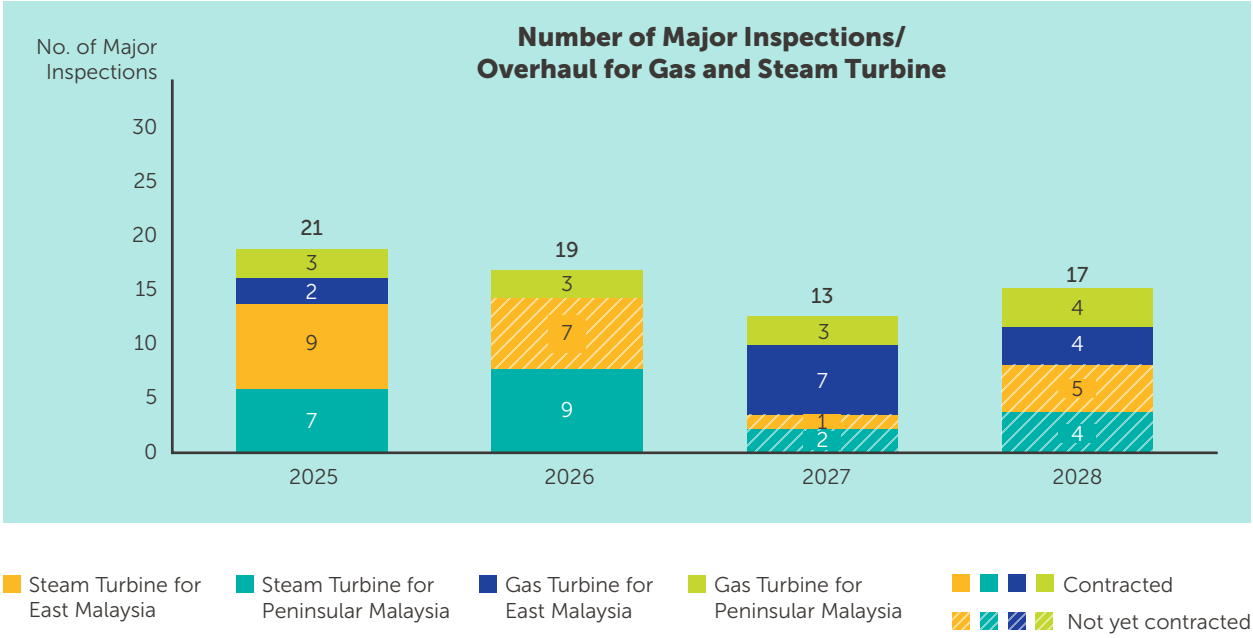
C. Equipment, Machineries and Facilities Maintenance

i. Gas and Steam Turbines

During normal operations, certain gas turbine parts are subjected to high temperature and cyclic stresses. The aim of a major inspection (MI) is to examine all rotor and stator inner parts, ensuring their integrity so that the gas turbine can be operated with high availability and reliability until the next scheduled inspection interval. Different sizes of gas turbines have different running hour intervals which could reach up to 60,000 running hours (approximately five years) for every cycle.

Major overhaul of steam turbines is carried out due to prolonged exposure of internal components to elevated temperatures, high pressures and cyclic mechanical stresses during continuous operation. The activity entails comprehensive inspection and dimensional assessment of critical elements such as rotor and stator assemblies, casing internals and steam path components to verify mechanical integrity and operational reliability. Typically executed after 30,000 to 80,000 operating hours (equivalent to three to 10 years), the overhaul enables early detection of material degradation, erosion, corrosion, and fatigue. This process is crucial to ensure sustained thermodynamic efficiency, mechanical reliability, and extended turbine service life.

Activity Outlook



Key Contract List

Contract Name	Contract Duration	Scope
Integrated — Downstream and Gas		
Gas Framework Agreement (GFA) Supply and Delivery of Gas Turbines	2024 – Q3 2030	Supply, delivery, and maintenance services
Individual — Downstream		
Term Contract of Steam Turbine Maintenance	Q4 2024 – Q3 2027	Supply, delivery, and maintenance services
Maintenance Services for Dry Low Nox (DLN) Gas Turbines	Q4 2022 – Q4 2029	
Provision of Turbomachinery Maintenance Services for Gas Turbines	Q4 2016 – Q4 2034	

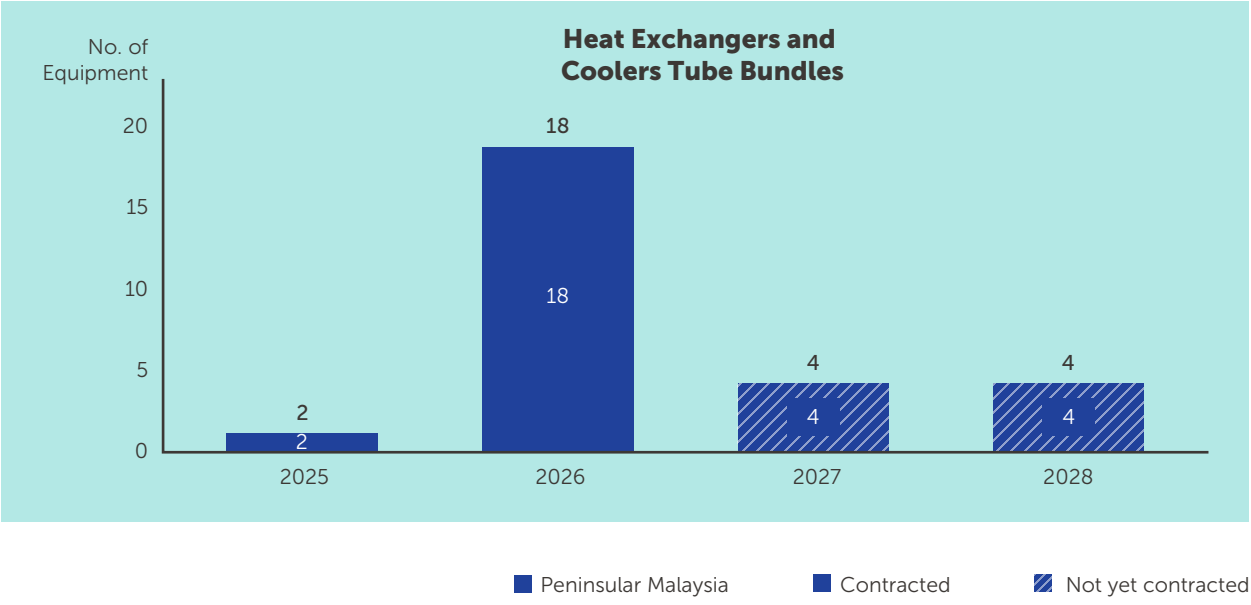
C. Equipment, Machineries and Facilities Maintenance

ii. Heat Exchangers and Coolers Tube Bundles

Heat exchangers (HEX) are essential in downstream operations, enabling efficient heat transfer between process streams without mixing. They maintain optimal temperatures for separation, cooling, and energy recovery, improving efficiency while reducing energy use and emissions.

Air fin coolers (AFC), a type of air-cooled exchanger, use ambient air to dissipate heat from process fluids, making them ideal where water is scarce or environmental constraints apply. They are commonly used for overhead condensers, compressor discharge cooling, and product cooling. In PETRONAS' downstream facilities, HEX units such as shell-and-tube, air-cooled (including air fin), and plate exchangers support processes like crude preheating, fractionation, and product stabilisation, helping to optimise turnaround schedules.

Activity Outlook



Key Contract List

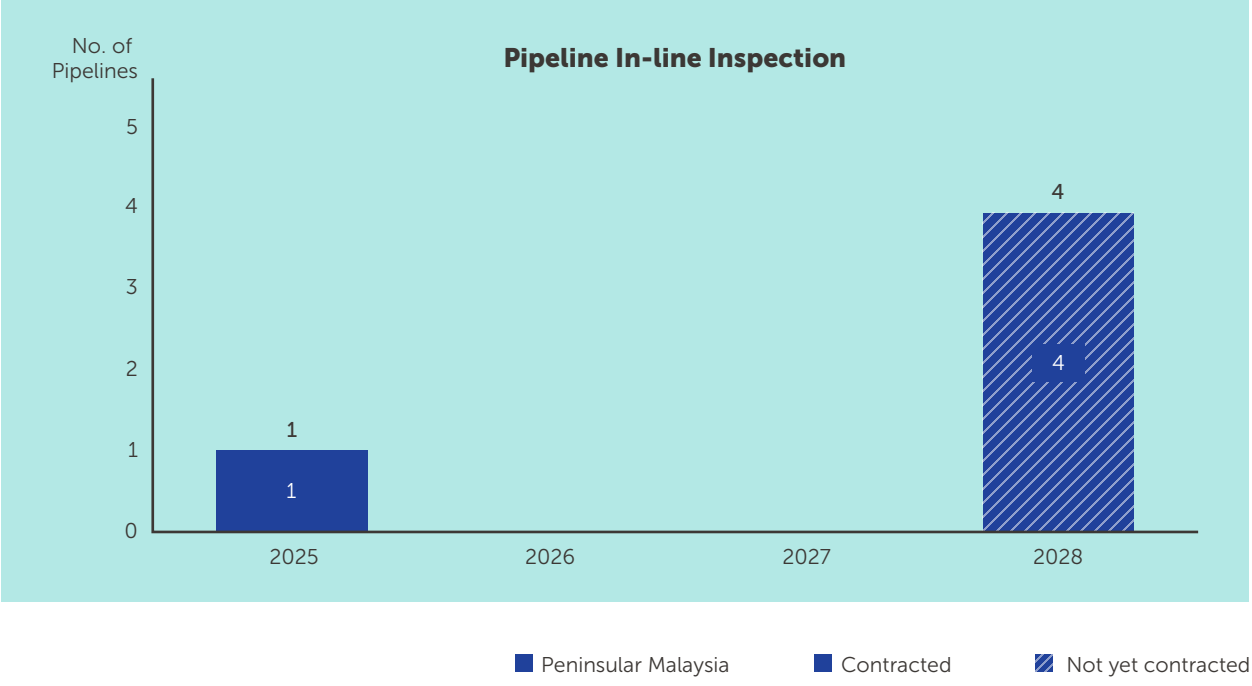
Contract Name	Contract Duration	Scope
Individual — Downstream		
Fabrication and Refurbishment Works of Heat Exchangers	Q4 2023 – Q4 2026	Fabrication and retubing: Replacement of tube bundles for ageing exchangers New purchases and installation: Multiple units scheduled for procurement and installation across OPUs Upgrades and replacements: Including AFC bundles and shell-and-tube units for reliability and energy efficiency

D. Pipeline In-line Inspection and Maintenance

Pipeline in-line inspection (ILI) and maintenance in oil refineries ensures the safe and efficient movement of crude and refined products through high-pressure pipelines. Using advanced tools, inspections are carried out inside the pipeline, detecting corrosion, cracks, or wall thinning through sensors and data analysis.

Maintenance activities such as cleaning, repairs, and protective coatings follow these inspections to maintain flow efficiency and prevent failures. This process is critical for uninterrupted refinery operations – it reduces safety risks, minimises environmental impact, and avoids energy losses and costly downtime, contributing to lower emissions and efficient resource use.

Activity Outlook



Key Contract List

Contract Name	Contract Duration	Scope
Individual — Downstream		
Pipeline In-line Inspection	Q4 2025 – Q1 2026	Pipeline in-line pre-inspection activities, inspection execution, and post-inspection activities

6.4 Gas and Maritime Outlook

Business Overview

The Gas and Maritime Business showcases its position as a one-stop centre for lower-carbon energy and maritime solutions, equipped with integrated value chain capabilities to ensure a reliable supply of natural gas and liquefied natural gas (LNG).

As global demand for LNG continues to grow, the Gas and Maritime Business remains focused on maintaining LNG market leadership while offering a suite of energy solutions tailored to customer needs, from pioneering floating LNG facilities and LNG ISO tanks to securing supply from multiple geographies.

The Gas and Maritime Business continues to expand its LNG supply portfolio focusing on sustaining production in Malaysia through maximising the value of existing assets, advancing identified growth projects in Canada and Suriname, pursuing new opportunities to secure long-term contracts, and diversifying supply nodes.

Furthermore, to ensure energy security at home, PETRONAS has been supplementing domestic supply with imports from its global portfolio, primarily sourced from Australia, and in the future from the Middle East.

Aligned with this direction, Gas and Power priorities centre on supporting Malaysia's growing digital economy and rising power demand through targeted digital and gas infrastructure development. This includes strengthening the resilience of the gas network, leveraging opportunities from the nation's broader energy transition agenda and optimising costs through competitive molecules.

In the Maritime business, strategic priorities include strengthening core operations, expanding into new energy maritime solutions and accelerating decarbonisation initiatives.

As a progressive lower-carbon solutions provider, PETRONAS aligns every decision to one vision: delivering reliable, responsibly sourced energy that meets today's needs and unlocks tomorrow's possibilities, ensuring it remains a trusted partner in the global energy transition.

Short-term Outlook

The Gas and Maritime Business will continue to play a critical role in ensuring Malaysia's energy security and supporting economic growth.

- Ensuring reliable gas supply to Peninsular Malaysia through existing infrastructure including Gas Processing Kertih and Santong and regasification terminals (RGTSU and RGTP) and also serves as backbone of the national power generation.
- Maximising existing operations at the PETRONAS LNG Complex in Bintulu and floating LNG facilities (PFLNG SATU and PFLNG DUA).
- Continue to rejuvenate our fleet with modern, efficient and lower emissions vessels, maximise fleet utilisation, pursue strategic growth in high-potential markets for FPSO projects and strengthen the heavy engineering order book in both conventional and new energy projects.

Medium to Long-term Outlook

Looking ahead, the Gas and Maritime Business aims to transform its portfolio to meet Malaysia's growing energy needs while supporting the national sustainability agenda.

- Growing LNG portfolio with the advancements of a third floating LNG facility in Sipitang, Sabah and expansion into new supply nodes such as Canada.
- Expanding regasification capacity to strengthen energy security and diversify its portfolio beyond traditional gas markets.
- Investing in more efficient, lower-emission shipping solutions and alternative fuels to achieve significant GHG emissions reduction.
- Intensifying decarbonisation efforts to reduce carbon footprint and advocate for gas as a cleaner, scalable energy solution. This involves pursuing decarbonisation across our operations and positioning gas as a key enabler in the global energy transition.

The illustration below outlines the domestic value chain for Gas and Maritime Business.

Plants	Marketing and Trading	Customers
LNG Assets **4 LNG Plants** 29.3 million metric tonnes per annum (MTPA) **2 Floating LNGs** 2.7 MTPA	 LNG Marketing and Trading	 LNG Buyers
Gas and Power **2 Gas Processing Complexes** Total Gas Processing Capacity 1,750 MMscfd **2 Utilities Complexes** • Electricity – 256 MW • Steam – 1,080 t/h • Oxygen – 32,000 Nm^3/h • Nitrogen – 77,740 Nm^3/h **1 Independent Power Producer** • Electricity – 285 MW **1 Industrial Gases Plant** • Oxygen – 41,000 Nm^3/h • Nitrogen – 22,500 Nm^3/h **2 Regasification Terminals** 990 MMscfd LNG Regas Capacity **2,675 km Overall Pipeline Length**	 PETRONAS Energy and Gas Trading	 Power, Non-Power, and Exports

06 PETRONAS Activity Outlook

The illustration below outlines the value chain for Maritime Business.

Segments	Our Solutions	Customers
Energy Transportation **Gas Assets and Solutions (GAS)** 41 vessels, including co-owned and chartered-in	 LNGC, LBV, FSU, VLEC	LNG producers, oil majors, offshore energy operators
Petroleum and Product Shipping 65 vessels, including chartered-in	 VLCC, Suezmax tankers, Aframax tankers, DPST, LSV, LR2	
Offshore Floating Production and Storage **Offshore Business** 12 floaters, including JV-owned	 FPSO, FSO, Semi-FPS	
New Energy New Energy Solutions and Services	 Ammonia carrier, LCO_2 carrier, CSOV	
Marine and Heavy Engineering **Heavy Engineering Assets** 2 fabrication yards for EPCIC of complex structures for onshore and offshore facilities	 Provision of engineering and construction services for offshore and onshore structures in the energy sector including oil and gas and renewables, and marine repair and conversion services.	LNG producers, oil majors, offshore energy operators
Marine Business Assets 3 drydocks 2 land berths 7 quays/berths 1 ship lift		
Marine Services **Integrated Marine Services**	Ship management, technical advisory services and various maritime services such as port and terminal management, maintenance, ship vetting, vessel inspection, marine assurance, and consultancy.	Shipowners and port operators
Port Management and Maritime Services		
Maritime Education and Training **Akademi Laut Malaysia (ALAM)** 1 campus	Maritime courses including nautical and marine engineering programmes, maritime and offshore safety courses, simulator-based courses and maritime management programmes, research, and consultancy services.	Shipowners and various stakeholders

Gas Operating Plant Unit Business Overview

A. Malaysia Liquefied Natural Gas

Malaysia LNG Sdn Bhd (MLNG) was established on 14 June 1978, as a joint venture between PETRONAS, Shell, and Mitsubishi Corporation, becoming Malaysia's first LNG project.

MLNG's first LNG plant commenced operations in 1983, with its inaugural cargo delivered to Japan's Sodegaura Terminal on 29 January of that year.

To meet growing LNG demand, MLNG expanded with two additional joint ventures, MLNG DUA on 1 June 1992, and MLNG TIGA on 8 November 1995, enhancing capacity and market reach.

MLNG operates nine production trains at the PETRONAS LNG Complex (PLC) in Bintulu, Sarawak, dedicated to safe and reliable LNG production for clients in Japan, South Korea, China, and other regions.

Spanning 303 hectares, the PLC is among the world's largest LNG facilities in a single location, with a capacity of 29.3 million tonnes per annum (MTPA), inclusive of boil-off gas reliquefaction facility, translating into potential deliveries exceeding 400 LNG shipments annually.

In line with the commitment to reduce the carbon footprint of the LNG production process, PLC will begin utilising green electricity from hydro sources in 2026. This ongoing transition will enable MLNG to decommission outdated and inefficient gas turbines. By importing 90 MW of power from Sarawak Energy Berhad (SEB), MLNG expects to reduce greenhouse gas (GHG) emissions by 0.5 million tonnes of carbon dioxide equivalent (tCO_2e) per year.

B. PETRONAS Floating Liquefied Natural Gas
PETRONAS operates two floating liquefied natural gas (FLNG) facilities, PFLNG SATU and PFLNG DUA, enabling efficient production of LNG from challenging offshore natural gas reserves.

This positions PETRONAS as the first global energy company to own and operate two FLNG units, enhancing its capability to access remote gas fields while minimising impact to the environment.

PETRONAS' FLNG facilities exemplify its commitment to leveraging cutting-edge technology for efficient and responsible energy production.

PFLNG SATU
Launched in 2016, PFLNG SATU was initially moored at the Kanowit Field, 180 km offshore Bintulu, Sarawak. In March 2019, it was successfully relocated to the Kebabangan Field, 90 km offshore Kota Kinabalu, Sabah, achieving first gas in May 2019. With a production capacity of 1.2 MTPA of LNG, PFLNG SATU is the world's first floating facility integrating production, storage, and offloading for LNG. This innovation allows for the development of stranded and marginal gas fields that would otherwise be uneconomical to exploit via conventional pipelines.

PFLNG DUA
Commissioned in 2021, PFLNG DUA received first gas from the Rotan Field, 140 km offshore Kota Kinabalu, Sabah, in February 2021. It has a production capacity of 1.5 MTPA of LNG and is designed to handle larger output. The floater reached the Rotan Field delivered its first cargo on 24 March 2021 further enhancing PETRONAS' ability to harness offshore gas resources.

Shore-based FLNG
A third floating facility is already in the pipeline for Sipitang, Sabah, expected to commence operations by 2027. These innovations underline PETRONAS' ability to push technological boundaries and maintain supply reliability in new ways.

C. PETRONAS Gas Berhad

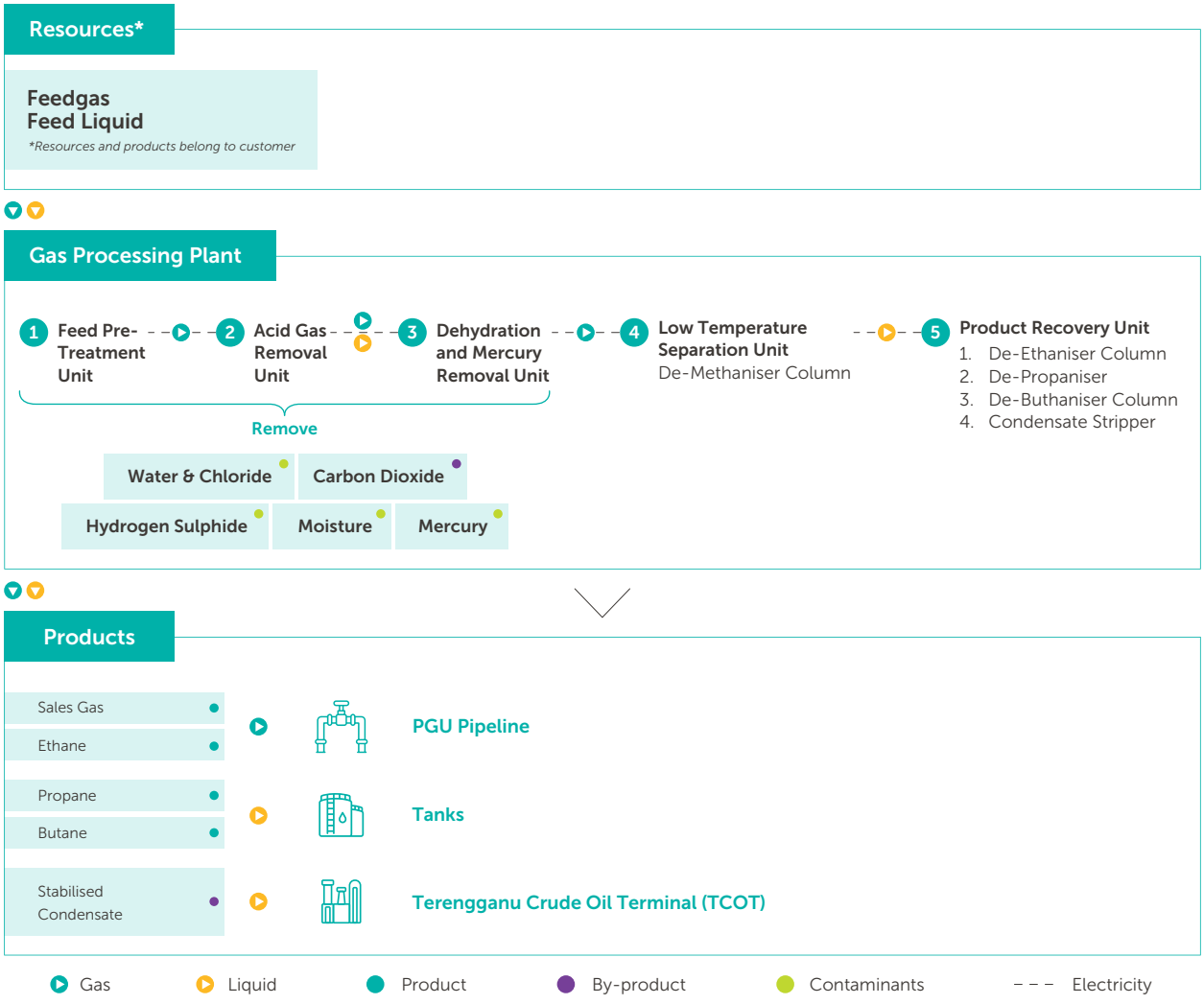
PETRONAS Gas Berhad (PGB) is a leading gas infrastructure and utilities company providing safe and reliable gas solutions with operations comprising:

i. Gas Processing Plants

Gas Processing (GP) processes PETRONAS' upstream natural gas from offshore Peninsular Malaysia, including B17 from the Malaysia-Thailand Joint Development Area, to serve customers in power generation and key industries such as petrochemicals.

These operations are carried out at five plants located within two complexes in Terengganu: Gas Processing Kertih (GPK) and Gas Processing Santong (GPS).

With a combined gas processing capacity of 1,750 million standard cubic feet per day (MMscfd), the plants produce sales gas, ethane, propane and butane.



Source: PGB Integrated Report 2024

ii. Utilities

Utilities production serves customers across various industries by offering a wide range of products tailored to meet specific needs.

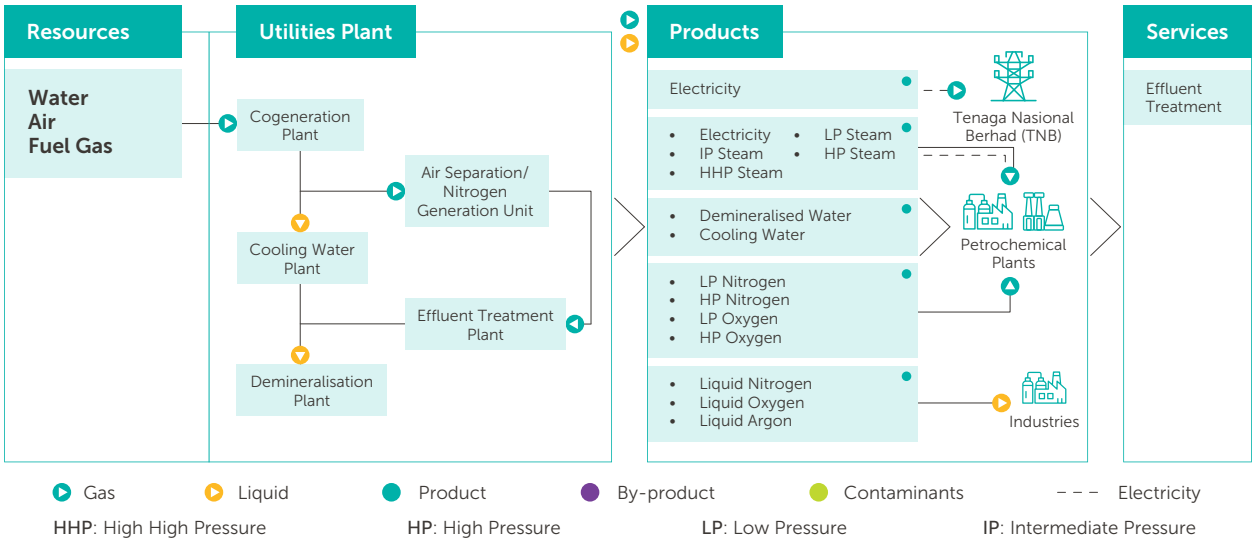
Operations are carried out at two complexes: Utilities Kertih (UK) in Terengganu and Utilities Gebeng (UG) in Pahang. Strategically positioned next to the Kertih Integrated Petrochemical Complex and the Gebeng Industrial Area, these complexes provide a competitive edge to petrochemical plants and surrounding industries through a reliable supply of essential products.

Additionally, PGB supplies steam, power, and industrial gases to customers within the Kertih Integrated Petrochemical Complex in Terengganu and the Gebeng Industrial Area in Pahang.

Incorporated in 2008, Kimanis Power Sdn Bhd (KPSB) developed and operates a 285-MW Gas-Fired Combined Cycle Gas Turbine power plant under a Build-Operate-Transfer arrangement.

The project is a key component of the 'Power Up Sabah' initiative under the Malaysian Economic Transformation Plan. KPSB was commissioned in 2014 with a total nominal capacity of 285 MW across three generating blocks and supplies electricity to Sabah Electricity Sdn Bhd. KPSB is jointly owned by PGB (60 per cent) and NRG Consortium (Sabah) Sdn Bhd (40 per cent).

Pengerang Gas Solutions Sdn Bhd (PGSSB) was incorporated in August 2016 as a joint venture between PGB (51 per cent) and Linde Malaysia Sdn Bhd (49 per cent). The company's core business is to supply industrial gases, primarily to meet the demand for gaseous oxygen and nitrogen within the Pengerang Integrated Complex (PIC). Located in the vicinity of PIC, PGSSB achieved full commercial operations in 2019. The ASU plant employs cryogenic fractionation distillation technology at extremely low temperatures to separate atmospheric air into its primary components — gaseous oxygen and gaseous nitrogen.



Source: PGB Integrated Report 2024

iii. Gas Transportation and Regasification

In Peninsular Malaysia, natural gas accessibility is facilitated through the extensive Peninsular Gas Utilisation (PGU) pipeline network, which delivers sales gas to customers such as major power plants, refineries and industries across the country, as well as to Singapore.

At present, this pipeline network, which has a contracted pipeline capacity of 2,550 MMscfd is being remotely monitored and controlled from the PETRONAS Gas Control Centre in Segamat, Johor. PGU's transmission tariffs are regionally competitive and regulated by the Energy Commission of Malaysia.

The offshore LNG Regasification Terminal in Sungai Udang, Melaka (RGTSU) and the LNG Regasification Terminal in Pengerang, Johor (RGTP) are key components of PETRONAS' Regasification business. RGTSU commenced commercial operations in the second quarter of 2013, while RGTP began in the fourth quarter of 2017.

These facilities receive LNG vessels from around the world and provide a range of services, including:

- LNG regasification with capacities of 500 MMscfd at RGTSU and 490 MMscfd at RGTP
- LNG reloading
- LNG truck loading at RGTP
- LNG bunkering at RGTSU and RGTP

In support of the Government's aspiration for gas market liberalisation under the Twelfth Malaysia Plan, PGB has opened available capacity of its regasification terminals and pipelines for use by qualified shippers.

This initiative promotes the importation of LNG and stimulates growth in the national gas industry, further contributing to the Energy Commission's mission to secure and manage energy supply for Malaysia's expanding domestic demand and economic growth.

D. MISC Group

Established in 1968 as Malaysia's first shipping line, MISC stands as the nation's largest maritime company, proudly listed on the Kuala Lumpur Stock Exchange.

MISC offers a comprehensive range of services and solutions, catering to various sectors within the energy-related maritime value chain. These services encompass energy shipping, offshore floating solutions, marine and heavy engineering, integrated marine services as well as new energy and decarbonisation solutions, each tailored to meet the dynamic needs of the market.

At the core of MISC's success is its modern and diversified fleet, which includes LNG and ethane carriers, petroleum and product tankers, as well as offshore floating facilities. This is supported by the expertise and dedication of a highly skilled global workforce, both at sea and onshore, ensuring operational excellence and reliability in service delivery.

MISC consistently invests in advanced technologies and sustainable practices across its group of companies to enhance efficiency and reduce the environmental impact of its operations. Driven by a commitment to innovation, safety, and sustainability, MISC is championing the maritime industry's progress towards a lower-carbon future and aligning its strategies with global aspirations for a just energy transition.

As a future-focused organisation, MISC continues to forge strategic partnerships and explore new opportunities that create value for its stakeholders while advancing the energy industry's transition to meet the world's evolving energy needs responsibly and efficiently.

In addition to its operational capabilities, MISC is committed to developing Malaysia's future maritime talents through Akademi Laut Malaysia (ALAM), which it operates and manages. By equipping future seafarers and maritime professionals with the necessary skills and expertise, ALAM contributes to the nation's aspirations in shaping a thriving and progressive maritime sector, reinforcing Malaysia's global standing in the industry.

Gas Activity List

PFLNG MLNG PGB

Chemicals	
	Plant Turnaround
	Pipeline Inspection
Equipment, Machineries and Facilities Maintenance	

A. Chemicals

Chemical utilisation is one of the critical elements in Gas Business mainly during operations and maintenance activities (either routine or turnaround activities). Out of five common chemical categories (i.e. commodity chemicals, gases, laboratory chemicals, process chemicals, and chemical services), below are the two categories that are highly consumed within the OPUs under Gas Business:

	Process Chemicals	Commodity Chemicals
Description	Chemicals that are specialised and used to accelerate plant processes, maximise asset reliability, and/or improve productivity.	Chemicals that are standardised and commonly used in processes and operations.
Examples	• Catalyst and Adsorbent • Solvent	• Chloralkali

- The demand for PETRONAS chemicals is influenced by several factors, including ageing assets, turnaround and shutdown activities (TASD), new projects, and new plants coming onstream.
- The longevity and lifespan of chemicals also play a crucial role. While chemical consumption may not be extensive, collaboration in chemical technology advancement is essential. This includes not just product delivery but also product management, sustainability, and related areas.
- Chemicals and chemical services that extend asset lifespan, improve reliability, and enhance productivity provide significant advantages.

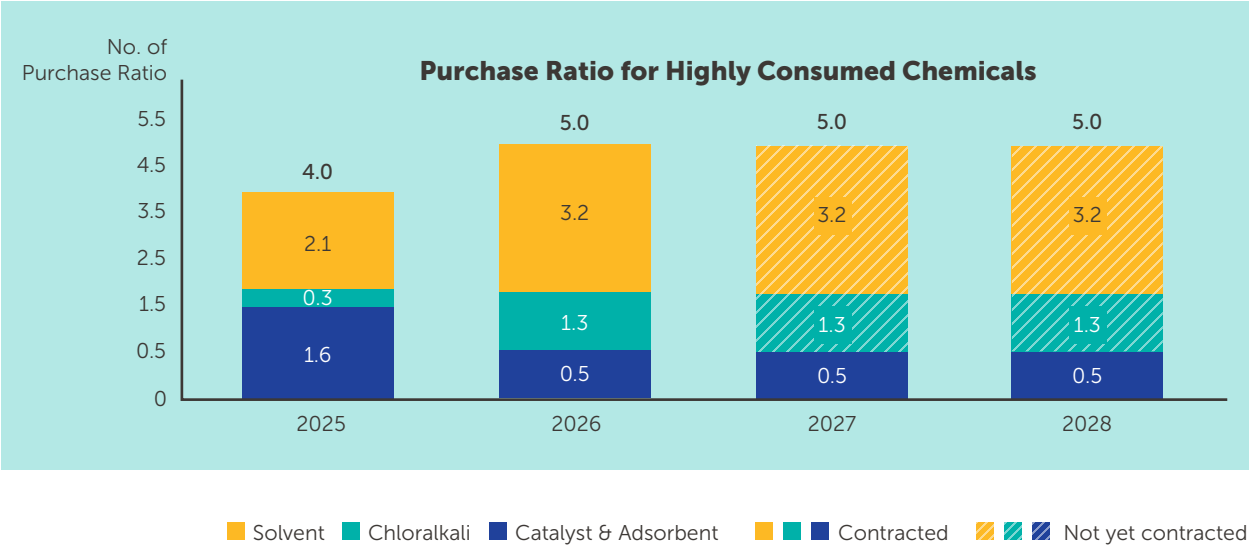
Overview of Chemical Requirements

Activity phase: Operations and maintenance

Application:
Chemical requirements vary based on their applications, which may include routine change-outs or adjustments based on plant performance to ensure smooth functioning, safety, and operational efficiency.

Associated services:
Supply, delivery, and technical services.

Activity Outlook



Note: Chemicals' purchase ratio is based on the forecasted purchase in comparison to actual purchase in base year 2024.

Key Contract List

Contract Name	Contract Duration	Scope
Individual — Gas		
Price Agreement for Supply and Delivery of Solvent	2023 – Q2 2026	Supply of solvent
Supply of Catalyst and Adsorbent	2023 – Q3 2028	Supply of catalyst and adsorbent
Integrated — Gas and Downstream		
Supply of Chloralkali	2023 – Q4 2026	Supply of chloralkali chemicals

B. Plant Turnaround

Plant turnaround refers to the planned turnaround or periodic shutdown of an onshore process plant to perform equipment maintenance, overhaul, inspection, repairs, replacements, catalyst change out, and other activities. These operations are meticulously planned and executed to minimise downtime and optimise the plant's performance. The critical aim of plant turnaround is to enhance the plant's efficiency, ensure regulatory compliance and extend the lifespan of the equipment.

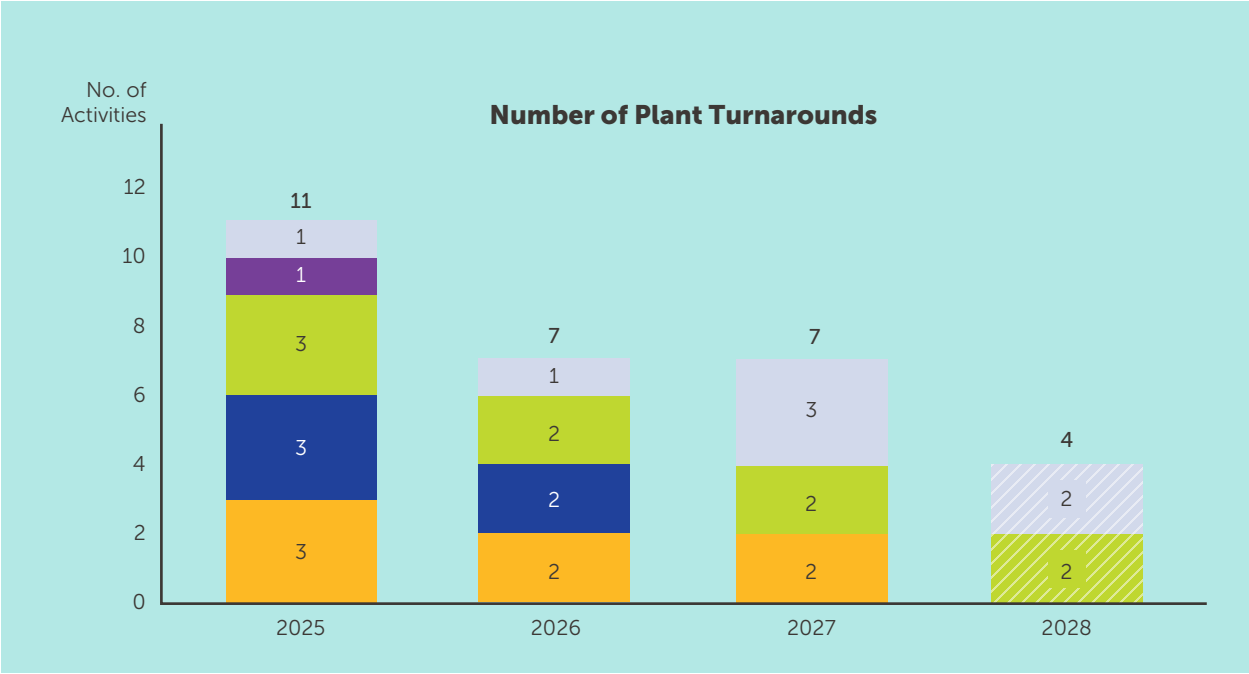
Overview of Turnaround Activities

Activity phase: Operations

Application:
Plant turnaround is scheduled periodically in which the entire facility is taken off stream for a certain period to conduct maintenance and inspection activities, to achieve smooth functioning, safety, and efficiency of plant facilities.

Associated services:
Equipment services (e.g. mechanical, electrical, instruments, etc.), inspection services, manpower, and equipment supply and rental.

Activity Outlook



Key Contract List

Contract Name	Contract Duration	Scope
Integrated — Gas, Downstream, and Upstream		
Master Service Agreement (MSA) for Integrated Turnaround Main Mechanical and Maintenance Mechanical Static (TA4MS)	Q1 2022 – Q1 2027	Turnaround management • Turnaround or maintenance

C. Pipeline Inspection

Pipeline inspection for Gas Business involves systematic monitoring and assessment of pipeline conditions to ensure integrity, safety, and reliability throughout their operational lifecycle. Activities include internal inspection (using in-line inspection (ILI) tools or "smart pigging"), external inspection, and non-destructive testing to detect corrosion, leaks, deformation, or other potential defects.

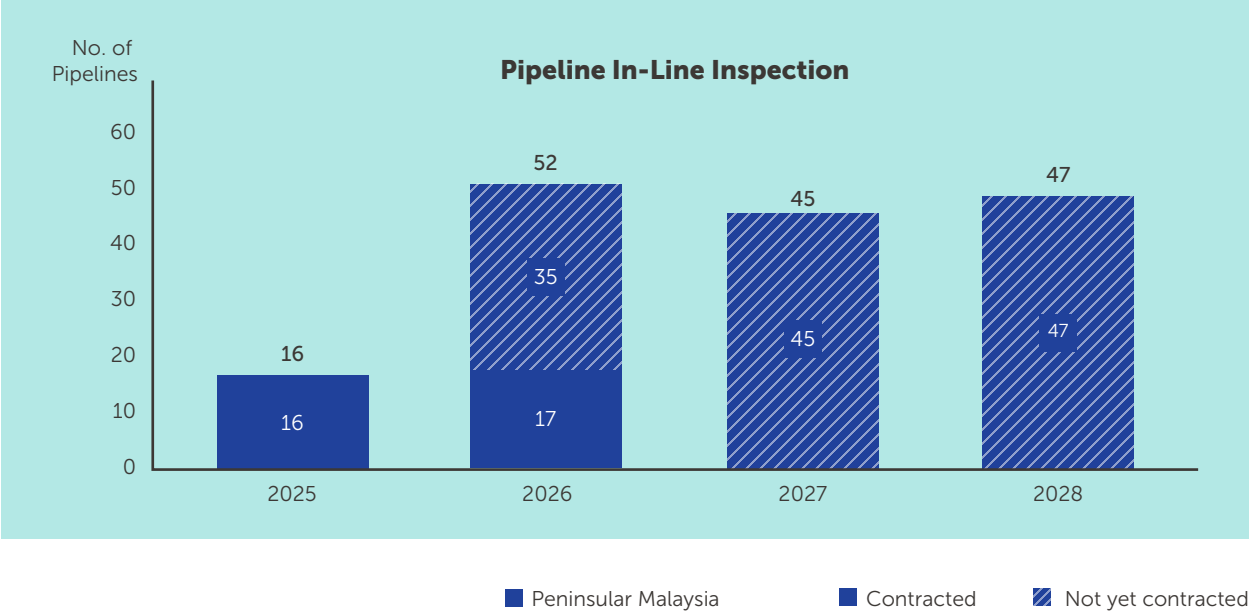
Overview of Pipeline Inspection Activities

Activity phase: Maintenance

Application:
Pipeline inspection is applied throughout the pipeline's lifecycle to assess and verify its integrity, typically conducted at scheduled intervals or when triggered by condition monitoring data or operational anomalies. It involves the use of various inspection methods such as ILI, external surveys, and non-destructive testing (NDT) to detect corrosion, leaks, deformation, or coating damage.

Associated services:
Pipeline services (e.g. mechanical, electrical, instruments, etc.), inspection services, skilled manpower, equipment supply and logistics.

Activity Outlook



Key Contract List

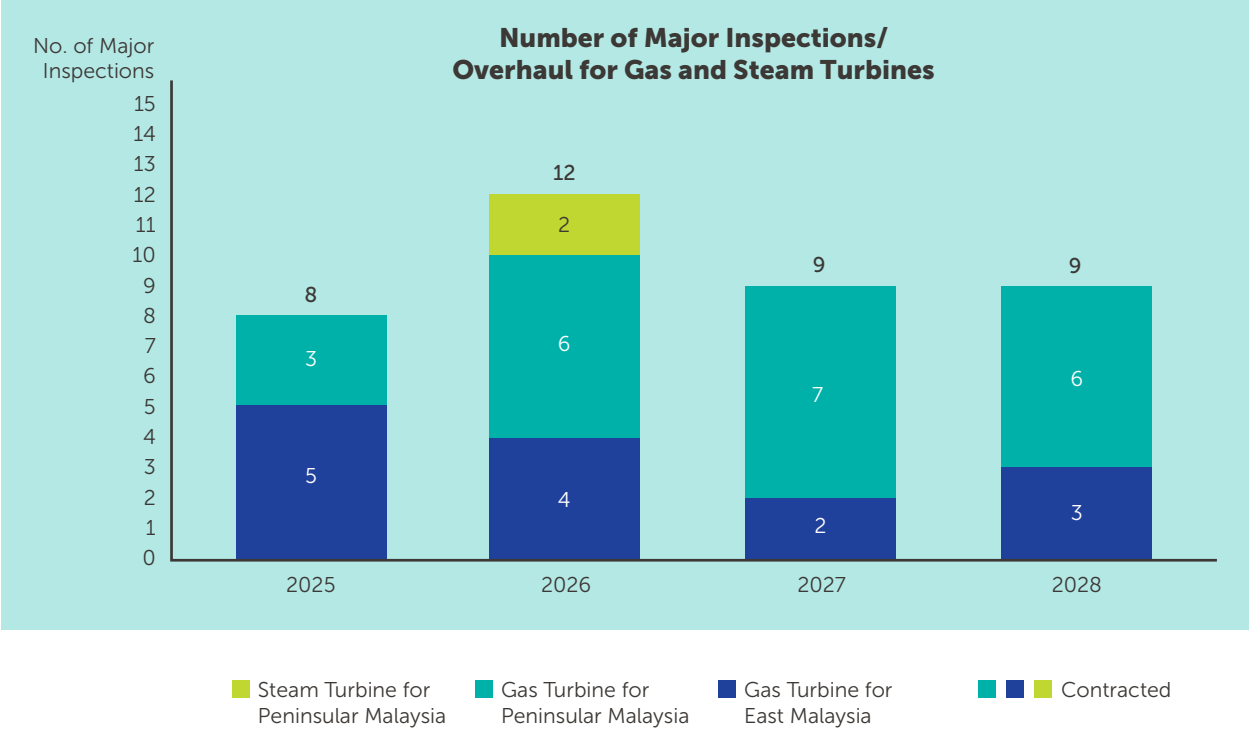
Contract Name	Contract Duration	Scope
Integrated — Gas, Downstream, and Upstream		
Term Contract for Pipeline In-line Inspection	2022 – Q1 2027	In-line inspection
Individual — Gas		
Term Contract for Pipeline In-line Inspection (ILI) via Enhanced Magnetic Flux Leakage	2024 – Q1 2027	In-line inspection

D. Equipment, Machineries and Facilities Maintenance

i. Gas and Steam Turbines

Gas turbine services refer to the comprehensive range of activities involved in the operation, maintenance, repair, and overhaul of gas turbines used in power generation and mechanical drive applications. These services ensure that gas turbines operate efficiently, reliably, and safely throughout their lifecycle. Key services include routine inspections, performance testing, troubleshooting, replacement of parts, and major repairs or upgrades.

Activity Outlook



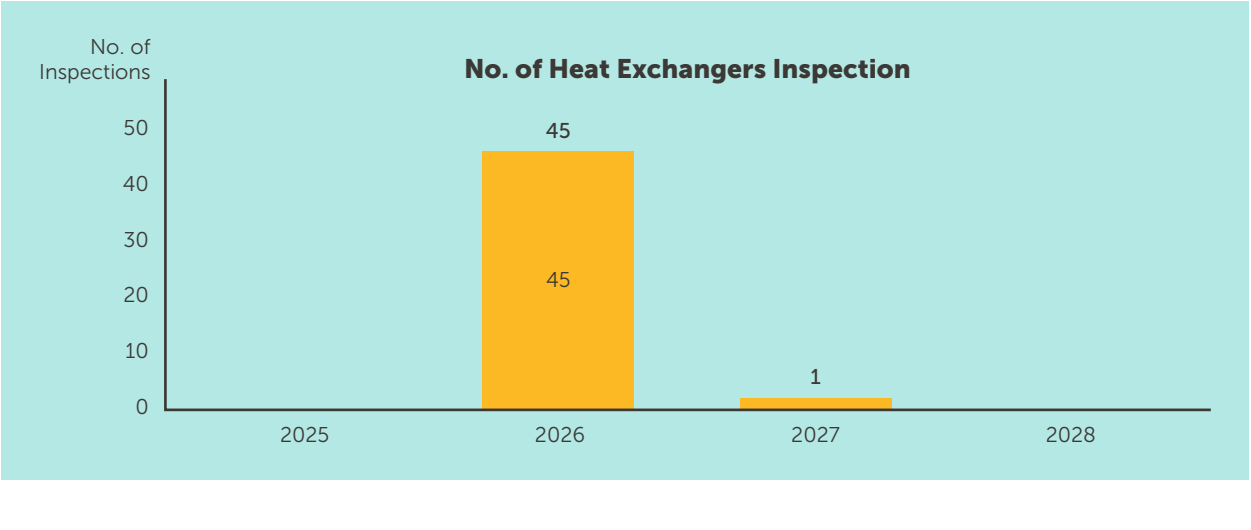
Key Contract List

Contract Name	Contract Duration	Scope
Individual — Gas		
Multiple service contracts for gas turbine	2024 – Q1 2028	Maintenance services
Services contract for steam turbine	2025 – Q4 2026	

ii. Heat Exchangers

Heat exchanger purchases and services refer to the buying, installation, maintenance, and repair of equipment used to transfer heat, condense gases, and cool fluids in oil and gas processes. These services ensure efficient temperature control and safe operation of the systems.

Activity Outlook

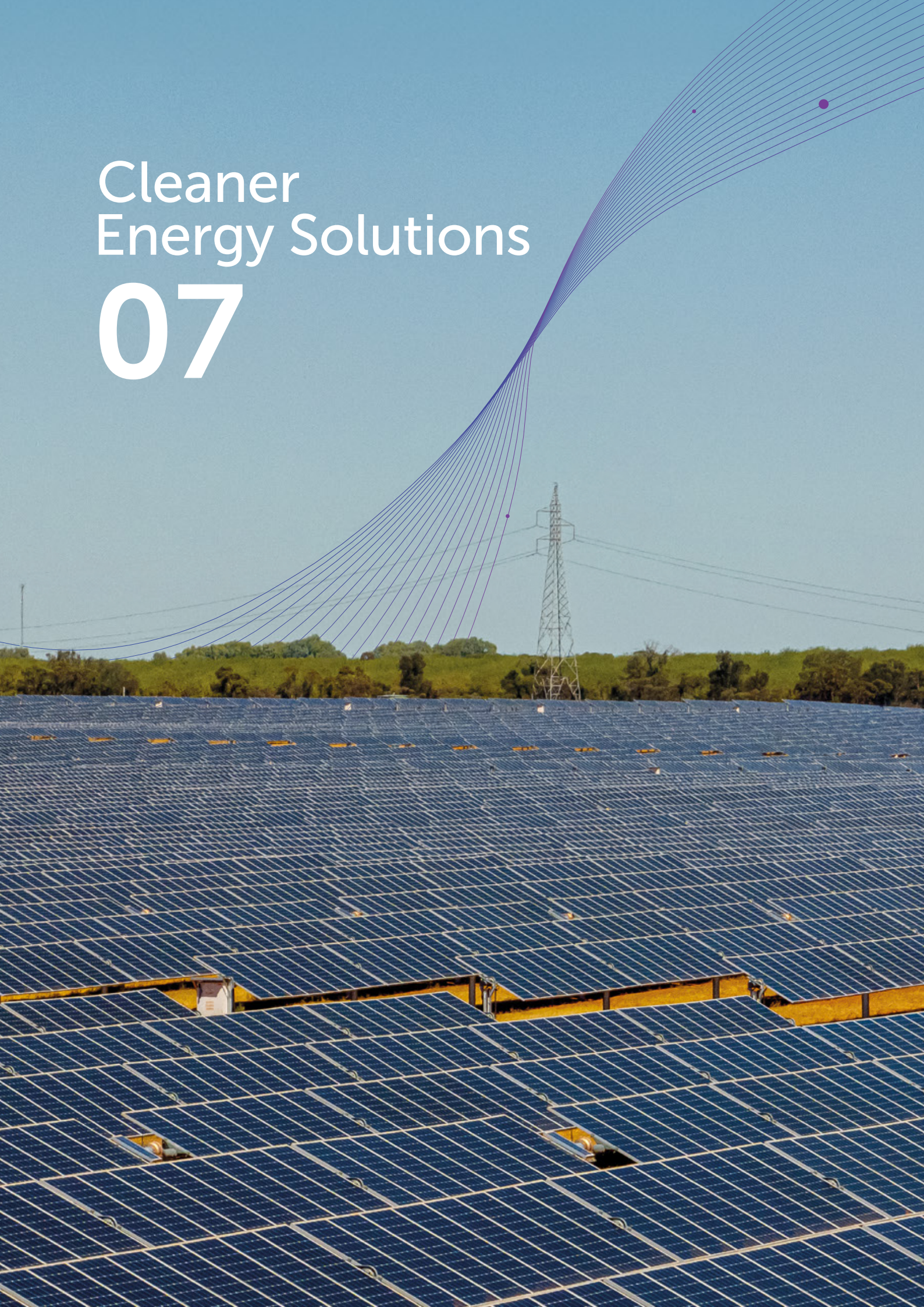


Key Contract List

Contract Name	Contract Duration	Scope
Individual — Gas		
Services contract for static equipment	2024 – Q1 2027	Maintenance services

Cleaner Energy Solutions

07



Gentari

A Clean Energy Solutions Company

Established in September 2022 as a wholly owned subsidiary of PETRONAS, Gentari supports the PETRONAS Energy Transition Strategy and the Net Zero Carbon Emissions by 2050 Pathway, with a purpose to solve the world's most pressing sustainable energy needs, change how people live today, and help secure a cleaner future.

With a vision to be Asia Pacific's most valued clean energy solutions partner by 2030, Gentari provides clean energy solutions across three core pillars: Renewable Energy, Hydrogen, and Green Mobility. These pillars form a portfolio that spans the electron value chain and supports customers in achieving their decarbonisation goals.

Business Overview

Renewable Energy

To be the leading next-generation commercial and industrial and utility-scale renewable energy developer, accelerating the adoption of renewable energy.

- Solar and Wind
- Battery Energy Storage Systems
- Renewable Energy Certificates

8.5 GW
total global capacity (installed and under construction)

Hydrogen

To be a large-scale clean hydrogen producer and go-to industry partner in enabling decarbonisation.

- Hydrogen Molecules
- Ammonia and Hydrogen Derivatives

175 KTPA
of opportunities matured

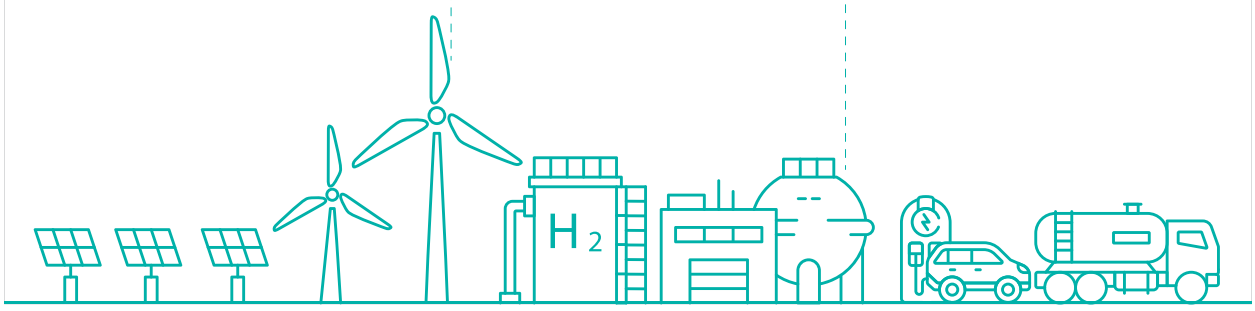
Green Mobility

To be Asia Pacific's leading green mobility solutions partner, accelerating every driver's shift to sustainable solutions.

- Charging Points
- Value-add Services
- Vehicle-as-a-Service

>1,000
charging points installed globally

>9,000
EV charging points enabled via roaming globally



Note: Datapoints updated as at 30 September 2025

07 Cleaner Energy Solutions

Key Achievements

Renewable Energy

Gentari has achieved more than 8.5 GW of cumulative global renewable energy capacity, including both installed and under construction. The portfolio continues to expand across Malaysia, India, and Australia through utility-scale developments and a growing commercial and industrial segment.

Milestones and achievements:

- A tripartite Joint Development Agreement between the MY Energy Consortium, comprising PETRONAS and Tenaga Nasional Berhad (TNB), PetroVietnam Technical Services Corporation, and Sembcorp Utilities Pte Ltd to progress renewable electricity export from Vietnam to Malaysia and Singapore in support of a regionally integrated ASEAN Power Grid.
- A 4.3 MW solar Power Purchase Agreement with Telekom Malaysia (TM) to advance Malaysia's renewable energy deployment.
- Solarisation of PETRONAS assets across Malaysia including the Pengerang Integrated Complex in Johor, Universiti Teknologi PETRONAS in Perak, and selected PETRONAS stations nationwide.

Hydrogen

Gentari has matured 175 KTPA of clean hydrogen opportunities through strategic collaborations and project progress in Asia and Europe. These developments enable the growth of clean hydrogen supply chains for industrial and export applications.

Milestones and achievements:

- A strategic collaboration agreement with TNB to commence advanced studies on hydrogen facilities development in Peninsular Malaysia.
- A feasibility study undertaken with City Energy and Senoko Energy to assess the potential for hydrogen supply via pipeline from Malaysia to Singapore.
- A shipping collaboration agreement with MISC to explore innovative and reliable shipping solutions for clean energy product delivery.

Green Mobility

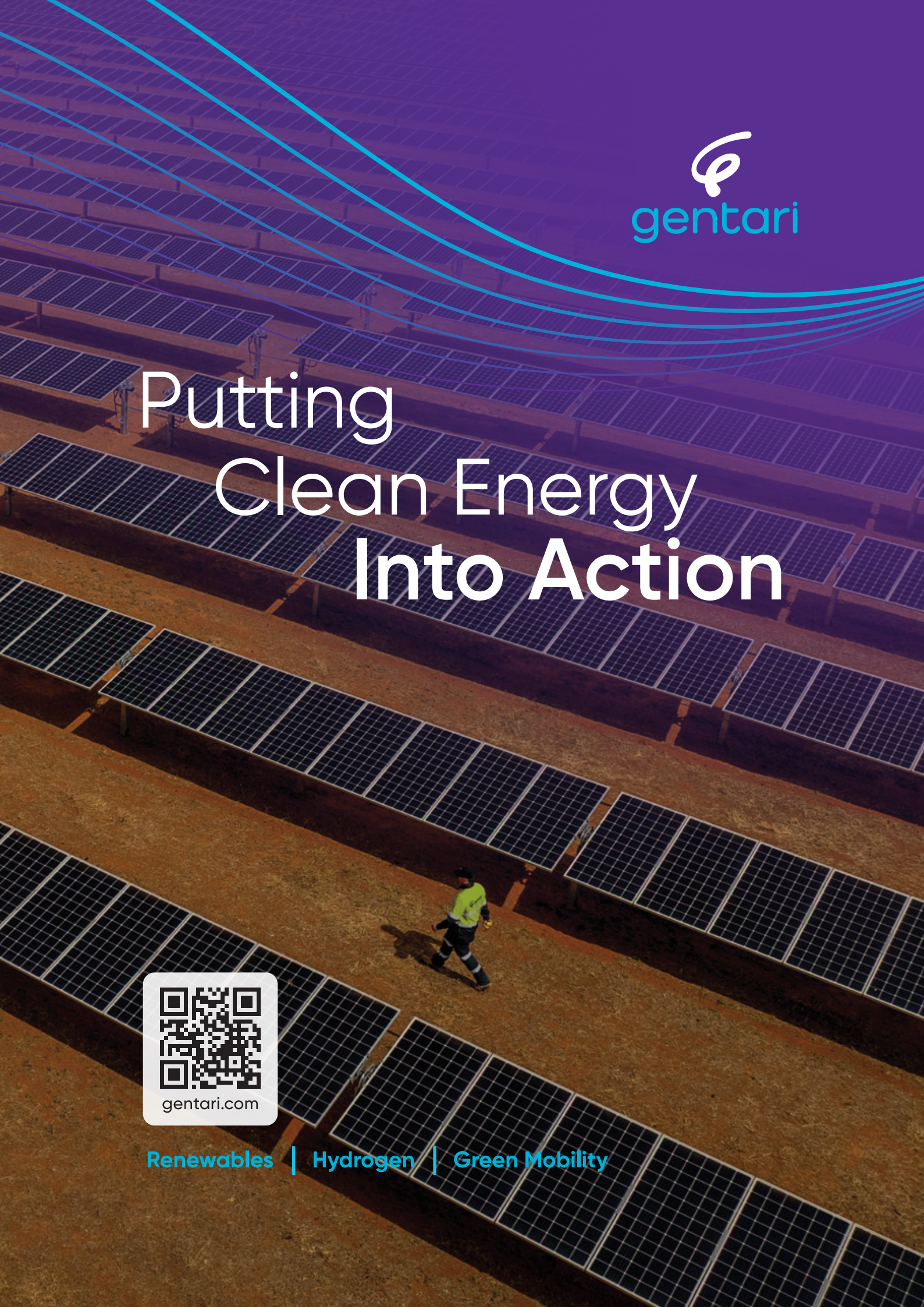
Gentari has established a network of more than 1,000 charging points across Malaysia, Thailand, and India. Through the Gentari Go mobile application, users have access to over 9,000 chargers via regional roaming partnerships, supporting the widespread adoption of electric mobility.

Milestones and achievements:

- Deployment of Malaysia's first modular and portable EV fast charging station featuring a battery energy storage system (BESS) on the PLUS Highway, in collaboration with EV Connection.
- Partnerships and collaborations with Sime Darby Motors, Mercedes-Benz, BMW Group Malaysia, KPJ Healthcare, Maybank, Mastercard, and Zurich Malaysia to encourage green mobility adoption across multiple sectors.
- Exploration of green mobility infrastructure collaboration in Southeast Asia with Evolt.
- Introduction of Gentari Go in Malaysia, Thailand, Singapore and India as a customer experience platform offering an integrated sustainable lifestyle solution.

Note: Datapoints updated as at 30 September 2025

Close collaboration among governments, industry players, and technology partners is critical to accelerate clean energy deployment. Gentari will continue working with like-minded organisations to unlock opportunities, strengthen market ecosystems, and contribute to a lower-carbon future, as it supports PETRONAS in offering integrated solutions across conventional and cleaner energy. This means not only meeting today's energy needs responsibly but also shaping sustainable solutions that ensure reliability and resilience for generations to come.


gentari
Putting
Clean Energy
Into Action
gentari.com
Renewables | Hydrogen | Green Mobility

List of Abbreviations

Terms/ Acronyms	Definition
2D	Two-Dimensional
3D	Three-Dimensional
4D	Four-Dimensional
ABM	Akademi Binaan Malaysia
AHTS	Anchor Handling Tug Supply
ALAM	Akademi Laut Malaysia
API	American Petroleum Institute
ASB	Asian Supply Base
ABF	ASEAN Bintulu Fertiliser Sdn Bhd
BESS	Battery Energy Storage System
BOG	Borneo Oil and Gas Supply Base
C&I	Commercial and Industrial
CAPEX	Capital Expenditures
CCS	Carbon Capture and Storage
CCUS	Carbon Capture, Utilisation, and Storage
CIDB	Construction Industry Development Board
CLCW	Closed Loop Cooling Water

Terms/ Acronyms	Definition
CO_2	Carbon Dioxide
COP	Conference of the Parties
CRA	Corrosion Resistant Alloy
CSI	Centralised Sustainability Intelligence
CSOV	Commissioning Service Operation Vessel
CPP	Central Processing Platforms
CPTPP	Comprehensive and Progressive Agreement for Trans-Pacific Partnership
DCS	Distributed Control System
DD	Directional Drilling
DPDSV	Dynamic Positioning Diving Support Vessel
DPST	Dynamic Positioning Shuttle Tanker
DLN	Dry Low Nitrogen Oxides
E&P	Exploration and Production
EPCC	Engineering, Procurement, Construction, and Commissioning
EPCIC	Engineering, Procurement, Construction, Installation, and Commissioning
ERD	Extended Reach Drilling

List of Abbreviations 08

Terms/ Acronyms	Definition
ERW	Electric Resistance Welded
ESG	Environmental, Social, and Governance
ESP	Electrical Submersible Pump
EV	Electric Vehicle
EWL	Electric Wireline Logging
FA	Frame Agreement
FCB	Fast Crew Boat
FIP	Facilities Improvement Plans
FHs	Flying Hours
FPSO	Floating Production, Storage, and Offloading
FSO	Floating Storage and Offloading
FSU	Floating Storage Unit
GAS	Gas Assets and Solutions
G&G	Geological and Geophysical
GDP	Gross Domestic Product
GFA	Global Frame Agreement
GHG	Greenhouse Gas

Terms/ Acronyms	Definition
GLV	Gas Lift Valves
GPK	Gas Processing Kertih
GPS	Gas Processing Santong
GPV	General Purpose Vessel
GTG	Gas Turbine Generator
GUCD	Gassing Up Cooling Down
H_2S	Hydrogen Disulphide (Sour Gas)
HRD Corp	Human Resource Development Corporation
HP	High Pressure
HPHT	High Pressure, High Temperature
HSE	Health, Safety, and Environment
HUC	Hook-Up and Commissioning
HWU	Hydraulic Workover Unit
HVO	Hydrogenated Vegetable Oil
IMF	International Monetary Fund
InTAF	Industry Talent Framework
IRM	Inspection, Repair, and Maintenance
IWCS	Integrated Well Continuity Services

08 List of Abbreviations

Terms/ Acronyms	Definition
JC3	Joint Committee for Climate Change
JUR	Jack-Up Rigs
JV	Joint Venture
KGP	Kangsar Gas Pipeline
KSB	Kemaman Supply Base
LBV	LNG Bunker Vessel
LCT	Landing Craft Tank
LCO_2 Carrier	Liquid CO_2 Carrier
LNG	Liquefied Natural Gas
LNGC	LNG Carrier
LMP	Liquid Mud Plant
LSAW	Longitudinal Submerged Arc Welded
LSV	Logistic Support Vessel
LWD	Logging While Drilling
M&S	Maintenance and Support
MISC	Malaysia International Shipping Corporation Berhad

Terms/ Acronyms	Definition
MCHE	Main Cryogenic Heat Exchanger
MCM	Maintenance, Construction, and Modification
MTBI	Mean Time Between Inspection
MEDEVAC	Medical Evacuation
MEG	Monoethylene Glycol
MI	Major Inspection
MIDF	Malaysian Industrial Development Finance
MLNG	Malaysia LNG Sdn Bhd
MMRP	Malaysia Master Reefing Plan
MOAB	Mobile Offshore Application Barge
MOGSC	Malaysian Oil, Gas and Energy Services Council
MOPU	Mobile Offshore Production Unit
MoU	Memorandum of Understanding
MPM	Malaysia Petroleum Management
MPRC	Malaysia Petroleum Resources Corporation

List of Abbreviations 08

Terms/ Acronyms	Definition
MTJDA	Malaysia-Thailand Joint Development Area
MSA	Master Service Agreement
MWD	Measurement While Drilling
NDT	Non-Destructive Testing
NETR	National Energy Transition Roadmap
NH_3	Ammonia
NZCE	Net Zero Carbon Emissions
O&M	Operations and Maintenance
OBS	Ocean-Bottom Seismometer
OCTG	Oil Country Tubular Goods
OE	Operational Excellence
OEM	Original Equipment Manufacturer
OEE	Overall Equipment Effectiveness
OGSE	Oil and Gas Services and Equipment
OPEC	Organisation of the Petroleum Exporting Countries
OPEX	Operating Expenditures

Terms/ Acronyms	Definition
OPU	Operating Plant Unit
P&A	Plug and Abandonment
PACs	Petroleum Arrangement Contractors
PBT	Profit Before Tax
PCF(K)SB	PETRONAS Chemicals Fertiliser Kedah Sdn Bhd
PCF(S)SB	PETRONAS Chemicals Fertiliser Sabah Sdn Bhd
PCG	PETRONAS Chemicals Group
PDG	Permanent Downhole Gauge
PDR	Product Delivery Reliability
PETRONAS	Petroliam Nasional Berhad
PFLNG	PETRONAS Floating Liquefied Natural Gas
PGB	PETRONAS Gas Berhad
PIR	PETRONAS Integrated Report
PIC	Pengerang Integrated Complex
PM	Peninsular Malaysia

08 List of Abbreviations

Terms/ Acronyms	Definition
PLC	PETRONAS LNG Complex
PMT	Project Management Team
PSSP	PETRONAS Supplier Support Programme
PSVs	Platform Supply Vessels
R&D	Research and Development
RE	Renewable Energy
RGTP	Regasification Terminal in Pengerang, Johor
RGTSU	Regasification Terminal in Sungai Udang, Melaka
RECs	Renewable Energy Certificates
ROV	Remotely Operated Vehicle
SAF	Sustainable Aviation Fuel
SAT	Saturation Diving System
SB	Sabah
SCSSSV	Surface Controlled Sub-surface Safety Valve System
SCWP	Sea Cooling Water Pump
SEA	Southeast Asia
SK	Sarawak

Terms/ Acronyms	Definition
SPAR	Single Point Anchor Reservoir
SR	Self-Regulation
SSI	Special Scheme Inspection
SSV	Straight Supply Vessels
SURF	Subsea Umbilical, Riser, and Flowline
T&I	Transportation and Installation
TASD	Turnaround and Shutdown
TBSB	Tok Bali Supply Base
TCP	Tubular Conveyed Perforation
TEG	Triethylene Glycol
TLP	Tension-Leg Platform
TPES	Total Primary Energy Supply
TVET	Technical and Vocational Education and Training
UG	Utilities Gebeng
UK	Utilities Kertih
UNGCMYB	UN Global Compact Network Malaysia & Brunei
UOB	United Overseas Bank Limited
US	United States

Terms/ Acronyms	Definition
UTP	Universiti Teknologi PETRONAS
UV	Utility Vessel
UWILD	Underwater Inspection in Lieu of Drydocking
VaaS	Vehicle-as-a-Service
VDP	Vendor Development Programme
VFP	Vendor Financing Programme
VLCC	Very Large Crude Carrier
VLEC	Very Large Ethane Carrier
VISTA	Vocational Institution Sponsorship and Training Assistance
VISTA i-plus	Vocational Integrated Skilled Talent Advancement
WHP	Wellhead Platform

Glossary

Definition	Used for
Barrel	A standard unit of measurement for oil and production. One barrel contains 159 litres of oil.
Barrels of Oil Equivalent (boe)	A unit of measurement to quantify amount of crude oil, condensates and natural gas. Natural gas volumes are converted to barrels on the basis of energy content.
Brent Price	The benchmark crude oil price in Europe, as traded on the International Petroleum Exchange in London. Brent Crude refers to a particular grade of crude oil, which is slightly heavier than West Texas Intermediate (WTI) crude.
Brownfield	Field that has been previously developed and has reached its peak oil/gas production level.
BloombergNEF	A strategic research provider covering global commodity markets and the disruptive technologies driving the transition to a low-carbon economy.
Catalyst	One that precipitates a process or event, especially without being involved in or changed by the consequences.
Clean Energy	Some types of energy are gained from sources that release air pollutants, but clean energy is energy derived from natural non-polluting sources.
COP28	28th United Nations Climate Change Conference, Conference of the Parties to the Convention (COP) has convened member countries every year to determine ambition and responsibilities, and to identify and assess climate measures. The 21st session of the COP (COP21) led to the Paris Agreement, which mobilised global collective action to limit the global temperature increase to 1.5°C above pre-industrial levels by 2100, and to act to adapt to the already existing effects of climate change.
Decarbonisation	The term used for removal or reduction of carbon dioxide (CO_2) output into the atmosphere.
Deepwater	Projects in water depths exceeding 450ft. Unique methods are required to produce oil and gas from ocean beds at such depths.
Development	Activities following discovery that are necessary to begin production and transportation of crude oil and natural gas.
Downstream	All segments of the value chain that add value to the crude oil and natural gas produced, for example refining, gas processing, gas liquefaction, gas distribution, petrochemical manufacturing, marketing of petroleum and petrochemical products, storage, and transportation.
Energy Transition	The energy transition is the ongoing process of replacing fossil fuels with lower-carbon energy sources.
Exploration	The search for crude oil and/or natural gas by geological and topographical studies, geophysical and seismic surveys and drilling of wells.

Definition	Used for
Feedstock	Raw material used in manufacturing a product, e.g. crude oil is a feedstock in the refining process to produce gasoline.
Field	A geographical area overlying a hydrocarbon reservoir.
Fortune Global 500®	The Fortune Global 500® is an annual ranking of the top 500® corporations worldwide based on their reported annual revenue. It is compiled and published by Fortune magazine.
Greenfield	Field that has proven oil/gas reserve but has never been developed.
Hydrocarbon	A compound of hydrogen and carbon, such as any of those which are the chief components of petroleum and natural gas.
Hydrogen	Hydrogen is a clean alternative to methane, also known as natural gas. It is the most abundant chemical element, estimated to contribute 75 per cent of the mass of the universe.
Infill Drilling	Drilling of new wells in an existing field within the original well patterns to accelerate production.
Integrated – Downstream	Single joint tender among PETRONAS Downstream and Gas OPUs for similar scope of services and materials (with multiple contract holders).
Integrated – Upstream	Single joint tender among PACs in Malaysia and/or among PETRONAS Upstream OPUs for similar scope of services and materials (with multiple contract holders).

Definition	Used for
Linepipes	A high strength carbon steel pipe used for transporting crude oil, petroleum products, natural gas, and water.
Liquefied Natural Gas (LNG)	Natural gas that is liquefied under extremely cold temperatures of about -260 degrees Fahrenheit to facilitate storage or transportation in specially designed vessels.
National Energy Policy 2022-2040	The National Energy Policy was formulated to achieve the following objectives: ensuring adequate, secure, quality and cost-effective supply of energy; promoting efficient utilisation of energy; and ensuring factors pertaining to environment protection are taken into consideration in the production and utilisation of energy.
National Energy Transition Roadmap	NETR is crucial for Malaysia's Energy Transition, enabling the country to transition from a traditional fossil fuel-based economy to a high-value green economy on a large scale.
Net Zero Carbon Emissions	Achieved by balancing carbon dioxide (CO_2) emissions by removal (for example, through carbon capture and sequestration) or simply eliminating CO_2 emissions altogether (for example, decarbonisation of energy systems through solar and wind energy).
New Energy	Sources of energy that are renewable and environmentally friendly, such as solar energy, wind energy, and biofuels.

09 Glossary

Definition	Used for
Petrochemicals	Organic and inorganic compounds and mixtures derived from petroleum, used principally to manufacture chemicals, plastics and resins, synthetic fibres, detergents, adhesives, and synthetic motor oils.
Refining	A purification process for natural resources which includes hydrocarbons, using distillation, cooling and/or compression.
Regasification	Process of converting LNG back to natural gas at atmospheric temperature.
Renewable Energy	Energy that is generated from natural processes that are continuously replenished.
Resources	The total estimated quantities of petroleum at a specific date to be contained in or that have been produced from known accumulations of hydrocarbon.
Subsurface	Relating to being located beneath a surface and especially underground.

Definition	Used for
Sustainable Aviation Fuel	A biofuel used to power aircraft that has similar properties to conventional jet fuel but with a smaller carbon footprint.
United Nations Sustainable Development Goals	17 interlinked goals adopted by all United Nations Member States in 2015 as a universal call to action to end poverty, protect the planet and ensure that all people enjoy peace and prosperity by 2030. Also known as Global Goals.
Upstream	The segment value chain pertaining to finding, developing, and producing crude oil and natural gas. These include oil and gas exploration, development, and production operations; also known as Exploration and Production (E&P).
Wellhead	A component at the surface of an oil or gas well that provides the structural and pressure-containing interface for the drilling and production equipment.

Unit	Definition	Used for
bbl	Barrels	Volume
BCe	Billion cubic feet equivalent	Volume
GW	Gigawatt	Power
hr	Hour	Time
kboed	Kilo barrels of oil equivalent per day	Production rate
kbpd	Thousand barrels per day	Production rate
km	Kilometre	Distance
KTPA	Kilo tonnes per annum	Hydrogen volume
MMboed	Million barrels of oil equivalent per day	Production rate
MMscfd	Million standard cubic feet per day	Production rate
MT	Metric tonne	Weight
MT/hr	Metric tonne per hour	Mass flow rate
MTPA	Million tonnes per annum	Capacity
MW	Megawatt	Power
USD	United States Dollar	Currency

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Petroliam Nasional Berhad (PETRONAS)
197401002911 (20076-K)

Tower 1, PETRONAS Twin Towers, Kuala Lumpur City Centre
50088 Kuala Lumpur, Malaysia

www.petronas.com