



Downstream



In 2020, the Downstream business witnessed the creation of real value in a time of crisis. Despite margin erosions, the business sustained its operational performance for the financial year, supported by our integrated value chain and reliable assets. The year's unprecedented events served as a catalyst, accelerating some of our strategic plans that had been embedded in our core business. By deploying innovative solutions, we overcame customers' pain points and delivered seamless, frictionless customer experiences.

Moving forward, we will work hard to ensure the sustainability of our Operational Excellence efforts. We are also gazing out into the customer needs horizon and identifying potential areas of high-value growth. By shifting our business focus from an output-led to demand-led one, we aim to create an agile enterprise with innovation at scale. This will see us pushing boundaries and stimulating portfolio growth beyond traditional oil and gas into the broader energy solutions arena.



Datuk Md Arif Mahmood

Executive Vice President and Chief Executive Officer,
Downstream

The year 2020 was like no other. As movement restrictions came into play, abruptly halting economic activities and altering lifestyles, demand for petroleum products eroded. Amidst this demand disruption, the Downstream business resiliently sustained its overall operational performance, preserving production volume and standards. The overall integrated value chain was well supported by reliable assets resulting in stable operations across the business. Throughout this period, Downstream remained focused and continued to operate at an optimum level. At the peak of the pandemic and the implementation of global lockdowns, we closely monitored our operational requirements and were prepared to continue operating, despite minimal manning.

In Malaysia, when the government imposed the Movement Control Order (MCO) in March 2020, petroleum products including gasoline and jet fuels registered a significant decline. PETRONAS Dagangan Berhad (PDB), took the hardest hit with its overall sales volume dipping by 23 per cent. Upon the easing of the MCO and restrictions being lifted, domestic activities slowly resumed and started to build up again in the second half of the year until the Conditional MCO was imposed again in the final quarter of 2020.

At a global level, the slowdown in the economy and travel restrictions caused global oil demand to erode by 22 million bpd. Market recovery continues to be challenging and the overall outlook remains uncertain. The market will take time to fully bounce back depending on the effectiveness of vaccine deployment. Meanwhile, Downstream continues to strengthen its foundations and deliver excellence through ongoing efforts. This will allow us to capitalise on the situation once the market recovers.



How We Created Value

1 Widening Access to Markets

In 2020, Downstream continued to focus its efforts on sustaining sales volume while delivering high-value products that helped to address customers' pain points. As a reliable and credible partner in providing innovative products and solutions, we got down to resetting our commercial strategies to generate sustainable long-term margins and create greater value for the PETRONAS Group.



Our chemicals arm, PETRONAS Chemicals Group Berhad (PCG), formed a joint venture with **PT AKR Corporindo Tbk (PT AKR)**, a logistics and supply chain company, to distribute various chemicals to customers in Indonesia, the first of which was methanol. This joint venture which aligns with the Group's **Expanding Core Business** strategic prong, provides us with greater market access in Indonesia via PK AKR's extensive distribution network across Java, Sumatra, Borneo and Sulawesi.

PDB introduced its best fuel yet in December 2020 – the new **PETRONAS Primax 97 with Pro-Race**, engineered to meet the demands of advanced technology engines as well as customers' desire for a more powerful, responsive and efficient performance. The fuel formulation was engineered using **PETRONAS Fluid Technology Solutions™**, an advanced formula developed from the Group's collective experience in motorsports, as well as the insights and expertise garnered from its pool of global scientists, engineers and the **Mercedes-AMG PETRONAS Formula One team** at its facilities in the United Kingdom.

PETRONAS Lubricants International (PLI) marked its e-commerce debut through showcasing its **PETRONAS Sprinta** lubricant range on Shopee, one of Southeast Asia and Taiwan's leading digital marketplaces. This is part of PLI's larger effort to capture a sizeable customer network nationwide on the back of increasing online demand and to provide a richer experience in a more convenient manner.

2 Exceptional Operational Excellence

As the Downstream business is primarily a margin-led business, one of the first steps to cushion any impact from headwinds that dampen demand is to build resilience in Operational Excellence (OE). This calls for assets to sustain their performance at optimal levels even with minimum manning and adjusted production levels, while always delivering high quality products.

We were able to sustain an Overall Equipment Effectiveness (OEE) rate of **90 per cent in 2020** across all business segments with domestic refineries recording an improvement of **97 per cent**. This was the highest OEE rate recorded by our domestic refineries since 2014. Meanwhile the refinery in Durban, South Africa registered an **OEE rate of 81.6 per cent**. During this period, domestic crude was used for our refinery, to balance the upstream production.

PCG recorded its **highest annual production volume of 10.7 million metric tonnes**, contributed by strong plant performance and reliability. The **overall Plant Utilisation rate was 94.3 per cent**, with **sales volume of 8.2 million metric tonnes**.



This commendable operational performance was mainly attributable to the extraordinary commitment shown by our people. Their keen sense of ownership and responsibility to care for one another continued to keep them safe and our assets running at optimal levels.

[For more details of PETRONAS' HSSE-related practices and performance, go to the Positive Social Impact section on pages 136 to 144 of this report.](#)

3 Focused On Growth

The COVID-19 pandemic has undoubtedly been a game-changer to those who have been swift to embrace and adapt to the disruption it has brought. Within PETRONAS, it has accelerated our strategic plans to secure new revenue streams and is positioning our businesses for their next chapter of growth.

We keep the sustainability of OE in check while enabling us to gaze out into the future horizon of customer needs and identify areas of potential high value growth. It is helping guide the shift of our focus and business from being output-led to becoming demand-led. At the same time, it is enabling us to prepare ourselves with the right talent, culture and tools to secure new opportunities and mitigate the challenges ahead.

The intensive digitalisation efforts being undertaken within Downstream are enabling this shift. This, for instance, encompasses areas such as predictive analysis of output which anticipates customer needs even before they arise. Measures are underway to diversify the Downstream portfolio even further to create fresh solutions for customers which are not solely dependent on hydrocarbon resources. While we have made good progress to date, we need to amplify and scale with pace, so we can truly grow.

Our latest development, the Pengerang Integrated Complex (PIC) in Johor, has been designed with a Growth Blueprint since its very beginning. It incorporates a detailed roadmap that outlines its three phases of growth over the next 10 years. The agile design of the facility enables the business to extract the highest value from its molecules for maximum value creation, with the ultimate aim of positioning PETRONAS as a specialty chemicals producer and PIC as the leading petrochemicals park in the region. Driven by sustainable development, PIC will strive to achieve net zero carbon emissions by 2050 (NZCE 2050). PIC is expected to commence operations in the second half of 2021.

Building a Base for Specialty Chemicals Production

In diversifying into derivatives and specialty chemicals, we are identifying growth opportunities through an understanding of the global megatrends that will shape our future lifestyle. The future lifestyle will determine the right chemicals market for us to pursue.

We have identified eight priority end markets for our sustainable growth. These eight prioritised end markets will be pursued via the following three growth levers:

- 1 Extend Value Chain through downstream investments in derivatives and specialty chemicals at existing assets.**
- 2 Build Specialty Platform to access technology and market, through mergers and acquisitions.**
- 3 Create Optionality for Growth by seeding innovative technologies through Research & Development and investments in corporate venture capital.**

The Nitrile Butadiene Latex (NBL) plant

at the PIC in Johor with a production capacity of 200,000 tonnes targets the growing nitrile glove market. It will further strengthen Malaysia's position as the largest exporter of gloves globally.

Nitrile Gloves



The Oxyalkylates facility within the Kertih Integrated Petrochemical Complex (KIPC) in Terengganu is set to produce ethoxylates and polyether polyols. This plant is being developed through the acquisition of a 50 per cent equity stake in PCC Oxyalkylates Malaysia Sdn Bhd (PCC-OM) from PCC SE (an international chemicals, logistics and energy corporation) marking our entry into the growing oxyalkylates market.

Home care products



PCG has two new facilities in the pipeline helmed by **Da Vinci Group (DVG)**, a wholly-owned subsidiary of PCG. DVG has obtained approvals for two expansion projects, namely for a silicone blending plant in Gebeng, Pahang and a new facility for lubricant additives and chemicals in Echt, the Netherlands. These facilities will use PCG's own technology and know-how acquired from DVG. When completed, the above projects will enable PCG to widen its access to high-growth markets, especially in Southeast Asia, to cater to the personal care, food and beverage, and automotive segments.

Medical equipment



Beyond Fuel Offerings in Retail Shops



Note: This photo was taken before the pandemic.

Going beyond fuel, PDB has reinvented its retail offerings by expanding its food and beverage (F&B) products through the Makan@Mesra initiative which addresses the increasing demand for fresh and well-balanced premium food-to-go solutions at affordable prices. The new concept is part of PDB's continuous efforts to grow its non-fuel business and elevate customers' experience at its remodelled Kedai Mesra outlets. By the end of 2021, PDB will have expanded its F&B product line in over 200 stations from 22 stations currently.

In Support of Entrepreneurs



The Downstream business is the PETRONAS business that is closest to customers' hearts, hence it focuses on creating a positive social impact and enriching communities, especially local entrepreneurs. In support of the Malaysian government's "Beli Barangan Malaysia" campaign, PDB launched its "Love Local" campaign to intensify support for local entrepreneurs by allowing them to leverage PETRONAS' network of stations to market their goods.

To date, more than 350 local vendors are supplying products to PDB's Kedai Mesra network nationwide.

The Downstream business, in collaboration with Tata Consultancy Services, also aims to shape a sustainable future for communities by leveraging on digitalisation and technology to address the issue of youth unemployment. Through the 12-month SEEd.Lab. social enterprise programme, we aim to contribute towards the development of youth aspiring to be social entrepreneurs by helping them build their own sustainable businesses. This will not only help improve their well-being but will also create multiplier effects for the communities around them. Recently, SEEd.Lab successfully delivered its first cohort and will enter its second cohort this year.

For more details of how PETRONAS is helping to strengthen the communities, go to the SENTUHAN HARAPAN – Community Well-Being and Development section on pages 185 to 188 of this report.

Advocating the Use of Electric Vehicle (EV) Technology



Even as the PETRONAS Iona e-fluid range paves our entry into the burgeoning electric vehicle (EV) market for passenger cars, PETRONAS Lubricants International (PLI) is championing a collective effort to advance fluid technology. The efforts to date include the hosting of symposiums and webinars for industry-leading experts, Original Equipment Manufacturer (OEM) partners, academia and suppliers from across the world to build collaborative opportunities and be future-ready for e-mobility.

Resolutely Reinforcing
Our Reputation

The one thing that remained resolute amidst 2020's volatility, was customer affinity towards the PETRONAS Brand. **PDB was voted as Malaysian's favourite automotive fuel and lubricants brand at the prestigious Putra Brand Awards for the 11th consecutive year. In addition, Engen Petroleum was voted as South Africa's Coolest Petrol Station brand for the 11th consecutive year, as well as the favourite petrol station brand for the 10th consecutive year.**



Digitalisation at Downstream

Our business strategy mandates that we disrupt traditional business models and embrace digital. To this end, new methodologies and technologies are enabling us to focus on untapped opportunities and sharpen our competitive edge to create new value for the Group.

Seamless and Frictionless Customer Experiences



Deliver2Me

is a new feature that was launched under the umbrella of Setel, Malaysia's first e-payment solution for fuel purchases directly from mobile devices. It allows our retail customers to purchase items from Kedai Mesra retail shops and have them delivered directly to their vehicles while refuelling.



ROVR

another Malaysian first, is a mobile refuelling station for both commercial and everyday drivers. It aims to ensure uninterrupted fuel services to customers and has, to date, delivered over 10 million litres of fuel. ROVR was mobilised during the Restricted MCO in Kedah and flash floods in Pahang, to fuel vehicles for rescue missions when there was no way to get to petrol stations.



Virtual Pipeline System

solution via the Regasification Terminal in Pengerang, Johor is an extended offering under our integrated value chain that provides customer wider access to LNG solutions. The innovative VPS solution, which involves the use of road trucks fitted with cryogenic tanks delivering LNG to off-grid customers in Peninsular Malaysia, underscores our environmental sustainability efforts and helps facilitate the growth of natural gas usage in Peninsular Malaysia.



PRYSM

is PETRONAS' authorised merchandiser which offers a range of motorsport and lifestyle brands that are sold online and at selected Kedai Mesra. PRYSM has chalked up an estimated RM8 million in online sales since its launch in 2020.

Our retail business continues to leverage the power of technology to strengthen its growth momentum. The year in review saw the introduction of a new generation cloud-based Point-of-Sales system and the installation of our new Outdoor Payment Terminal with enhanced digital and secure touch points at stations nationwide.

Data-Driven Productivity



→ In 2020, we registered value creation of **RM26.68 million through Project DOVE (Drive Optimisation Value for Enterprise)**. With data-driven inventory management and oversight, we are able to protect margins through market-based product pricing and vessel optimisation, while empowering staff across the value chain to make better and faster decisions.

→ A total of **10 Downstream plants** will be plugged into the PIVOT Descriptive Dashboard with a target to improve operational efficiency and provide effective oversight of the performance of our refineries and petrochemical plants. The study began back in 2020 and is expected to be rolled out in 2021.

In 2020, we successfully recorded **RM64.2 million cost avoidance from the deployment of the PIVOT Advance Analytics (AA) - MMPD (Machinery Monitoring and Predictive Diagnostic) solution**. The AA targeted at turbomachinery equipment by predicting and preventing unplanned plant trip, has allowed Downstream plants to maximise their production while empowering staff and enhancing collaboration within organisations for better and faster action.



Moving Forward Together

The Great Reset has resulted in a disruptive transition and Downstream needs to change fundamentally as a business so that we can move forward together with the rest of the Group as a more agile organisation in the market. As we venture forth, the Downstream business remains committed to enriching lives through innovative solutions. To maintain our competitive advantage, we will continue to leverage new tools, advanced infrastructure and high-value products, as well as robust strategies and business models to deliver sustainable and long-term value creation opportunities. In addition to that, we will also continue to leverage our integrated value chain and advanced infrastructure to support our operations while delivering high value products and solutions for a seamless and frictionless customer experience.

We continue to be guided by the PETRONAS' Statement of Purpose: A progressive energy and solutions partner enriching lives for a sustainable future. Our aim is to make Downstream an agile enterprise with innovation at scale. In the long run, we want to push boundaries that have not been explored and will continue to inculcate an innovation culture.

Our next step is to move towards a portfolio beyond traditional oil and gas and into the broader energy solutions market.

The market will continue to be challenging as the energy sector undergoes a historical transition in an unprecedented manner and scale. Demand for cleaner energy continues to grow and a new algorithm has been embedded within the market. The entire energy transition requires full collaboration and full buy-in from a broad cross section of industries. We are experiencing a revolution in the way energy is being produced and consumed on a global scale, from carbon intensive to low carbon sources. Eventually it will also impinge on scalable solutions for critical sectors such as the heavy trucking, iron and steel, cement, shipping, and aviation sectors, to name a few. All eventualities must be considered today if we are to protect our tomorrow.

As we venture forth into the new year, we anticipate a gradual recovery for the domestic market. It may take a longer time before we see anything close to our previous numbers again. This will to a large extent depend on the trajectory of the overall crisis, the efficacy of the vaccines that are now being distributed across the world, as well as fluctuating product prices.

Moving forward, we will continue to focus on delivering a seamless and frictionless experience to our customers in innovative ways as well as continually seek out opportunities to grow and sustain our business operationally and financially in the new normal.