



**PETRONAS**

# PETRONAS Integrated Report 2020



## **Agility**

How we continue to deliver energy and solutions

## **Resilience**

Deliberate steps taken to strengthen the foundation for sustainable progress

## **Sustainability**

Enriching lives through the transformative power of energy

# Moving Forward with You

**Passionate about Progress**





### Cover Rationale

Having weathered the twin shocks of 2020, we have learnt a thing or two about fighting the good fight. Being passionate about progress, we are ready to move forward with you. Together, we will paint a better future amidst the unknown; together, we will bring a beautiful smile to someone's face. Despite the onslaught of challenges, we will put our best foot forward. Even when our steps are constrained, we will move forward relentlessly, tenaciously. It takes courage to act, passion to progress; it takes a purpose greater than ourselves to keep moving. That is the strength of the human spirit and human ingenuity – to collectively rise to the occasion for each other, with each other. Yes, we will rise together once more – this time, to paint a sustainable future for all.

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Scan this QR code to access our Financial Report 2020

**PETRONAS Lubricants International (PLI)** converted its **coolant production lines to manufacture ethanol-based sanitisers for hospitals** and the local communities in Italy and Brazil.

PLI also **ventured into new product lines** by enhancing its existing Fulcron formulation to bring to market **specially designed disinfectant products** through the Arexons operation in Milan.

Students and staff of **Universiti Teknologi PETRONAS**, through the Engineering, Prototyping and Innovation Centre **repurposed their 3D printing and laser cut technology to produce 120 face shields daily with the target of producing 10,800 shields** in three months for hospitals and clinics in Perak.

### Unprecedented Challenging Environment

PETRONAS remained resilient and agile amidst the unprecedented twin shocks. We turned in a commendable performance in FY2020, through swift implementation of several tactical interventions, as well as decisive and prudent measures.

FY2020

PAT excluding net impairment losses **RM10.5 billion**

Positive **CFFO RM40.7 billion**

Strong **EBITDA RM55.3 billion**



with You



### Project Delivery and Technology

Introduction of PDB's **"Love Local"** campaign to intensify support for local entrepreneurs by leveraging PETRONAS' network of Kedai Mesra stations to market their goods.

**PDB launched Deliver2Me**, a new feature under the Setel banner, which allows retail customers to purchase items from Kedai Mesra and have them delivered directly to their vehicles while refuelling.

Launched the Advanced Diagnostic and Prognostics (**ADaPT**) technology which provides early warning and intervention to prevent creep failure.

Implementation of the Integrated Pipeline Integrating Management System (**i-PIMS**) enabling data harvesting from various platforms which helps to further enhance the pipeline integrity system at multiple locations across Peninsular Malaysia.

The PETRONAS Integrated Vision for Operation Excellence Technology (**PIVOT**) tool is a descriptive and predictive analytics tool that helps improve machinery reliability via early detection of mechanical failure.

Introduction of robotic technologies (**ANYmal and BIKE**) to enable remote and autonomous operations, and in turn to minimise HSSE issues as well as improve efficiencies in view of less human intervention.



## Having faced 2020's highly volatile operating environment in a resilient manner, PETRONAS has emerged today a stronger, more agile and relevant energy and solutions partner.

### Resiliently Moving Forward

The year 2020 was one of the most challenging years for the oil and gas industry as the twin shocks of the COVID-19 pandemic and the unprecedented plunge in oil prices dealt a drastic blow to all. PETRONAS too was not spared from the onslaught and this was reflected in our challenging operational and weaker financial performance for the year in review. As we worked swiftly to ensure the resilience of our business, value chain and the energy supply needs of national and global customers, the health, safety and well-being of people remained our topmost priority.

While we did not emerge from 2020 unscathed, we have learnt hard lessons and gained solid insights into what we need to do next to remain relevant as a progressive energy and solutions partner in the new normal. As we steadfastly put the building blocks in place from which we will move forward from, we are confident that we will continue to chart resilient, sustainable progress.



# Moving

## Our Response to External Challenges

PETRONAS' companies, operations, associations and staff globally banded together and **contributed a total of**

**RM50.6 million** in cash and kind to help flatten the pandemic's curve **worldwide**

Yayasan PETRONAS contributed **RM20.1 million** worth of medical equipment and supplies to the Ministry of Health (MOH) and National Disaster Management Agency (NADMA) to help hospitals and healthcare frontliners mitigate the spread of the COVID-19 pandemic in Malaysia.

Yayasan PETRONAS contributed an **ADDITIONAL RM2.5 million** worth of medical equipment to the MOH and NADMA to combat the second wave of COVID-19 in the state of Sabah, Malaysia.

Upstream business operations committed some **RM3.5 million** to eight host countries comprising funds and aid for personal protective equipment (PPE) as well as medical equipment.

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PETRONAS remained resilient and agile amidst the unprecedented twin shocks. We turned in a commendable performance in FY2020, through swift implementation of several tactical interventions, as well as decisive and prudent measures.

**FY2020**

PAT excluding net impairment losses **RM10.5 billion**

Positive **CFFO** **RM40.7 billion**

Strong **EBITDA** **RM55.3 billion**



# Forward



# with You

## The Year in Review

### PETRONAS

PETRONAS joined the **World Business Council for Sustainable Development (WBCSD)**, which provides access to a like-minded network of peers focused on sustainably delivering energy to an expanding world population by leveraging on collaboration, technology and people.

The PETRONAS Group announced its **net zero carbon emissions aspiration by 2050 (NZCE 2050)**, as part of PETRONAS' commitment to minimise the impact of its carbon footprint on existing and future operations as well as to deploy more low carbon solution technologies.



### Upstream

A **total of 10 discoveries** were made in 2020 comprising seven discoveries, which contributed to our resource addition namely in Malaysia, Suriname as well as Gulf of Mexico, USA and Gulf of Mexico, Mexico.

**Achieved first hydrocarbon** for 17 projects: 14 in Malaysia, two in Indonesia and one in Oman.

**Achieved Final Investment Decision (FID) for 13 projects:** Nine projects in Malaysia, two in the Republic of South Sudan, one in Turkmenistan and one in Brazil.



### Gas + New Energy

Made 62 Liquefied Natural Gas (LNG) deliveries via the **Virtual Pipeline System (VPS)**.

Signed a long-term deal with Tiger Clean Energy Limited (TCEL) for the supply of LNG to TCEL's **LNG ISO Tank** filling facility at Bintulu for distribution to China.

Established the **Hydrogen business** and entered a partnership with Sarawak Energy Berhad (SEB) to explore the commercial production of green hydrogen and its supply value chain in Asia.

**PETRONAS Floating LNG DUA** set sail and achieved its Ready for Start-Up (RFSU) milestone at the Rotan gas field in Block H, offshore Sabah.

A total of 13 out of 15 Lotuss stores (previously known as TESCO) across Malaysia were fitted with **rooftop solar solutions**, which will help Lotuss reduce approximately 13,624 tCO<sub>2</sub>e upon completion.

**Completed the maiden LNG bunkering vessel (LBV) delivery** from the MV Avenir to the Siam Aristotle at Pasir Gudang, Johor as part of efforts to fuel the marine industry with cleaner energy.



### Downstream

Introduction of the new **PETRONAS Primax 97 with Pro-Race** by PETRONAS Dagangan Berhad (PDB), engineered to meet the demands of advanced technology engines as well as customers' desire for more powerful, responsive and efficient performance.

PETRONAS made its e-commerce debut on Shopee by showcasing the **PETRONAS Sprinta lubricant range** by PLI.

Introduction of PDB's "**Love Local**" campaign to intensify support for local entrepreneurs by leveraging PETRONAS' network of Kedai Mesra stations to market their goods.

**PDB launched Deliver2Me**, a new feature under the Setel banner, which allows retail customers to purchase items from Kedai Mesra and have them delivered directly to their vehicles while refuelling.



### Project Delivery and Technology

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# Moving Forward with **Purpose**

## About this Report

The framework, boundaries and principles that guide us in our integrated reporting journey.

Reporting Framework,  
Scope and Boundaries

4





## Reporting Framework, Scope and Boundaries

# Reporting Information that is



### Dear Stakeholders,

Welcome to our inaugural PETRONAS Integrated Report 2020, which assesses our performance for the financial year ended 31 December 2020, focusing on the value we have created for our stakeholders. Our aim is to share a balanced overview of our progress and impact. As a progressive energy and solutions partner which endeavours to enrich lives for a sustainable future, we strive to always move forward with you.



#### How this Report Fits Together

We measure our performance by evaluating how we create value for our key stakeholders, as well as progress against our strategy and by regularly measuring returns on invested capital. We understand the risks we take and manage them to minimise the impact on our business and results. We are constantly seeking meaningful collaborations to provide solutions that enrich lives. We believe that it is only when lives are enriched that real progress is achieved.

#### Scope and Boundaries

This report covers the period from 1 January until 31 December 2020, unless otherwise stated. The information presented relate to the activities of the PETRONAS Group or its subsidiaries, joint operation, joint ventures as well as associates.

#### Financial and Non-Financial Reporting

This report extends beyond financial reporting. It reflects on non-financial performance, opportunities, risks and outcomes attributable to or associated with key stakeholders, who have a significant influence on our ability to create value.

The non-financial data in this report includes our owned and operated businesses unless stated otherwise, in line with industry practices. It does not include data from equity interest fields/projects, such as joint ventures, where we do not have operational control. Those areas that we do not have operational control over, are included in the form of disclosures of management approach.

The Group reporting standards are continually being developed and improved to make disclosures meaningful and measurable for stakeholders. While we are not a public listed company, we are committed to this process as a means of adding value for our stakeholders as it creates better visibility and allows an informed assessment of our operations.

#### The Legislation and Frameworks that Guide Our Reporting

This report is guided by local and global standards, including:

- The International Integrated Reporting Council <IR> Framework (IIRC), a principles-based approach that promotes the six capitals concept, and which considers material inputs as well as resources required to create and sustain value in the long term
- International Financial Reporting Standards (IFRS)
- Malaysian Financial Reporting Standards (MFRS)
- IPIECA/API/IOGP Sustainability reporting guidance for oil and gas industry
- Global Reporting Initiative (GRI) Standards

#### Sustainability

Through our policies and governance structures, we demonstrate our commitment to ethical and sustainable entrepreneurship. We also acknowledge that our stakeholders are taking a growing interest in the sustainability of our operations and our approach to corporate citizenship. We take our responsibility seriously and are fully aware of

the impact of our actions on our social and relationship capital. We are proud to support the United Nations' Sustainable Development Goals (SDGs) and we are committed to identifying and focusing on the goals our business aligns with.

#### Forward-Looking Statements

This report contains forward-looking statements. Words such as "believe", "anticipate", "intend", "seek", "will", "plan", "could", "may", "endeavour" and similar expressions are intended to identify such forward-looking statements but are not the exclusive means of identifying such statements. By their nature, forward-looking statements involve risk and uncertainty because they relate to future events and circumstances and should be considered in light of the various important factors. While these forward-looking statements represent our judgements and future expectations, a number of risks, uncertainties and other important factors could cause actual developments and results to differ materially from our expectations.

The key factors that could cause our actual performance or achievements to differ materially from those in the forward-looking statements include changes to IFRS and associated interpretations, applications and practices as they apply to past, present and future periods; ongoing and future acquisitions; changes to domestic and international businesses and market conditions such as exchange rate and interest rate movements; changes in domestic and international regulatory and legislative environments; changes to domestic and international operational, social, economic and political conditions; any labour disruptions and industrial action; and the effects of both current and future litigations.

#### Assurance

Financial information contained in this report and that has been extracted from the audited consolidated Audited Financial Statements for the financial year ended 31 December 2020, was audited by KPMG PLT. The Group's greenhouse gas (GHG) emissions for our Upstream, Gas + New Energy and Downstream operations in Malaysia for the years covering 2017 to 2019, have been externally verified, to a limited level of assurance, by ERM CVS, an independent third-party assurance provider. The verification was carried out under ISO 14064-3. Furthermore, the Group's social risk management processes, which primarily focuses on human rights and is aligned with the UN Guiding Principles on Business and Human Rights, was assessed by an independent party.

## Reporting Framework, Scope and Boundaries

# Built on Benchmarked Principles

#### Approval by the Board

The PETRONAS Board of Directors acknowledges its responsibility in ensuring the integrity of this Integrated Report which in the Board's opinion, addresses the Group's ability to create value and fairly represent the Group's integrated performance.

We believe that this report has been materially prepared in accordance with the International Integrated Reporting Council <IR> Framework.

Approved by the Board of Directors and signed on behalf of the Board:

#### Tan Sri Ahmad Nizam Salleh

Chairman

#### Tengku Muhammad Taufik

President and Group Chief Executive Officer

The Petroleum Nasional Berhad (PETRONAS) Integrated Report is our primary report.



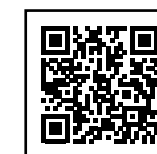
#### Integrated Report 2020

Provides a comprehensive overview of the Group's financial and non-financial performance in 2020 and our outlook for 2021.



#### Financial Report 2020

Provides access to the Audited Financial Statements comprising Directors' Report, Financial Statements, Notes to the Financial Statements and our Independent Auditors' Report.



Scan the QR code to access our Integrated Report 2020 and Financial Report 2020

These reports are supplemented by the following disclosures, which can be accessed online via PETRONAS' website [www.petronas.com](http://www.petronas.com):

- ➔ **PETRONAS Activity Outlook 2021-2023**
- ➔ **PETRONAS Half-Yearly Sustainability Report**
- ➔ **PETRONAS Human Rights Report 2020**

#### Navigating through this Integrated Report

- Tells you where you can find more information within this report
- Tells you where you can find more information online
- Tells you where you can find more information on PETRONAS' Health, Safety, Security and Environment (HSSE) digital solutions

The following navigation icons are used to indicate various content elements:

#### Three-Pronged Growth Strategy

- Maximising Cash Generators
- Expanding Core Business
- Stepping Out

#### Six Capitals

- Human Capital
- Financial Capital
- Social and Relationship Capital
- Manufactured Capital
- Natural Capital
- Intellectual Capital

#### Key Stakeholders

- Federal Government/Host Governments
- Media
- State Governments
- Shareholders/Investors/Credit Rating Agencies/Financial Institutions
- Customers
- Government Linked Companies (GLCs)/Industry Players/Partners
- Internal/Employees
- Communities/Non-Governmental Organisations (NGOs)

#### Material Topics

- Climate Change and Environmental Management
- Product Stewardship and Supply Chain
- Health, Well-Being and the Workplace
- Social Responsibility
- Safety
- Governance and Ethics



# Moving Forward with **Courage**

## PETRONAS in 2020

Our purpose,  
mandate, aspirations,  
structure and  
presence.

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# A Progressive Energy and Solutions Partner

PETRONAS' Statement of Purpose underscores who we are and why we do what we do, today and for the future. It demonstrates our passion for harnessing the transformative power of energy for the benefit of all.

Established as the custodian of Malaysia's oil and gas resources in 1974, PETRONAS has since grown by leaps and bounds and is today a FORTUNE Global 500 energy company with a presence in over 50 countries.

Today, the requirement to deliver energy in a responsible and progressive manner has become all the more important. Being a conscientious player in the global energy sector, PETRONAS recognises its responsibility to balance out the threat of climate change with the mandate to produce affordable and reliable energy in a sustainable manner. This sees us passionately

## Our Three-Pronged Growth Strategy

### Our Statement of Purpose

A progressive energy and solutions partner enriching lives for a sustainable future.

#### 1 Maximising Cash Generators

Cash generators are existing assets that provide strong and stable cash flows. Protecting and maximising these assets are paramount to provide a solid base for profitability and a foundation for growth.



#### 2 Expanding Core Business

The focus areas to define opportunities for further growth in our core business through value enhancement. We will cost-efficiently expand the core business at pace with a lower carbon footprint as our new cash generators.



#### 3 Stepping Out

Global trends brought on by Energy Transition are reshaping the energy landscape, consumption patterns and consumer preference. We must continue to build our capabilities and allocate resources to new businesses to better position ourselves for the future in expanding our step-out beyond core business.



-  **Malaysia Integrated Value Chain**
-  **International Asset**
-  **Deliver Material Resources**
-  **Monetise Unconventional Positions**
-  **Grow the Integrated Business Model and Expand Adjacencies**
-  **Specialty Chemicals**
-  **New Energy**
-  **Customer-Centric Solutions**

**Our Brand Positioning:**



# Enriching Lives For A Sustainable Future

facilitating the management of climate change through various interventions, especially the reduction of greenhouse gas emissions across all sectors under our net zero carbon emissions by 2050 or NZCE 2050 aspiration.

As we commit to meeting the world's growing energy needs in a responsible and holistic manner, we continue to build a resilient portfolio for a sustainable future by leveraging on our Three-Pronged Growth Strategy that entails

**Maximising Cash Generators, Expanding Core Business and Stepping Out.**

Having undergone a tumultuous year in 2020, PETRONAS has today emerged a more resilient, more agile and more relevant energy and solutions partner. As we steadfastly lay down strong foundations from which to venture forth into the new normal, we are confident of making resilient and sustainable progress to enrich lives and nations.

## Our Sustainability Agenda

-  **Continued Value Creation**
-  **Safeguard the Environment**
-  **Positive Social Impact**
-  **Responsible Governance**

## Our Shared Values

- Loyalty**  
Loyal to corporation
- Integrity**  
Honest and upright
- Professionalism**  
Strive for excellence
- Cohesiveness**  
United, trust and respect for each other

## Our Cultural Beliefs

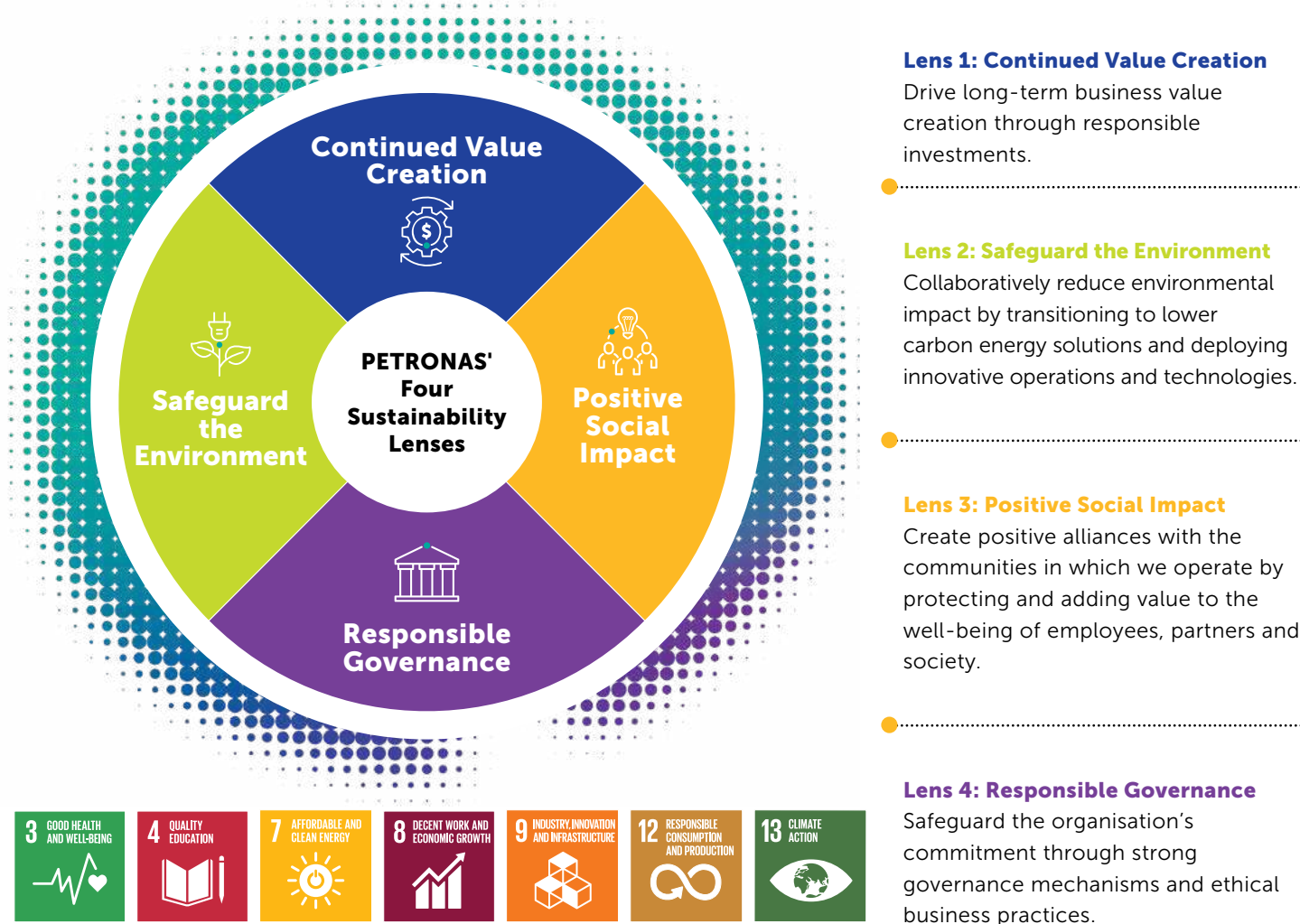
-  **Customer Focused**  
I deliver solutions from the customer lens
-  **Be Enterprising**  
I seek opportunities and make them happen
-  **Innovate Now**  
I challenge norms and push boundaries
-  **Speak Up**  
I express my views openly
-  **Courage to Act**  
I take action to progress with pace

**Passionate about Progress**



## Sustainability Agenda

We recognise that we have a responsibility to balance out our economic ambitions with positive social and environmental considerations. PETRONAS' Sustainability Agenda is the compass that guides us as we set out to deliver energy and solutions that fuel progress in a responsible manner. As we commit to uphold the Agenda, our actions are guided by four sustainability lenses.



### Lens 1: Continued Value Creation

Drive long-term business value creation through responsible investments.

### Lens 2: Safeguard the Environment

Collaboratively reduce environmental impact by transitioning to lower carbon energy solutions and deploying innovative operations and technologies.

### Lens 3: Positive Social Impact

Create positive alliances with the communities in which we operate by protecting and adding value to the well-being of employees, partners and society.

### Lens 4: Responsible Governance

Safeguard the organisation's commitment through strong governance mechanisms and ethical business practices.

As part of our sustainability efforts, we have also prioritised seven of the 17 United Nations' Sustainability Development Goals (SDGs) which are most relevant to our Sustainability Agenda and the four lenses. These seven priority SDGs align with the PETRONAS Group's business strategies, enable us to leverage our existing efforts and have significant impact on our business groupwide.

As a major energy industry player, we recognise the immense impact that we have in the various spheres of influence that we operate in. In line with our efforts to ensure that we maintain the trust of our stakeholders and the wider communities, PETRONAS upholds high standards of corporate governance, ethical business practices and transparency.

Adhering to the Agenda enables PETRONAS to embed corporate sustainability right into the core of our business and map this through six Material Topics, namely:



## Towards Net Zero Carbon Emissions by 2050 (NZCE 2050)

We are acutely aware of stakeholders' expectations about climate actions that support the Paris Agreement. Hence, we have taken bold steps to embrace a lower-carbon energy future.

In 2020, we set in motion our long-term aspiration of achieving NZCE 2050. With this landmark move, PETRONAS became the first oil and gas company in Southeast Asia to adopt this goal. Our NZCE 2050 aspiration underscores our ambition to meet higher sustainability goals for the longer term that address stakeholder concerns and support the Paris Agreement.

In addition, it will not only strengthen the momentum of our climate actions but will also ensure that PETRONAS' businesses remain resilient for the long term. It also provides the necessary impetus for us to pursue more climate-friendly solutions and opportunities in the broader energy space that will create sustainable new values for the organisation.

To accelerate our move towards NZCE 2050, we have set three short-term sustainability targets derived from PETRONAS' ongoing efforts on the material sustainability and corporate social responsibility fronts that will make the most impact on the environment and society.

### Our Short-Term Targets

#### Manage Greenhouse Gas (GHG) Emissions

Cap GHG emissions at **49.5 million tonnes** of carbon dioxide equivalent (MtCO<sub>2</sub>e) for our Malaysia operations **by 2024**.

#### Step up on Clean Energy

Increase renewable energy capacity to **3,000 MW by 2024**.

#### Increase the Number of Education Beneficiaries

Reach over **24,000 beneficiaries** through education programmes cumulatively **between 2020 to 2024**.

### Our Long-Term Aspiration



aspiration is defined as *"balancing the remaining Scope 1 and Scope 2 GHG emissions from its assets under operational control with carbon offsets"*.

These carbon offsets can take the form of energy-based offsets or forest-based offsets.

### 4 Levers Towards NZCE 2050

#### Operational Excellence

Grow value potential and continuously optimise operations for efficiency gains and compliance with legislation.

#### Low Carbon Energy and Solutions

Influence energy transition by use of low carbon fuel, scaled-up renewables, bioenergy, hydrogen, as well as low carbon products and solutions that support a circular economy.

#### Technology and Innovation

Stewardship of economically feasible decarbonising technology and innovation in line with business priorities.

#### Carbon Offset

Enabling carbon offsetting across businesses that capitalise on technology deployment and businesses' needs to offset the remaining Scope 1 and Scope 2 GHG emissions.

We have adopted two approaches in our journey to attain NZCE 2050:

### 1 Life Cycle Thinking

This sees us employing the Life Cycle Assessment (LCA) methodology to estimate the environmental impacts (including GHG impacts) occurring along the value chain of our products, processes and solutions.

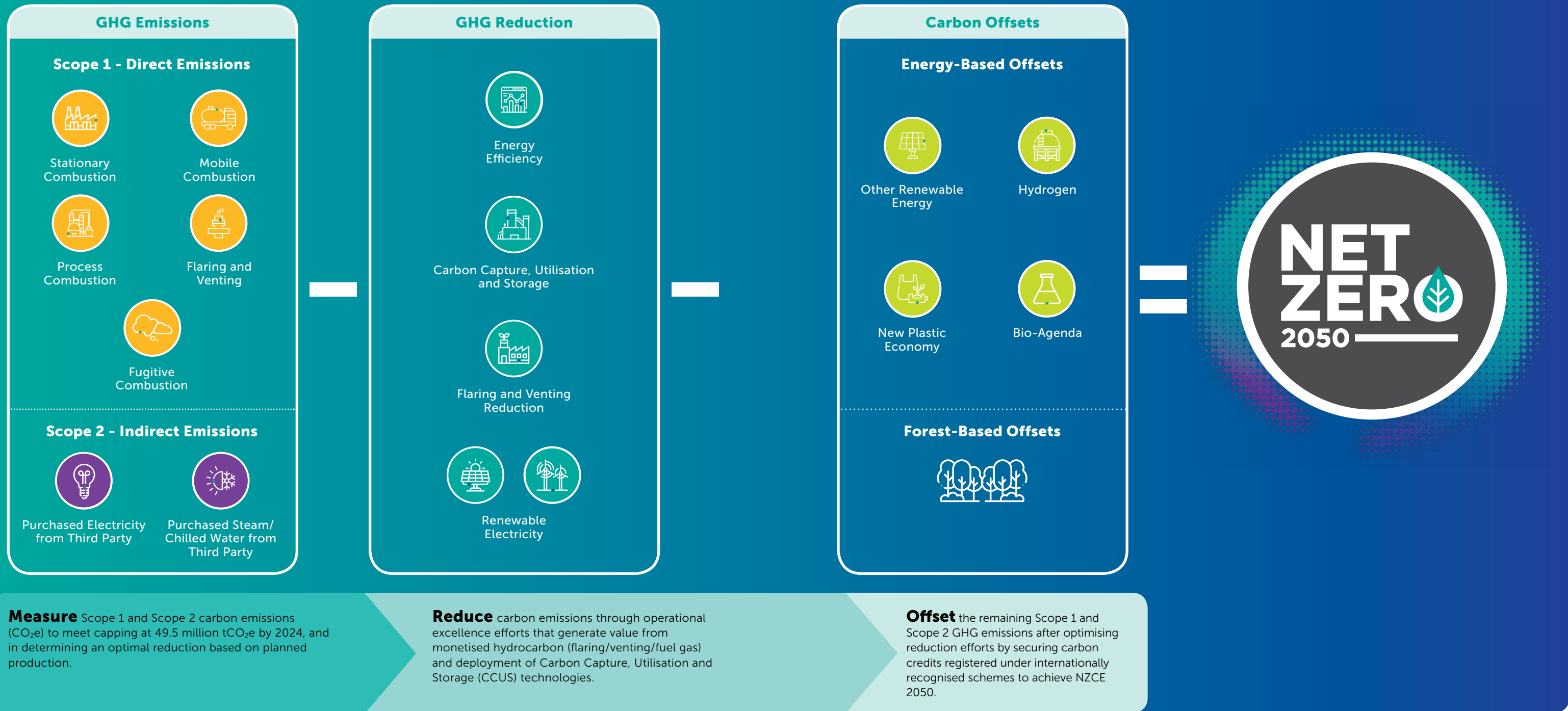
### 2 Just Transition

This sees us meaningfully participate and affect socio-economic opportunities through capability building and respect for the natural environment.





**PETRONAS' NZCE 2050 aspiration and roadmap are anchored on a high-level strategy with the principles of Measure, Reduce and Offset**



**Definition of Net Zero Carbon Emissions**

Balancing the remaining Scope 1 and Scope 2 GHG emissions from PETRONAS' assets under operational control with carbon offsets.

We are also pursuing low carbon businesses to secure future value pools. The NZCE 2050 mandate will be the catalyst for PETRONAS to create new sources of differentiation while according us an operational advantage and competitive returns via more sustainable, durable and resilient businesses that will benefit stakeholders, the environment and society as a whole. The aspiration keeps us steadfast and the short-term targets keeps us on track in our commitment to minimise the impact of our carbon footprint and ultimately strengthen our licence to operate.

To help guide us in our journey towards NZCE 2050, we are currently developing a detailed roadmap that will outline the short and mid-term sustainability targets we need to meet to achieve this aspiration. Concurrently, we have aligned our sustainability

disclosures with international frameworks and standards such as the International Integrated Reporting Council or IIRC's International <IR> Framework and Global Reporting Standards (GRI). We will also be aligning our disclosures with the World Economic Forum's (WEF) Stakeholder Capitalism Metrics and the Taskforce on Climate-related Financial Disclosures' (TCFD) recommendations in the near future. This will help us progressively measure our performance based on the roadmap, as well as ensure that all our initiatives and efforts are fully aligned to global best practices.

As part of our commitment to sustainability, we became an official member of the World Business Council of Sustainable Development (WBCSD) and Methane Guiding Principle (MGP) in 2020.



## Business Snapshots

PETRONAS is the custodian of Malaysia's national oil and gas resources as well as a global energy and solutions partner. As Malaysia's fully integrated petroleum corporation, we explore, produce and deliver energy to meet society's growing needs through our core businesses.



### Upstream

PETRONAS' Upstream business is a fully integrated business consisting of Exploration, Development, Production and Malaysia Petroleum Management (MPM), covering a broad portfolio of resources and play types. PETRONAS' Upstream presence extends across more than 20 countries globally, with 247 producing fields, 432 offshore platforms and 30 floating facilities. Upstream also promotes sustainable and orderly development of Malaysia's petroleum resources through 96 active Petroleum Arrangement Contracts (PACs), including within the Malaysia-Thailand Joint Development Area and is involved in 27 PACs internationally. The Upstream business continues to deliver results operationally through a combination of strategic and decisive measures. We shape and implement rigorous measures to reduce costs and maintain liquidity, while also strengthening our portfolio by encouraging more value-driven exploration and development of discovered resources to promote a vibrant oil and gas landscape.

Refer to pages 72 to 81 for more details.



### Gas + New Energy

PETRONAS' Gas + New Energy (G+NE) business comprises the Liquefied Natural Gas (LNG), Gas and Power, New Energy and Hydrogen business segments. Operating in 12 countries with more than 4,000 employees globally, G+NE serves as PETRONAS' one-stop centre for cleaner energy solutions. Its portfolio underscores our commitment to advance into the future as a cleaner energy solutions partner to support the global energy transition that has accelerated the shift of energy sources from fossil-based to lower carbon-based sources. We also aim to ensure long-term value creation and profitable growth for PETRONAS and its partners by focusing on customer-centricity, operational and commercial excellence, and sustainability, supported by the right talent, culture and digital innovations.

At G+NE, we continuously innovate to develop energy solutions to meet our customers' energy demand. The "+" symbol in our name denotes the value we create from the innovative solutions we offer, that go beyond conventional energy solution. "+" also represents the new and future energy that is part of the suite of cleaner energy solutions we offer. All in all, the "+" underscores our desire to deliver above and beyond the convention, for the purpose of enriching lives for a sustainable future.

Refer to pages 82 to 91 for more details.



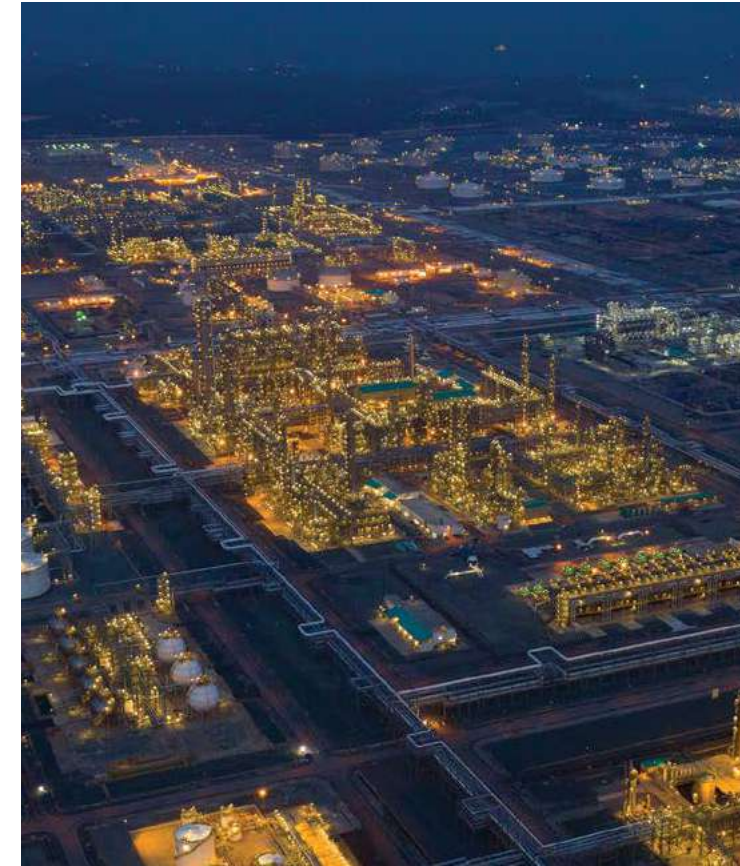
## Business Snapshots



### Downstream

PETRONAS' Downstream business plays a strategic role in enhancing the value of PETRONAS' petroleum resources by transforming molecules into high-quality, value-added products for domestic and international markets. With more than 800 kilo barrels per day (kbbpd) of refining capacity, Downstream's full spectrum of activities include refining, trading and marketing of crude oil and petroleum products, as well as manufacturing and marketing of petrochemical products including olefins, polymers, fertilisers, methanols, other specialty chemicals and derivative products. With a drive for designing solutions from the customer lens, the Downstream business is committed to ensuring a seamless customer experience towards becoming the preferred solutions partner worldwide.

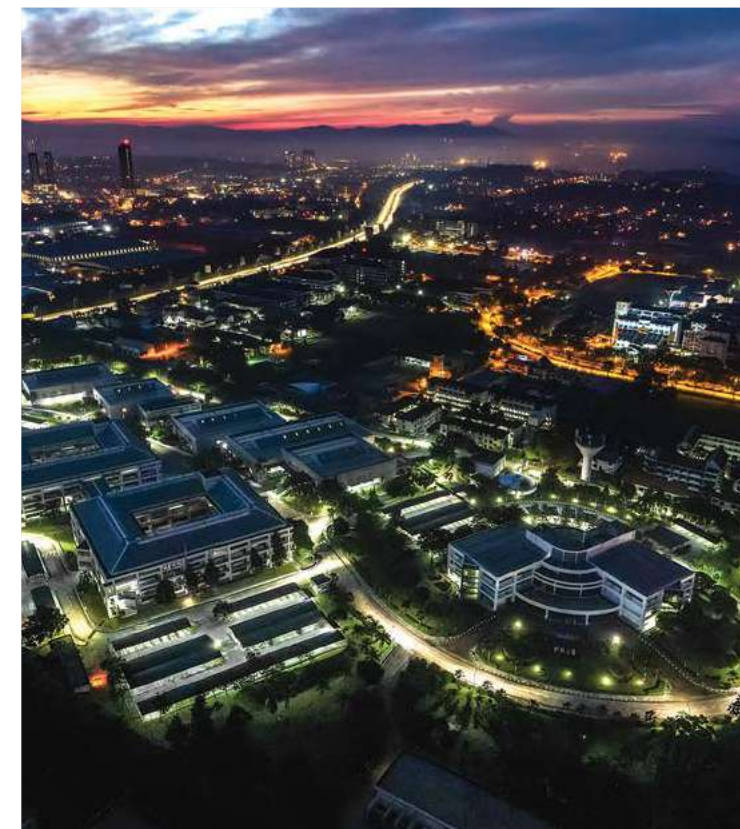
Refer to pages 92 to 101 for more details.



### Project Delivery and Technology

PETRONAS' Project Delivery and Technology (PD&T) Division is responsible for servicing, safeguarding and shaping the Group's growth and future positioning strategies with distinctive research and technical expertise, innovative solutions, as well as robust systems and processes. PD&T aims to innovate with pace and enable tech-digital transformation for PETRONAS, as well as leverage technology and digital synergy to achieve sustainable and regenerative development. Serving as the builder of the engines that drive groupwide growth for PETRONAS, PD&T is committed to maximising the value produced by the Group's businesses with a strengthened digital landscape, harnessing data to deliver value through tech-digital products and solutions. PD&T's role has become even more crucial in the face of unprecedented challenges moving forward as PETRONAS steps out to pursue new areas of opportunity beyond oil and gas while meeting its NZCE 2050 aspiration.

Refer to pages 102 to 109 for more details.





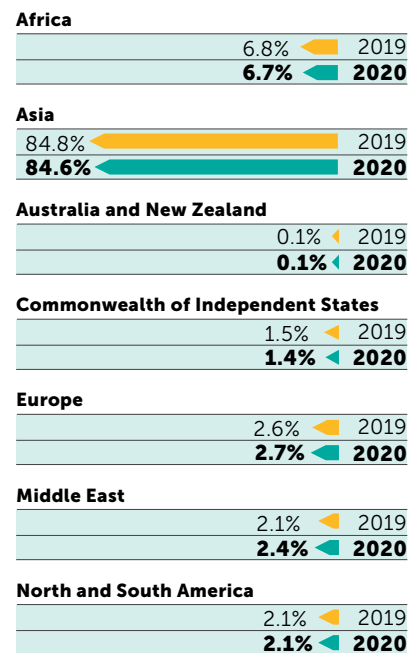
The Group Overview

# PETRONAS Around the World

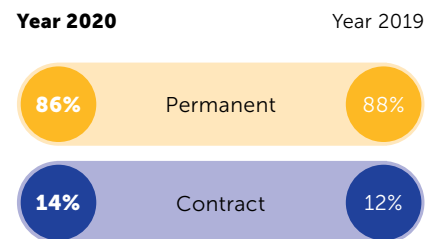
The Group Overview



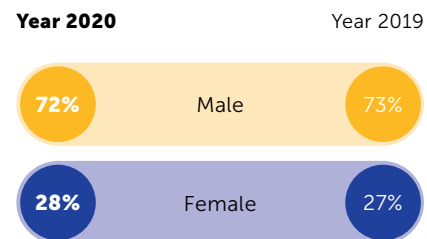
**Breakdown of Employees by Region (%)**



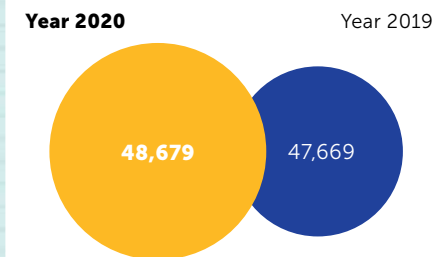
**Employment Type**



**Gender Distribution**



**Total Employees**



**Europe**

- Upstream**
  - Ireland – Abandonment, Decommissioning
- Gas + New Energy**
  - United Kingdom – LNG, Gas Marketing and Trading
- Downstream**
  - Albania – Lubricants
  - Andorra – Lubricants
  - Austria – Lubricants
  - Azerbaijan – Lubricants
  - Belarus – Lubricants
  - Belgium – Lubricants
  - Bosnia-Herz. – Lubricants
  - Bulgaria – Lubricants
  - Croatia – Lubricants
  - Cyprus – Lubricants
  - Czech Republic – Lubricants
  - Denmark – Lubricants
  - Estonia – Lubricants
  - Finland – Lubricants
  - France – Lubricants
  - Georgia – Lubricants
  - Germany – Petrochemicals, Lubricants
  - Greece – Lubricants
  - Hungary – Lubricants
  - Iceland – Lubricants
  - Ireland – Lubricants
  - Italy – Lubricants
  - Kosovo – Lubricants
  - Latvia – Lubricants
  - Lithuania – Lubricants
  - Luxembourg – Lubricants
  - Macedonia – Lubricants
  - Malta – Lubricants
  - Martinique – Lubricants
  - Moldova – Lubricants
  - Netherlands – Petrochemicals, Lubricants
  - Norway – Lubricants
  - Poland – Petrochemicals, Lubricants
  - Portugal – Lubricants
  - Romania – Lubricants
  - Russia – Lubricants
  - Serbia – Lubricants
  - Slovakia – Lubricants
  - Slovenia – Lubricants
  - Spain – Lubricants
  - Sweden – Lubricants
  - Switzerland – Lubricants
  - Ukraine – Lubricants
  - United Kingdom – Lubricants
  - Vatican City – Lubricants
- Project Delivery and Technology**
  - Italy

**Asia Pacific**

- Upstream**
  - Australia – Development, Production
  - Brunei – Exploration, Development, Production
  - Indonesia – Exploration, Development, Production, Abandonment
  - Malaysia-Thailand Joint Development Area – Development, Production
  - Myanmar – Development, Production
  - Vietnam – Production
- Gas + New Energy**
  - Australia – LNG
  - China – LNG Marketing
  - India – LNG Marketing, Solar
  - Indonesia – Gas Infrastructure
  - Japan – LNG Marketing
  - Malaysia – LNG, Solar, Gas Processing, Gas Transportation, Utilities, Regasification, Gas Marketing and Trading
  - Thailand – LNG Marketing, Gas Infrastructure
  - South Korea – LNG Marketing
- Downstream**
  - Australia – Petrochemicals, Lubricants
  - Bangladesh – Lubricants
  - Brunei – Lubricants
  - Cambodia – Lubricants
  - China – Petrochemicals, Lubricants
  - Fiji – Lubricants
  - Hong Kong – Lubricants
  - India – Petrochemicals, Lubricants
  - Indonesia – Petrochemicals, Lubricants
  - Japan – Petrochemicals, Lubricants
  - Malaysia – Petrochemicals, Retail, Refinery, Lubricants
  - Maldives – Lubricants
  - Myanmar – Petrochemicals, Lubricants
  - Nepal – Lubricants
  - New Zealand – Petrochemicals, Lubricants
  - Papua New Guinea – Lubricants
  - Philippines – Petrochemicals, Lubricants
  - Singapore – Petrochemicals, Lubricants
  - South Korea – Petrochemicals, Lubricants
  - Sri Lanka – Lubricants
  - Taiwan – Petrochemicals, Lubricants
  - Thailand – Petrochemicals, Lubricants
  - Vietnam – Petrochemicals, Lubricants
- Project Delivery and Technology**
  - Brunei • Indonesia • Myanmar • Malaysia

**Africa**

- Upstream**
  - Chad – Development, Production
  - Egypt – Exploration
  - Gabon – Exploration
  - Gambia – Exploration
  - Mauritania – Abandonment, Decommissioning
  - Republic of South Sudan – Development, Production
  - Republic of Sudan – Midstream
  - Senegal – Exploration
- Gas + New Energy**
  - Egypt – LNG
- Downstream**
  - Democratic Republic of the Congo – Retail, Lubricants
  - Angola – Lubricants
  - Botswana – Retail, Lubricants
  - Burkina Faso – Lubricants
  - Burundi – Lubricants
  - Cameroun – Lubricants
  - Cote d'Ivoire – Lubricants
  - Egypt – Lubricants
  - Ethiopia – Lubricants
  - Guinea – Lubricants
  - Lesotho – Retail, Lubricants
  - Libya – Lubricants
  - Madagascar – Lubricants
  - Mauritius – Retail, Lubricants
  - Namibia – Retail, Lubricants
  - South Africa – Refinery, Retail, Lubricants, Petrochemicals
  - Republic of South Sudan – Lubricants
  - Swaziland – Retail, Lubricants
  - Togo – Lubricants
  - Tunisia – Lubricants
- Project Delivery and Technology**
  - Egypt • Mauritania • Republic of South Sudan

**Central Asia**

- Upstream**
  - Azerbaijan – Development, Production
  - Turkmenistan – Development, Production
- Downstream**
  - Armenia – Lubricants
  - Kazakhstan – Lubricants
  - Kyrgyzstan – Lubricants
  - Turkmenistan – Lubricants
  - Uzbekistan – Lubricants
- Project Delivery and Technology**
  - Turkmenistan

**Latin America**

- Upstream**
  - Argentina (Unconventional) – Development, Production
  - Brazil – Exploration, Development, Production
  - Suriname – Exploration
- Downstream**
  - Argentina – Lubricants
  - Brazil – Lubricants
  - Belize – Lubricants
  - Bolivia – Lubricants
  - Chile – Lubricants
  - Columbia – Lubricants
  - Costa Rica – Lubricants
  - Dominican Republic – Lubricants
  - Ecuador – Lubricants
  - El Salvador – Lubricants
  - Guatemala – Lubricants
  - Guyana – Lubricants
  - Haiti – Lubricants
  - Honduras – Lubricants
  - Nicaragua – Lubricants
  - Panama – Lubricants
  - Paraguay – Lubricants
  - Peru – Lubricants
  - Suriname – Lubricants
  - Uruguay – Lubricants
- Project Delivery and Technology**
  - Turkmenistan

**North America**

- Upstream**
  - Canada (Unconventional) – Development, Production
  - Mexico – Exploration
  - United States of America – Exploration
- Gas + New Energy**
  - Canada – LNG (Under construction)
- Downstream**
  - Canada – Petrochemicals, Lubricants
  - Mexico – Lubricants
  - United States of America – Petrochemicals, Lubricants
- Project Delivery and Technology**
  - Canada

**Middle East**

- Upstream**
  - Iraq – Development, Production
  - Oman – Development, Production
- Gas + New Energy**
  - United Arab Emirates – LNG Marketing, Solar
- Downstream**
  - Bahrain – Lubricants
  - Iraq – Lubricants
  - Jordan – Lubricants
  - Kuwait – Lubricants
  - Lebanon – Lubricants
  - Oman – Lubricants
  - Palestine – Lubricants
  - Qatar – Lubricants
  - Saudi Arabia – Lubricants
  - Turkey – Petrochemicals, Lubricants
  - United Arab Emirates – Petrochemicals, Lubricants
- Project Delivery and Technology**
  - Iraq





Wholly-owned Subsidiaries (170)

Partly Owned Subsidiaries (56)

Associate Companies (44)

**PETRONAS Carigali Sdn Bhd**

- PETRONAS Carigali Overseas Sdn Bhd
  - PETRONAS Carigali Nigeria Limited
  - PC Randugunting Ltd
  - PETRONAS Carigali (Ketapang Ltd)
  - PETRONAS Carigali (West Galagah Kambuna) Ltd.
  - PETRONAS Carigali (Surumana) Ltd
  - PETRONAS Carigali White Nile (5B) Ltd
  - PC Lampung II Ltd
  - PETRONAS Carigali (Australia) Pty Ltd

— PC JDA Limited

— E&P Venture Solutions Co. Sdn Bhd

- E&P O&M Services Sdn Bhd

— E&P Malaysia Venture Sdn Bhd

- Vestigo Petroleum Sdn Bhd

**PETRONAS Assets Sdn Bhd**

- Petrofibre Network (M) Sdn Bhd
- PETRONAS Digital Sdn Bhd
- Virtus IP Sdn Bhd

**PETRONAS Hartabina Sdn Bhd**

- PRBF Holdings Corporation Sdn Bhd
  - PRBF Properties Sdn Bhd

**PETRONAS Trading Corporation Sendirian Berhad**

- PETCO Trading (UK) Limited
- PETCO Trading Labuan Company Ltd
- PETCO Trading DMCC
- P.T. PETRONAS Niaga Indonesia

**PETRONAS Technical Services Sdn Bhd**

- PTSSB DMCC
- PETRONAS Technology Ventures Sdn Bhd
  - PTV International Ventures Ltd
- PETRONAS Global Technical Solutions Sdn Bhd

**OGP Technical Services Sdn Bhd**

- Kebangsaan Petroleum Operating Co. Sdn Bhd (40%)
- PCPP Operating Company Sdn Bhd (40%)

- Carigali Hess Operating Co. Sdn Bhd (50%)
- Carigali-PTTEPI Operating Co. Sdn Bhd (50%)

- BC Petroleum Sdn Bhd (20%)

- Ophir Production Sdn Bhd (20%)





**Wholly-owned Subsidiaries (170)**

**Partly Owned Subsidiaries (56)**

**Associate Companies (44)**

**PETRONAS International Corporation Ltd**

- PETRONAS Carigali Myanmar Inc.
- PETRONAS Carigali (Turkmenistan) Sdn Bhd
- MITCO Labuan Co. Limited
  - └ PCM Chemical India Private Limited

**PETRONAS Carigali Nile Ltd**

— SUDD Petroleum Operating Co. Ltd (67.875%)

**PICL (Egypt) Corporation Ltd**

- └ WDDM Energy Ltd
- Nada Properties Co. Ltd
- PC Madura Ltd
- PC Muriah Ltd
- PC (Myanmar) Holdings Limited
  - └ PC Myanmar (Hong Kong) Limited

**PETRONAS Carigali Myanmar III Inc.**

- PETRONAS Carigali (Jabung) Ltd
- PICL Marketing Thailand Ltd
- Myanmar PETRONAS Trading Company Limited
- PETRONAS (Thailand) Co. Ltd

**PC Vietnam Limited**

- PC Mauritania I Pty Ltd
- PC Mauritania II B.V
- PETRONAS Philippines Inc
- Parsi International Ltd
- Argentinean Pipeline Holding Company S.A

**PETRONAS Australia Pty Ltd**

- └ PAPL Services Pty Ltd
- └ PAPL (Upstream) Pty Ltd
- └ PAPL (Upstream II) Pty Ltd
- └ PAPL (Downstream) Pty Ltd

**Labuan Energy Corporation Limited**

- └ PSE Ireland Limited
- └ LEC Ireland Employment Limited

**PETRONAS LNG Sdn Bhd**

- └ PETRONAS Energy (India) Private Limited
- └ PETRONAS LNG (UK) Ltd
- └ PETRONAS LNG Ltd
- └ PETRONAS Energy Trading Limited
- └ PNW LNG Marketing Sdn Bhd
- └ LNG Investments Europe Ltd

**PETRONAS Carigali Brunei Ltd**

**Transasia Pipeline Company Pty Ltd (35%)**

- └ PT Transportasi Gas Indonesia (40%)

**Petrodar Operating Company Ltd (40%)**

- └ Greater Nile Petroleum Operating Company (30%)
- └ DAR Petroleum Operating Co. Ltd (40%)
- └ Greater Pioneer Operating Co. Ltd (30%)

**Egyptian LNG Co. S.A.E (35.5%)**

- └ Burullus Gas Company S.A.E (25%)
- └ Idku Natural Gas Liquefaction Company S.A.E (38%)
- └ El Beherah Natural Gas Liquefaction Company S.A.E (35.5%)
- └ Egyptian Operating Company for Natural Liquefaction Project S.A.E (35.5%)

**Taninthayi Pipeline Co Limited Liability Company (30%)**

- └ PP Oil & Gas Indonesia Holding Ltd (50%)

**Lam Son Joint Operating Company (50%)**

— Japan Malaysia LNG Co. Ltd (93%)





Wholly-owned Subsidiaries (170)

PETRONAS International Corporation Ltd (Continued)

- PETRONAS (E&P) Overseas Ventures Sdn Bhd
  - PETRONAS Iraq Garraf Ltd
  - Natuna 1 B.V.
  - PETRONAS Carigali Canada B.V.
  - PETRONAS Carigali International E&P B.V.
  - PETRONAS Carigali Iraq Holding B.V.
  - PETRONAS Brasil E&P Limitada
  - PETRONAS Angola E & P Ltd
  - Garraf Technical Services Ltd
  - PETRONAS Azerbaijan Upstream Sdn Bhd
  - PC Kualakurun Ltd
  - PC North Madura II Ltd
  - PETRONAS Carigali Chad Exploration & Production Inc
  - PC Senegal Ltd
  - Petroleum Manpower Services Mexico S.A. de C.V.
  - PC Sakakemang B.V.
  - PC Gambia Ltd
  - PETRONAS Petroleo Brasil Limitada
  - PC Oman Ventures Ltd
  - Petroleum Manpower Support Services Mexico S.A. de C.V.
  - PETRONAS Carigali International Sdn Bhd
  - PETRONAS Gebang Indonesia B.V.
  - PETRONAS Andaman III Indonesia B.V.
  - PETRONAS West Papua IV Indonesia B.V.
  - PETRONAS Aru Indonesia B.V.

PETRONAS Lubricants International Sdn Bhd

- PLI (Netherlands) B.V.
  - PLI Italy SPA
- PETRONAS Base Oil (M) Sdn Bhd
- PETRONAS Lubricants Africa Ltd
  - PETRONAS Lubricants (India) Private Limited
  - PLAL DMCC
- PETRONAS Lubricants China Company Limited
  - PETRONAS Lubricants (Shandong) Co., Ltd
  - PETRONAS Marketing (China) Co. Ltd
- PT PLI Indonesia
- PLI Australia Pty. Limited

Partly Owned Subsidiaries (56)

Associate Companies (44)

Guangxi Beihai Yuchai PETRONAS High Quality Lube Co. Ltd. **(50%)** - 50% held by Guangxi Yuchai Machinery Group Co. Ltd.





Wholly-owned Subsidiaries (170)

Partly Owned Subsidiaries (56)

Associate Companies (44)

PETRONAS International Power Corporation B.V.

- └ Amplus Energy Solution Pte. Ltd.
  - └ Amplus Energy Solutions FZE
  - └ Amplus Energy Solutions (Thailand) Co Ltd.
  - └ Amplus Energy Solutions Private Limited
  - └ Amplus Solar Power Private Limited
  - └ Amplus Solar Solutions Private Limited
  - └ Amplus Andhra Power Private Limited
  - └ Amplus Power Solutions Private Limited
  - └ Amplus KN Solar Private Limited
  - └ Amplus Sun Solutions Private Limited
  - └ Amplus Solar Power MH Private Limited
  - └ Amplus Costal Power Private Limited
  - └ Amplus RJ Solar Private Limited
  - └ Amplus Green One Power Private Limited
  - └ Solbridge Energy Private Limited
  - └ Amplus Power Supply Private Limited
  - └ Amplus KN One Power Private Limited
  - └ Amplus Management Services Private Limited
- └ Amplus Shams Private Limited
- └ Amplus Ages Private Limited
- └ Grian Energy Private Limited
- └ OneVolt Energy Private Limited
- └ Sunroot Energy Private Limited
- └ Amplus Venus Private Limited
- └ Amplus Tumkur Solar Energy One Private Limited
- └ Amplus Pavagada Solar Energy Two Private Limited
- └ Amplus Phoenix Energy Private Limited
- └ Amplus IIFA Solar Private Limited
- └ Amplus Solar Shakti Private Limited
- └ Amplus Centaur Solar Private Limited
- └ Amplus Ampere Private Limited

Amplus Poorva Private Limited (70%)

Amplus Dakshin Private Limited (74%)

Nay Energy Private Limited (74%)

PETRONAS Power Sdn Bhd

PETRONAS International Power Corporation (Mauritius) Ltd

- └ Voltage Renewables Sdn Bhd (70%)
- └ NE Suria Satu Sdn Bhd (80%)

Eastern Sabah Power Consortium Sdn Bhd (30%)

- └ Pacificlight Power Pte. Ltd (30%)
- └ Pacificlight Energy Pte. Ltd (30%)





Wholly-owned Subsidiaries (170)

Partly Owned Subsidiaries (56)

Associate Companies (44)

# PETRONAS Chemicals Group Berhad (64.35%)

- PETRONAS Chemicals Marketing Sdn Bhd (100%)
  - PETRONAS Chemicals Marketing (Labuan) Ltd (100%)
  - PCM (Thailand) Company Limited (99.98%)
  - PCM (China) Co. Ltd. (100%)
  - PT PCM Kimia Indonesia (99.67%)
- PETRONAS Chemicals Derivatives Sdn Bhd (100%)
- PETRONAS Chemicals Polyethylene Sdn Bhd (100%)
- Vinyl Chloride (Malaysia) Sdn Bhd (100%)
- PETRONAS Chemicals Methanol Sdn Bhd (100%)
- PETRONAS Chemicals Glycols Sdn Bhd (100%)
- PETRONAS Chemicals Ammonia Sdn Bhd (100%)
- Polypropylene Malaysia Sdn Bhd (100%)
- Kertih Port Sdn Bhd (100%)
- PETRONAS Chemicals Fertiliser Kedah Sdn Bhd (100%)
- PETRONAS Chemicals MTBE Sdn Bhd (100%)
- PETRONAS Chemicals Isononanol Sdn Bhd (100%)
- PRPC Elastomers Sdn Bhd (100%)
- PETRONAS Chemicals Olefins Sdn Bhd (100%)
- PETRONAS Chemicals LDPE Sdn Bhd (100%)
- PETRONAS Chemicals Fertiliser Sabah Sdn Bhd (100%)
- PETRONAS Chemicals Ethylene Sdn Bhd (87.5%)
- Asean Bintulu Fertilizer Sdn Bhd (63.47%)
- PETRONAS Chemicals Aromatics Sdn Bhd (70%)
- PETRONAS Chemicals International B.V. (100%)
  - Da Vinci Group B.V. (100%)

- BASF PETRONAS Chemicals Sdn Bhd (40%)
- Kertih Terminals Sdn Bhd (40%)
- Idemitsu SM (Malaysia) Sdn Bhd (30%)
- BP PETRONAS Acetyls Sdn Bhd (30%)
- PCC Oxyalkylates Malaysia Sdn Bhd (50%)
- Pengerang Petrochemical Company Sdn Bhd (50%)

PT Anugerah Kimia Indonesia (49%)

Malaysia NPK Fertilizer Sdn Bhd (20%)

# PETRONAS Gas Berhad (51%)

- Regas Terminal (Sg. Udang) Sdn Bhd (100%)
- Regas Terminal (Lahad Datu) Sdn Bhd (100%)
- Regas Terminal (Pengerang) Sdn Bhd (100%)
- Kimanis Power Sdn Bhd (60%)
- Kimanis O&M Sdn Bhd (60%)
- Pengerang LNG (Two) Sdn Bhd (65%)
- Pengerang Gas Solution Sdn Bhd (51%)

Industrial Gases Solutions Sdn Bhd (50%)

# PETRONAS Dagangan Berhad (63.94%)

- PETRONAS Lubricants Marketing (Malaysia) Sdn Bhd (100%)
- Setel Ventures Sdn Bhd (100%)
- PETRONAS Aviation Sdn Bhd (100%)
  - PDB (Netherlands) B.V. (100%)
    - PETRONAS International Marketing (Thailand) Co., Ltd. (100%)
- Kuala Lumpur Aviation Fuelling System Sdn Bhd (65%)

- IOT Management Sdn Bhd (20%)
- Tanjung Manis Oil Terminal Management Sdn Bhd (20%)
- PS Pipeline Sendirian Berhad (50%)
- PS Terminal Sendirian Berhad (50%)
- United Fuel Company Limited Liability Company (40%)

**Note:**

# Listed on Bursa Malaysia.





**Wholly-owned Subsidiaries (170)**

**Partly Owned Subsidiaries (56)**

**Associate Companies (44)**

**KLCC (HOLDINGS) SDN BHD**

PETRONAS Research Sdn Bhd  
 Primesourcing International Sdn Bhd  
 Institute of Technology PETRONAS Sdn Bhd  
 UTP FutureTech Sdn Bhd

PETRONAS Gas & New Energy Sdn Bhd  
 PETRONAS Penapisan (Terengganu) Sdn Bhd  
 PETRONAS Penapisan (Melaka) Sdn Bhd  
 Malaysian Refining Company Sdn Bhd  
 PETRONAS Management Training Sdn Bhd  
 PETROSAINS Sdn Bhd  
 Sanzbury Stead Sdn Bhd  
 PETRONAS Capital Limited  
 PETRONAS Global Sukuk Limited  
 PETRONAS NGV Sdn Bhd  
 Energas Insurance (L) Limited  
 PETRONAS Technical Training Sdn Bhd  
 PETRONAS Floating LNG 1 (L) Ltd  
 PETRONAS Floating LNG 2 (L) Ltd  
 PETRONAS Refinery and Petrochemical Corporation Sdn Bhd

PRPC Utilities and Facilities Sdn Bhd  
 PRPC Water Sdn Bhd  
 Pengerang Power Sdn Bhd  
 PRPC SPJ Sdn Bhd

PETRONAS Marketing International Sdn Bhd  
 PETRONAS Energy & Gas Trading Sdn Bhd

# MISC Berhad (51%)

Malaysia LNG Sdn Bhd (90%)  
 Malaysia LNG Dua Sdn Bhd (80%)  
 Malaysia LNG Tiga Sdn Bhd (60%)

# PETRONAS LNG 9 Sdn Bhd (65%)

# KLCC Property Holdings Berhad (66.94%)

Engen Limited (74%)

# Bintulu Port Holdings Berhad (28.52%)

Indianoil PETRONAS Private Limited (50%)  
 Trans Thai-Malaysia (Thailand) Ltd (50%)  
 TTM Sukuk Berhad (100%)  
 Trans Thai-Malaysia (Malaysia) Sdn Bhd (50%)

Pengerang Refining Company Sdn Bhd (50%)  
 Pengerang Terminal (Two) Sdn Bhd (40%)

**Other Companies (8)**

Shell Mds (Malaysia) Sdn Bhd (7%)  
 Labuan Reinsurance (L) Ltd (10%)  
 # Tenaga Nasional Berhad (0.40%)

**Through PETRONAS Gas Berhad**  
 # Gas Malaysia Berhad (14.8%)

**Through PETRONAS Technology Ventures Sdn Bhd**  
 LanzaTech New Zealand Limited - (3.6%)

**Through Petrofibre Network (M) Sdn Bhd**  
 Fiberail Sdn Bhd (10%)

**Through PETRONAS Marketing International Sdn Bhd**  
 Vivo Energy Plc (3.679%) - w.e.f 06/08/2020

**Note:**

This chart excludes subsidiary companies of MISC Berhad, KLCC (Holdings) Sdn Bhd and Engen Limited.

# Listed on Bursa Malaysia.



# Moving Forward with **Passion**

## Strategic Progress

Leadership perspectives and insights into how we are executing strategy to create value.

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# Ensuring We Remain Relevant in the New Normal



**Dear Stakeholders,**

The year in review was undoubtedly one of the most testing years for the oil and gas industry with the twin shocks of the COVID-19 pandemic and the oil prices free plunging the industry to an unprecedented low.

As lockdown measures were swiftly implemented to stem the tide of the pandemic, economies the world over suffered with many coming to an abrupt standstill. At the same time, an oil price rout amidst a supply overhang wreaked further havoc on an already despondent industry. Like all oil majors, the PETRONAS Group felt the full brunt of this onslaught with a never-before-seen contraction in our revenue. Through prudent liquidity and cost management, PETRONAS continued to operate cautiously and efficiently.



**Tan Sri Ahmad Nizam Salleh**  
Chairman



The industry was already contending with an energy mix shifting from a fossil fuel dominated to one that will see a significant rise in cleaner energy sources before the pandemic. More governments the world over and stakeholders are sending strong signals on the value of sustainability and intensifying their shift towards low carbon priorities.

To counter the effects of the energy transition combined with the impact of the pandemic, PETRONAS is upholding its strategies and implementing timely mitigation measures while drawing a new map of recovery and growth pathways with full support from the PETRONAS Board. The road ahead will require us to move forward with pace, while having the resilience to weather this long-drawn-out storm.

My Board and I are grateful for the relentless spirit shown by our people, and our partners who pushed through this tumultuous time to keep delivering energy while churning out value through their passion and dedication. They worked around stringent standard operating procedures (SOPs) and constraints to sustain operations in the safest possible manner, while stepping up to stay true to our Purpose – A progressive energy and solutions partner enriching lives for a sustainable future.





**Committed to Enriching Lives**

PETRONAS was formed to deliver value from the trust bestowed upon us in managing the nation's hydrocarbon resources. At a time where lives, lifestyles and economic activities are completely altered, we remain unwavering in our commitment to enrich lives wherever we operate. In 2020, PETRONAS staff came together to raise a voluntary salary contribution of RM6.4 million for 'Tabung COVID-19' under the National Disaster Management Agency (NADMA). This was part of our total contribution valued at RM50.6 million, which included the timely disbursement of medical supplies, protective gear and other essentials for frontliners and the public in Malaysia as well as in our countries of operation. In 2020, the Group's Corporate Social Responsibility (CSR) activities fronted by Yayasan PETRONAS (the PETRONAS Foundation), primarily focused on COVID-19 relief efforts, while we ensured that other philanthropic efforts were proportionately carried out to continue delivering value in meaningful and scalable ways.

For more details of our Corporate Social Responsibility activities, go to the Positive Social Impact section on pages 178 to 189.

With the pandemic precipitating a health and economic crisis, the livelihoods of lower income groups and small businesses have become even more vulnerable. Recognising this, in August 2020, Yayasan PETRONAS announced Program MEKAR which aims to elevate the socio-economic capacity of 3,400 low-income (or B40) families over the next two years by transforming ideas into sustainable businesses to narrow income gaps for a more equitable society. These families from eight states in Malaysia are expected to benefit from the MEKAR programme through targeted mentoring and training schemes. This is in support of the Malaysian government's stimulus packages to "build back better" which includes leveraging on the digital economy to empower communities to overcome economic hardship throughout the pandemic.



PETRONAS is also in tune with the ambitions and struggles of homegrown companies in becoming globally competitive, having gone through the ups and downs of the oil and gas business ourselves. As Malaysia's national oil company (NOC), we have taken it upon ourselves to safeguard and shape the resilience of the domestic oil and gas ecosystem. We collaborate with the Ministry of Entrepreneur Development and Cooperatives (MEDAC) to champion the Vendor Development Programme (VDP) which has helped produce four listed companies from a total of 99 local vendors who have graduated from the programme since 1993. A conducive environment for emerging Oil and Gas Service Equipment (OGSE) vendors will not only help them leap into more complex areas of the business but also enhance their business acumen to develop sustainably.

In 2020, over 200 of our high performing vendors received timely support from our Vendor Financing Programme and Road to Bursa initiatives, which enabled them to thrive in challenging circumstances and keep the domestic economy flowing from their earnings.

For more details of our Labour and Supply Chain activities, go to the Positive Social Impact section on pages 172 to 177.

PETRONAS staff came together to raise a voluntary salary contribution of **RM6.4 million** for 'Tabung COVID-19' under NADMA

Our total COVID-19 contribution valued at **RM50.6 million** included the timely disbursement of medical supplies, protective gear and other essentials for frontliners and the public in Malaysia as well as in our countries of operation

Approximately **3,400 low-income families** from eight states in Malaysia are expected to benefit from the MEKAR programme which transforms ideas into sustainable businesses to narrow income gaps for a more equitable society

**Paving Recovery and Growth Pathways**




For PETRONAS, recovery and growth go beyond just the confines of business and financial returns. We recognise that we have a responsibility to balance out our economic ambitions with positive social and environmental considerations. We draw on our strength and ability to balance our unique position to fulfill our commitment as Malaysia's NOC as well as live up to growing expectations in our position as an international oil company (IOC). To this end, PETRONAS' Sustainability Agenda is at the heart of all our value creation efforts, and this in turn is supported by four sustainability lenses.

-  Continued Value Creation
-  Safeguard the Environment
-  Positive Social Impact
-  Responsible Governance

The Agenda enables us to remain committed to our sustainability endeavours.

PETRONAS will continue to evolve as we brace for lower-for-longer oil prices and demand for low-carbon energy. The Board is fully supportive of the deliberate steps and new portfolio objectives that will see us pursuing superior performing and high value offerings and solutions, which are robust and sustainable in the long run, while positively contributing to society. This will be met through strengthening our core by being increasingly cost efficient, ensuring active portfolio management and accelerating our Stepping Out strategy into speciality chemicals and renewables such as solar and hydrogen.

I am pleased to share that despite the headwinds, PETRONAS has continued to deliver its Three-Pronged Growth Strategy and made great strides in providing new and innovative energy solutions to our customers which include:

-  **Expanding our offerings with Liquefied Natural Gas (LNG) Bunkering, delivery of LNG via ISO tanks to off-grid customers** via a Virtual Pipeline System (VPS) and a range of IONA e-fluids to serve the electric vehicle market.
-  **Enhancing customer experience at our local PETRONAS Mesra Stations with Setel, Deliver2Me and Makan@Mesra** that have contributed to increased growth in non-fuel retail income for PDB.
-  **Providing access to renewable energy with M+ by PETRONAS, a flagship solar rooftop solution** for commercial and industrial customers.

On the home front, PETRONAS is committed to ensure the domestic oil and gas ecosystem continues to thrive and Malaysia is recognised as a world class investment destination. In our five-year plans, the bulk of our capital expenditure (CAPEX) will be invested domestically. With this move, we hope to rejuvenate the domestic oil and gas sector, to stimulate the recovery of the economy and generate growth for the longer term.

We are positioning ourselves to embrace a low-carbon energy future via our aspiration to achieve net zero carbon emissions by 2050 (NZCE 2050). It will not just be our licence to operate but is also integral in supporting our organisation's resilience moving forward. It presents opportunities for us to pursue new top line and bottom-line value creation and ensure the Group's market valuation strengthens over time.

Our enduring partnerships with stakeholders have already taken a new turn with the establishment of formidable

alliances to further grow the value pie for our stakeholders. In 2020, PETRONAS concluded a historical commercial settlement on oil and gas matters in the state of Sarawak. The evolution of this partnership will see the State having more active participation in the management of onshore oil and gas resources. It also paves the way for our new collaboration with Sarawak Energy Berhad (SEB) to explore commercial production of green hydrogen in meeting the demand for global clean energy.

PETRONAS has been an advocate for natural gas' pivotal role as a cleaner, more secure and abundant resource for the energy transition which will make up a quarter of the primary energy mix by 2040.

As one of the world's largest exporters of LNG, backed by an integrated value chain, customer-centric solutions and strategically located global assets, we are in an advantageous position to meet future gas demand which is anticipated to come mainly from Asia. PETRONAS is also supporting the formulation of Malaysia's Natural Gas Roadmap, a key part of the National Energy Policy under the 12<sup>th</sup> Malaysia Plan, 2021-2025.

This collaboration realises the ideal synergy of companies working closely with policy makers to move the needle in tackling climate change issues in an effective and sustainable manner.



### Integrity Anchored on Shared Values

At PETRONAS, we believe good governance translates into good business. As such, we remain committed to upholding high standards of corporate governance as well as applying robust risk management and internal control measures to our business. These elements are not only helping us ensure the delivery of sustainable and long-term business growth, they are also safeguarding PETRONAS' reputation as a trustee of the nation's oil and gas resources while ensuring continued shareholder value creation. Business ethics and corporate governance are the guardrails that keep our organisation on track and in check.

In the course of acting at pace in response to the highly challenging environment, individual and organisational integrity must be upheld as a way of life and must not be compromised at any cost.

**To this end, Integrity is upheld as one of our Shared Values alongside Loyalty, Professionalism and Cohesiveness to guide and drive us forward.**

PETRONAS practices zero tolerance against bribery and corruption and implements global practices to combat such acts. We were one of Malaysia's first companies to obtain and have since maintained our International Organization for Standardization 37001 certification. We have strengthened the tone from top where leaders model the way and speak on hard-hitting topics surrounding integrity. The Group also makes every effort to roll out compulsory training and e-learning programmes on PETRONAS' guidelines while our policies govern business conduct across the Group.

A single assurance platform, the PETRONAS Integrated Assurance platform is pervasively used across the Group's operations to prevent and mitigate risks that could impact the organisation, including unethical acts of bribery and corruption. This is one of our control measures to promote proactive self-assessment in regulating one's own behaviour and actions while performing daily work routines, in accordance with the PETRONAS Integrity Compliance Framework.

PETRONAS holds the nation's hydrocarbon resources in trust, and we share the accountability to ensure its well-being, while we harness its potential for the benefit of the people and the nation. To this end, we will continue to ensure individual and organisational integrity becomes a way of life at PETRONAS.

#### PETRONAS Practices Zero Tolerance Against Bribery and Corruption

One of Malaysia's first companies to obtain and have since maintained our

#### International Organization for Standardization 37001 certification

Rollout of compulsory training and e-learning programmes



### Moving Forward amidst a Challenging Outlook

As we embrace a new year, the economic outlook remains uncertain and challenging. Evidence points to the acceleration of the energy transition, while the impact from the pandemic-induced demand destruction and oil price rout remains. While there has been good progress made on the vaccination front and several pockets of recovery are already underway, new strains of the COVID-19 virus have caused some countries to consider stricter lockdowns. All in all, clouds of uncertainty still loom over the horizon as early economic indicators are showing the return to pre-pandemic normalcy will only be in 2022.

**Moving forward, PETRONAS maintains a cautious outlook for 2021 as the events of the past year continue to shape the challenges that we see today. Our mandate is to ensure that future generations inherit a strong and sustainable company. We have behind us 46 years of impressive growth that will drive us to take on the change and innovation that have become the business norms of today.**

If we are to make real progress amidst today's challenging landscape, we must not derail from our efforts of upholding the highest levels of integrity and governance. We must also stay true to our Shared Values and our accountability for the resources we have been entrusted with, to create new value for our customers who have given us the opportunity to serve and grow; resource owners who have entrusted us to become their partner in progress; and the nation for its support in allowing us to continue growing as a FORTUNE Global 500 company.

### In Appreciation

Many parties helped PETRONAS weather the very challenging year that was 2020 and we are indeed grateful for all their support and trust. On behalf of the PETRONAS Board of Directors, I wish to convey my deep gratitude to Tengku Muhammad Taufik, President and Group Chief Executive Officer (CEO) of PETRONAS, his Leadership Team, and each and every one of our loyal employees for stepping up to the plate and

remaining resilient amidst the year's challenges. It is because of your perseverance, hard work and team spirit that we were able to remain resolute in the face of 2020's extremely challenging operating environment.

I also wish to express my heartfelt appreciation to our valued stakeholders, particularly our customers and partners for their unwavering support and confidence in PETRONAS. My utmost appreciation to the government of Malaysia, the state governments and the governments of PETRONAS' host countries for their invaluable cooperation and backing that helped us keep our people safe and our businesses operational. Over and above, my sincere gratitude to my colleagues on the Board for their astute counsel and insights which helped us navigate safely through last year's highly taxing playing field.

In 2020, we bid farewell to two Directors namely Tan Sri Wan Zulkiflee Wan Ariffin, our former President and Group CEO who resigned in June 2020, and Encik Ahmad Faris Rabidin, an Independent Non-Executive Director who resigned in August 2020. We thank both gentlemen for their worthy contributions to PETRONAS and our nation and wish them every success in their future endeavours.

We extend a warm welcome to our three new Independent Non-Executive Directors, namely Tan Sri Datin Paduka Zaharah Ibrahim, Dato' Haji Razali Mohd Yusof and Dato' Hj. Ibrahim Hj. Baki, all of whom were appointed on 17 August 2020. We certainly look forward to the collective experience and expertise as well as the diverse perspectives that they bring to the table.

PETRONAS did not emerge from 2020 unscathed. The year taught us some very hard lessons and accorded us solid insights into what our next steps should be if we are to remain relevant as a progressive energy and solutions partner. As we steadily put the building blocks in place and move forward into the new normal, I am confident that PETRONAS will once again attain credible, sustainable progress. Last but not least, I call upon all our stakeholders to move forward together and lend PETRONAS their unstinting support. Thank you.

**Tan Sri Ahmad Nizam Salleh**  
Chairman



# Remaining Steadfast in Tough Times



## Esteemed Stakeholders,

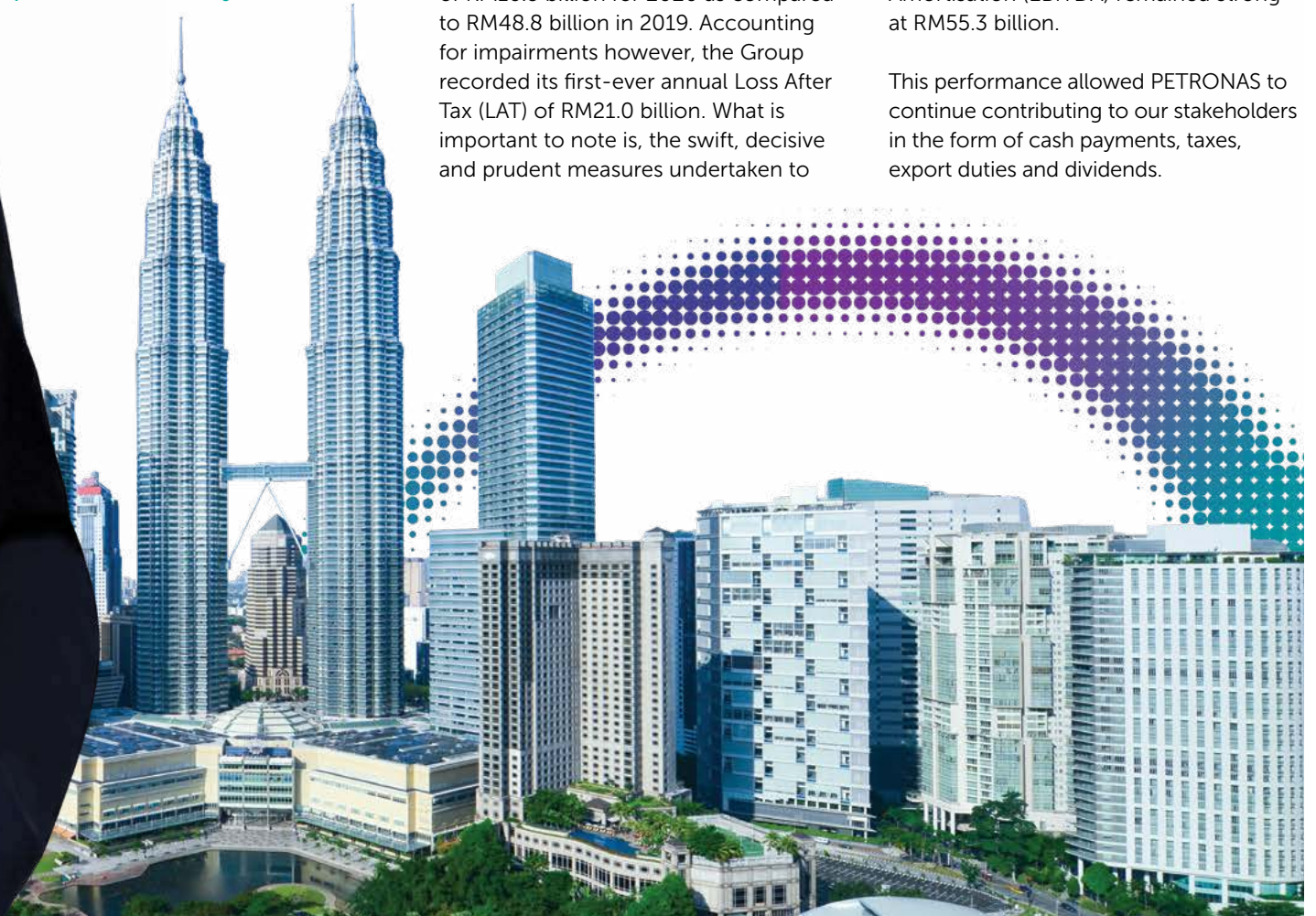
The year 2020 was an exceedingly difficult one for the industry. The unprecedented events that unfolded saw the industry contending with the challenges of the demand destruction brought about by the COVID-19 pandemic and fragile oil prices, following a sustained rout due to a prolonged supply glut. Within the broader energy space, the pandemic mercilessly tested the vulnerabilities in our current energy system. Since then, the push towards energy transition has become increasingly evident and accelerated. In totality, these developments have converged, forming an undeniable imperative requiring immediate reforms along the whole value chain. In short, the historic events of 2020 forced a Great Reset for the industry.



**Tengku Muhammad Taufik**  
President and Group Chief Executive Officer



Amidst these disruptions, we have not wavered from our priority: to keep our people safe. We took **immediate measures** to ensure the safety of our 48,000-strong workforce, preserve business continuity across more than 33 countries as well as uphold the social well-being of communities in our areas of operation. To ensure PETRONAS' long-term survival, the Group embarked on **deliberate steps** to strengthen our resilience and steer the organisation towards a path to recovery.



Our focus is on becoming a more cost-efficient producer, de-risking our investments by pursuing opportunities that deliver quicker cash returns and are less volatile, as well as embarking on more innovative solutions while pivoting our portfolio. These efforts will continue to be driven by a stronger, more customer-centric workforce, committed towards the pursuit of our Three-Pronged Growth Strategy.

Despite the obstacles we faced, the PETRONAS Group has responded well to cushion the adverse impact of a turbulent year. This overview of our operational and financial performance is a testament to the mettle of our people, their appetite to innovate, as well as their commitment to working together to overcome all odds and progress with conviction.

### Turning in a Resilient Performance

Before net impairment losses, PETRONAS posted a Profit After Tax (PAT) of RM10.5 billion for 2020 as compared to RM48.8 billion in 2019. Accounting for impairments however, the Group recorded its first-ever annual Loss After Tax (LAT) of RM21.0 billion. What is important to note is, the swift, decisive and prudent measures undertaken to

provide PETRONAS with a stronger foundation to ensure the resiliency and sustainability of its operational and financial positions today.

At the onset of the pandemic in March, PETRONAS announced a targeted capital investments reduction of 21 per cent and operating expenditures reduction of 12 per cent. The decision was taken after careful deliberation to protect groupwide profitability while preserving liquidity to weather what we anticipated to be an extremely volatile period. We also remained firm on our cost compression and resource optimisation efforts.

As a result, we recorded positive Cash Flows from Operating Activities (CFFO) of RM40.7 billion in 2020, albeit 55 per cent lower than the RM90.8 billion in the previous year. The healthy CFFO provided comfortable liquidity cover to meet the Group's Capital Investments of RM33.4 billion. PETRONAS' Earnings Before Interest, Tax, Depreciation and Amortisation (EBITDA) remained strong at RM55.3 billion.

This performance allowed PETRONAS to continue contributing to our stakeholders in the form of cash payments, taxes, export duties and dividends.



### Responding with Immediate Measures to 2020's Challenges

When the first hints of the pandemic emerged earlier in the year, the Group had to navigate operational and supply chain disruptions, demand disruptions, evolving market conditions and shifting consumer behaviour. We minimised the impact of these headwinds on our business by deploying **three immediate measures**:

#1

Activation of the PETRONAS Pandemic Preparedness and Response Team (PPRT) and Corporate Command Centre (C3)

– to ensure timely decisions were made to safeguard the health and safety of our people and to regulate critical cross-business decisions.

#2

Implementation of Liquidity Plus (L+)

– to provide steer on groupwide liquidity strategies to remain resilient while preserving credit metrics at Investment Grade.

#3

Rollout of Fast Forward (F2)

– to shape the organisation post COVID-19, in response to the complexities of the new normal.

I am pleased to report that PETRONAS' operations were able to run safely, reliably and efficiently with minimal interruptions despite having to address more than 2,000 cumulative COVID-19 cases within the Group at the peak of the pandemic. We activated the evacuation of employees who developed COVID-19 symptoms and evacuated as well as redeployed approximately 1,039 employees, dependents and students from 33 countries. We also ensured digital infrastructure readiness for our more than 48,000-strong workforce to work remotely and safely during the crisis.

Evacuated and redeployed approximately

1,039 employees,

dependents and students from

33 countries

Prepared the digital infrastructure for over

48,000 employees

to work remotely and safely



Moreover, the Group recorded 272.8 million man-hours in 2020 and the Fatal Accident Rate (FAR) stood at 1.47 per million man-hours. Major Loss of Primary Containment (LOPC) was contained at five incidents, which is the lowest rate over the last five-year period. Major Fires recorded were sustained at two incidents – an improvement compared to three incidents in 2019.



### Leveraging Three Deliberate Steps to Ensure Sustainable Growth

As I stated at the outset of this letter, the confluence of events in 2020 forced a Great Reset for the industry which resulted in energy players taking a long, hard look at the way we had been doing things. For PETRONAS, it was an impetus for the Group to clearly define our long-term portfolio objectives so we could take deliberate steps into potential new spaces that will enable us to thrive in the energy transition. We recognised new opportunities in pursuing 'green shoots' through close collaborations between our Upstream, Gas + New Energy, Downstream as well as Project Delivery and Technology (PD&T) business segments that, in our view, could strengthen our resiliency in responding to challenging market conditions.

The year under review saw PETRONAS focusing on **three deliberate steps** – the first was to act immediately on the levers that were within our control, while the other two steps were long-term measures that would steer the organisation through the crisis and ultimately, thrive in the long run. The deliberate steps, which were timely tactical interventions to minimise operational impact and preserve value across the Group, entailed:

Focused Execution at Pace

This centres on our core engine running efficiently to (i) ensure optimum value from our assets and resources in a better, faster and safer manner, and (ii) enable a smoother portfolio review and business pivot where necessary. At the heart of this are two key components, namely cost-to-serve and knowing our customers. These are among a few commendable examples of our achievements:

A total of **ten discoveries** were made in 2020 comprising **seven discoveries** which contributed to our resource addition namely in **Malaysia, Suriname as well as Gulf of Mexico, USA and Gulf of Mexico, Mexico**

**10% reduction in Upstream Unit Production Cost (UPC)** and energy optimisation initiatives to improve efficiency in reducing UPC for all Downstream Plants

**600 million standard cubic feet per day (MMscfd) minimum daily gas** offtake during Movement Control Order (MCO)

Secured **6.5 mtpa** LNG supply deals covering contract extensions, servicing new customer segments via Virtual Pipeline System (VPS) and LNG Bunkering Vessel (LBV) solutions, as well as entries into new markets

Achieved an Overall Equipment Effectiveness (OEE) rate of **90%** across Downstream assets, **97%** for domestic refinery and **86.2%** for South Africa's refinery

Achieved an OEE rate of **96.8%** across G+NE

PD&T's efforts generated **RM2.9 billion in cost savings** realised across the Group

I am pleased to report that PETRONAS ensured a safe and sustainable supply of energy to support the requirements of its customers, partners and businesses across the globe with strict compliance to our Health, Safety, Security and Environment (HSSE) standards and guidelines by local authorities – all this was delivered despite the many vagaries we contended with as a result of the pandemic.

Reshaping Our Portfolio

This allows us to shape a superior performing and high-value portfolio which is robust and sustainable in the long run whilst positively contributing to society.

**Established the Portfolio Intervention and Transition (PIT) team** – a multifunctional team with best-fit talents to accelerate the portfolio review with groupwide resilience and sustainability in mind

Introduced new and accessible **LNG solutions encompassing the VPS and LBV solutions**

Increased growth in the non-fuel retail segment with **Setel and Makan@Mesra**

Close to a **1GW solar capacity** under operation and development in Malaysia, India and Dubai

Stepping out through partnerships in specialty chemicals to meet the **increasing demand for gloves, pharmaceuticals and hygiene products**

Venture capital investments in technology start-ups for growth in industries adjacent to and beyond oil and gas namely, **Braintree Technologies** for smart farming solutions with PETRONAS Chemicals Group Berhad

PETRONAS through its corporate venture capital arm, PETRONAS Ventures, teamed up with SOLS Energy Sdn Bhd to invest in the **solar photovoltaic (PV)** system start-up that provides sustainable energy for residential and small-to-medium enterprise (SME) sectors in Malaysia

Venturing into the **commercial production of green hydrogen**, for export to the Far East Asia market

These are among the 'green shoots' that will expand PETRONAS' offerings as an energy and solutions partner to fulfil the aspirations of consumers and governments for a low-carbon future.

Retooling Our Human Capital Equation

In simple terms, this entails taking a long hard look at how we deploy the talents we already have, expect to recruit or potentially lose through natural attrition, while focusing on building new types of capabilities to ensure PETRONAS retains a robust workforce that is equipped to face the energy transition.

This will be absolutely essential as we pivot our strategy to move forward. People are our most valuable assets and PETRONAS remains steadfast in ensuring its talents are continuously upskilled.

**83% of 48,679 employees** worked from home with **47,127 online training sessions completed**

**TechnoDigital Agenda** to accelerate PETRONAS transformation on the technology and digital front with enhanced capabilities and resources to steer a future-ready organisation

**Leadership pipeline** through accelerated development of our talents to become more transformative, agile and inventive

**Diversity and Inclusion (D&I)** efforts across global operations

The deliberate steps of focused execution at pace, reshaping our portfolio mix and retooling our human capital equation enabled PETRONAS to weather the challenges of the year in review. As a Group, we will continue to remain focused on preserving value, pursuing growth and intensifying our sustainability efforts as we progress forward in our Three-Pronged Growth Strategy.

### Strengthening Our Sustainability Agenda

For the year under review, we continued to make good strides forward on the sustainability front in several areas.

As an industry, we have before us the mammoth task of balancing the need to decarbonise the energy system while ensuring an energy supply that is affordable, secure and sustainable. For PETRONAS, our Purpose is to be a progressive energy and solutions partner enriching lives for a sustainable future. This signals our expansion beyond the traditional oil and gas portfolio into the broader energy space, while doing so in a way that benefits all.

**PETRONAS recognises that sustainability is no longer optional - going forward, it is our licence to operate. Demonstrating this commitment, we have recently declared our aspiration to achieve net zero carbon emissions by 2050 (NZCE 2050).**

This is part of our holistic approach to sustainability from the Environmental, Social and Governance (ESG) perspective. Our approach is guided by our four sustainability lenses of Continued Value Creation, Safeguard the Environment, Positive Social Impact and Responsible Governance.

On this note, I am pleased to share that PETRONAS appointed Ms Charlotte Wolff-Bye as Chief Sustainability Officer, PETRONAS effective 1 June 2021. With over 20 years' experience, Charlotte is an internationally recognised expert in delivering strategies that create positive and sustainable impact on society, the economy and environment. She brings to the table her in-depth experience and expertise in developing and deploying CSR and sustainability strategies across our integrated businesses.

We believe her immense experience will add momentum and value to PETRONAS' long-term sustainability journey. To this end, we will be developing a clear strategy for the Group to execute our NZCE 2050 aspiration, and together ensure we prudently navigate the energy transition while delivering the necessary portfolio impacts.

To date, PETRONAS has intensified its efforts through partnerships with the private and public sectors to accelerate sustainable industry practices globally and in Malaysia. The year's milestones included the following:

Organised the second Malaysia Energy Roundtable in partnership with the **World Economic Forum (WEF)** to facilitate public-private discussion on the future of Malaysia's energy landscape and the priorities for an effective energy transition.

Attained membership in the **World Business Council for Sustainable Development (WBCSD)** to collaborate with oil and gas industry peers, as well as the wider energy industry and other sectors, to share best practices, advocate and support policies, while developing solutions. PETRONAS is focusing on the Circular Economy where we will expand our involvement in areas such as Climate and Energy, People and Redefining Value via the WBCSD.

Became a signatory to the **WEF Stakeholder Capitalism Metrics** which aims to promote and steer convergence of global ESG standards.

It is in this spirit of collaboration that I believe we will be able to collectively move the needle towards the goal of NZCE 2050. With decisive, deliberate and coordinated action, I am confident that the industry will bring forth a sustainable energy equation for our shared future.

### Contributing to Nation-building Efforts

Despite the turbulent year, we remain fully committed towards contributing to the well-being of society through various social initiatives.

The B40 Empowerment Programme for instance, is targeted at the agricultural and agro-based industry. Dedicated to addressing youth unemployment whilst leaving a positive impact on communities through social entrepreneurship, our SEEd.Lab initiative forges sustainable solutions to manage community pain points and bridge youth employment gaps in Malaysia.

In the area of Education, we awarded 370 scholarships under the PETRONAS Education Sponsorship Programme in 2020, which brings the total number of beneficiaries to more than 37,000 students since 1975, with investments in human capital totalling more than RM3.3 billion. We also contributed to the Discover PETRONAS @ Schools and Vocational Institution Sponsorship and Training Assistance (VISTA) programme.

On the local OGSE front, PETRONAS continues to run its Vendor Development Programme (VDP) to nurture local SMEs in the oil and gas services sector. The Vendor Financing Programme, with support from local and foreign financial institutions, continues to provide assistance to the local OGSE sector and this was especially evident during the challenging period last year.

I am pleased to share that the Group undertook other initiatives to support the local OGSE ecosystem amidst the pandemic. These measures included the following:

➔ **PETRONAS introduced the Contractors' Special Assistance Programme in March 2020 to support the local OGSE sector and to minimise the impact of the COVID-19 pandemic and low oil prices on local contractors.**

➔ **PETRONAS Chemical Group (PCG) worked closely with Small and Medium Enterprises (SMEs) within its supply chain, authorities and regulators to ensure business continuity was preserved without compromising PCG's value.**

I would like to take this opportunity to thank all of our industry partners for the ongoing support and commitment towards these initiatives as we continue to collectively face the volatile business landscape.

PETRONAS also recognises that managing a finite resource logically cannot be an infinite venture. For the benefit of the nation, we continued setting aside funds through this difficult period. On that note, regardless of the headwinds we faced, PETRONAS fulfilled its commitment to contribute to the National Trust Fund which stood at RM10.4 billion as at 31 December 2020.

These societal initiatives are driven by PETRONAS' responsibility as Malaysia's national oil company (NOC) to uphold the *Amanah* or Trust given to us to manage the nation's hydrocarbon resources for the benefit of the people. This is a value that is deeply embedded in the organisation.

### Moving Forward into 2021 and Beyond

While we made strong strides forward in mitigating the impact of COVID-19 in 2020, we are not quite out of the woods yet. With fresh waves of COVID-19 cases still surging across the world, the economic outlook remains uncertain and difficult. While we remain hopeful given the pockets of recovery we are seeing in some parts of the world as vaccination programmes are rolled out in earnest, we anticipate a weakened growth trajectory for the rest of the year - putting 2021 on a fragile footing. Amid the ever evolving operating environment brought about by the pandemic as well as prolonged volatility of oil prices, PETRONAS is adopting a cautious outlook and anticipates that 2021 will be challenging all around.

In ensuring PETRONAS' ability to weather the storm in a resilient and sustainable manner, we must implement purposeful and laser-focused measures. To this end, we must ensure that we are able to be a more cost-efficient producer and are in a strong position to de-risk our business, while delivering more innovative solutions to pivot our portfolio. At the same time, we must be unrelenting in our focus to build a stronger, customer-centric workforce that is committed towards Focused Execution at Pace while strengthening our Sustainability Agenda. Ultimately, we must ensure that PETRONAS is able to continue contributing for the long term towards the shared prosperity of the nation and the industry as a progressive energy and solutions partner enriching lives for a sustainable future.

### Acknowledgements

The year's resilient performance is due to the efforts of many parties whom we wish to acknowledge. Permit me to place on record my thanks to my immediate

predecessor, Tan Sri Wan Zulkiflee, for his many years of dedicated service and valuable contribution to the Group. Without question, my utmost gratitude is only rightly reserved for our diligent and dedicated employees whose resilience and commitment to excellence saw us through a very challenging time. As a result of the collective efforts throughout the Group, PETRONAS has maintained its position as the most valuable ASEAN brand in the Brand Finance Global 500 report this year and remained in the ninth spot amongst the brand valuation consultancy's listing of global oil and gas brands.

I want, in particular, to extend my heartfelt appreciation to our Chairman, Tan Sri Ahmad Nizam Salleh and all members of the PETRONAS Board of Directors for their astute insights, counsel, and stewardship during this difficult and challenging period. My sincere thanks to our valued shareholder for their confidence and trust in PETRONAS, and last but not most definitely not least, to our loyal business partners, vendors and other stakeholders for their support and continued belief in PETRONAS as their preferred energy and solutions partner.

As we move into the new normal, there is still much uncertainty about what lies ahead. However, with strategic imperatives clearly drawn up, a motivated workforce whose commitment remains undiminished, and the support of a shareholder keen to ensure we succeed come what may, I am confident we will be able to tackle all imminent challenges and capitalise on all opportunities that the future may bring.

**Tengku Muhammad Taufik**  
President and Group Chief Executive Officer



# Remaining Resilient and Agile Amidst Unprecedented Challenges

The year 2020 was an unprecedented year globally. In the energy industry, all players were severely impacted by the twin shocks of plummeting oil prices and induced demand erosion resulting from the collapse of the OPEC+ alliance and the effects of the COVID-19 pandemic. Against this backdrop, the PETRONAS Group took several decisive and prudent measures to ensure the resiliency and sustainability of our businesses. We swiftly implemented several tactical interventions across the Group to preserve value and minimise interruptions, focusing our efforts on maintaining disciplined capital and operational spending as well as preserving liquidity. As a result, PETRONAS was able to turn in a commendable performance in financial year 2020 (FY2020).



**Liza Mustapha**  
Executive Vice President\* and Group Chief Financial Officer



Scan this QR code to access our Financial Report 2020

**Note:**  
\* Appointment as at 1 June 2021



## The Financial Year in Review

Owing to the focused execution of our operational and financial measures, the Group managed to turn in a Profit After Tax (PAT) excluding net impairment losses of RM10.5 billion during the financial year despite operating in a challenging business environment, on the back of lower revenue realised partially offset with lower costs incurred.

Lower revenue recorded of RM178.7 billion against RM240.3 billion in the previous year was largely attributed to the plummeting commodity prices coupled with demand disruption, which led to lower sales volume from gas, petroleum products and Liquefied Natural Gas (LNG).

Following the downward revision in the commodity price outlook, further compounded by the accelerated pace of energy transition, most oil and gas companies including PETRONAS, have taken significant impairment loss provisions on their assets. In FY2020, a total of RM31.5 billion net impairment losses-after-tax was recognised, resulting in the Group reporting a Loss After Tax (LAT) of RM21.0 billion as compared to a PAT of RM40.5 billion in FY2019.

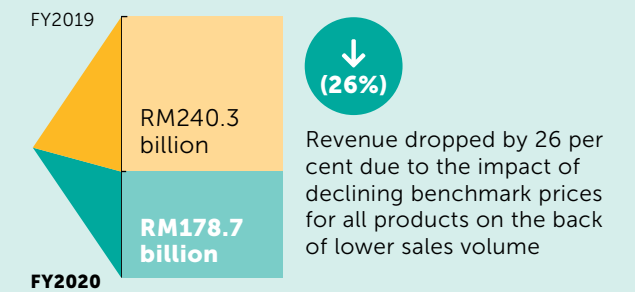
Despite the LAT registered, PETRONAS continued to maintain solid financial metrics. Our Earnings Before Interest, Tax, Depreciation and Amortisation (EBITDA) remained strong at RM55.3 billion, albeit lower than the previous year's RM96.3 billion.

PETRONAS was also persistent in delivering positive Cash Flows from Operations (CFFO) amounting to RM40.7 billion, although lower by 55 per cent as compared to the previous year. This highlights our commendable performance given the gravity of the situation and reflects PETRONAS' effective management of our integrated business.

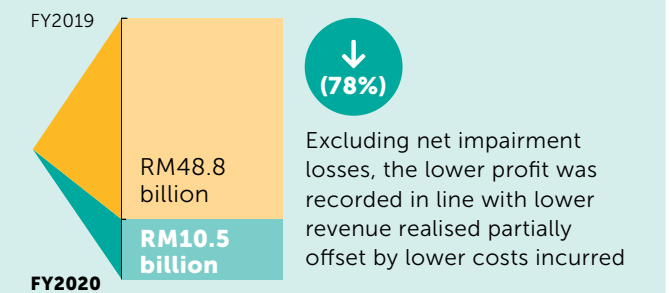
PETRONAS continues to benchmark itself against other international oil majors who also experienced the same challenges and adverse financial and operational impact. Given our prudent financial management, PETRONAS' financial position continues to outperform other oil majors. This was attested by the Group's strong CFFO margin of 23 per cent as well as our ability to sustain a unique net cash position of RM52.1 billion which placed us in a forefront position as compared to other oil majors.

## Financial Indicators

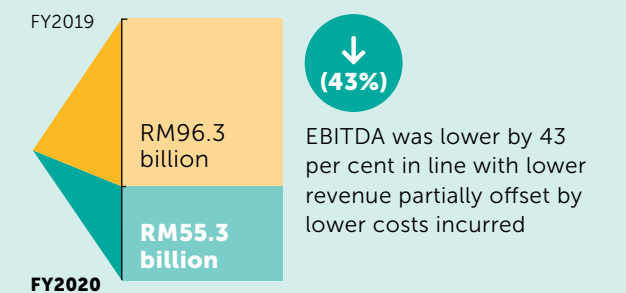
### Revenue



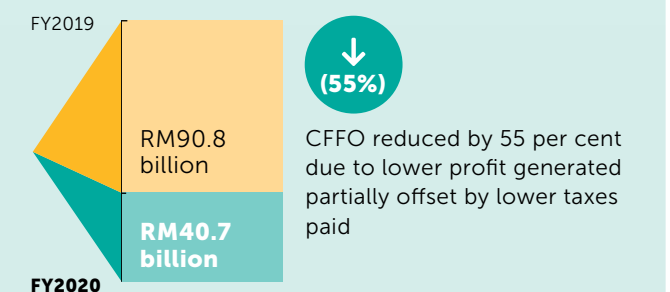
### PAT excluding net impairment losses



### EBITDA



### CFFO





**PETRONAS Deliberate Efforts to Withstand the Impact from the Unprecedented Twin Shocks**

The collapse of the OPEC+ alliance, COVID-19 pandemic outbreak and energy market imbalances have profoundly affected global energy demand and oil prices. As a response to these challenges, PETRONAS swiftly undertook deliberate efforts which included:

**1 Operational Measures**

- ➔ **Optimisation of Upstream production to accommodate the low demand and to ensure value protection.**
- ➔ **Establishment of an agile mechanism by Gas + New Energy (G+NE) to trigger ramp-up or ramp-down depending on market conditions.**
- ➔ **Downstream adjustment in refineries utilisation based on demand and market movement.**

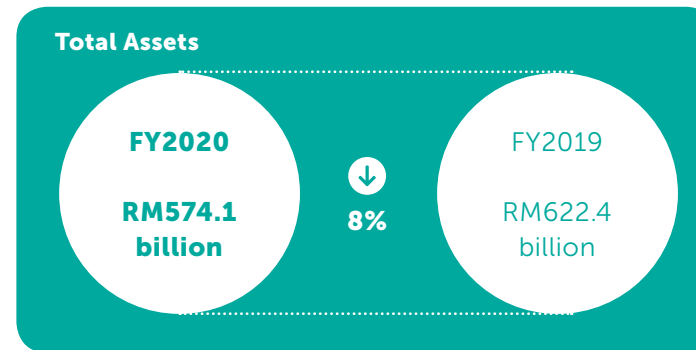
**2 Financial Measures**

- ➔ **Revised our view of the long-term price outlook which led to the sizeable non-cash impairments recorded during the year.**
- ➔ **Implemented focused cost-compression efforts along with continued tight fiscal disciplines.**
- ➔ **Undertook a strategic reassessment of capital allocation through prioritisation of projects.**

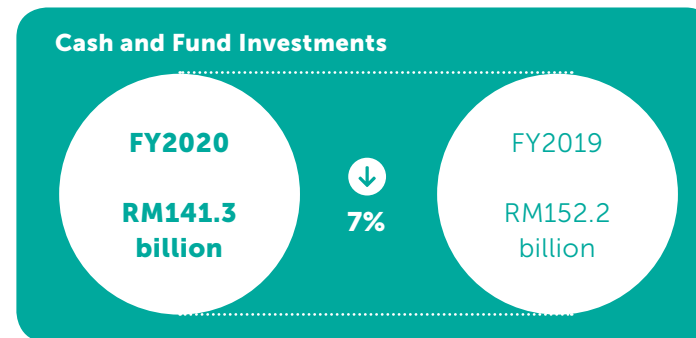
These efforts positively cushioned the adverse macroeconomic impact on the Group's financials with lower costs incurred during the year. The Group also successfully exceeded the spending reduction targets set in March 2020 which was to reduce our operating expenditure and capital investments by 12 per cent and 21 per cent respectively.

**Prudent Financial Management**

PETRONAS' financial position in FY2020 remained healthy, with total assets standing at RM574.1 billion as at 31 December 2020, a RM48.3 billion or 8 per cent decrease from RM622.4 billion as at 31 December 2019, mainly attributed to the significant net impairment losses on assets recognised during the year.



The Group's cash and fund investments balance stood at RM141.3 billion as at 31 December 2020, a decrease of RM11.0 billion or 7 per cent against the close of the preceding financial year. The movement was mainly contributed by a positive CFFO of RM40.7 billion, and a healthy cash balance carried forward of RM152.2 billion, which bears testimony to the Group's prudent cash management practices.



Given the uncertainties relating to the year's macroeconomic challenges, we maintained a cautious financial approach in making capital investment decisions in order to preserve PETRONAS' business liquidity.

FY2020 saw our spending on capital investments drop to RM33.4 billion from RM47.8 billion in the previous year. Of this amount, 52 per cent was allocated for domestic projects, primarily for the Upstream segment to intensify efforts to develop new fields and enhance recovery from existing mature fields. CAPEX for our international ventures was primarily spent on our LNG business in Canada and our shipping arm in the USA. PETRONAS continued to pursue strategic capital investments during the year to further strengthen our integrated business value chain and ensure the future growth of our businesses.

As an integrated oil and gas company, the Group and the Company are exposed to various risks that are particular to our core business of Upstream, G+NE and Downstream operations. These risks, which arise in the normal course of the Group's and of the Company's business, comprise credit risk, liquidity risk and market risk relating to interest rates, foreign currency exchange rates, equity prices and commodity prices.

With regard to financial risks, PETRONAS has established guardrails as part of the measures to manage the abovementioned risks. These guardrails include the establishment of liquidity buffers to manage operational and market disruptions whilst ensuring operational sustainability; determining predefined borrowing levels within an acceptable affordability threshold; as well as advocating natural hedging practices for exposure, where permissible, while managing residual exposure.

**Credit Rating**

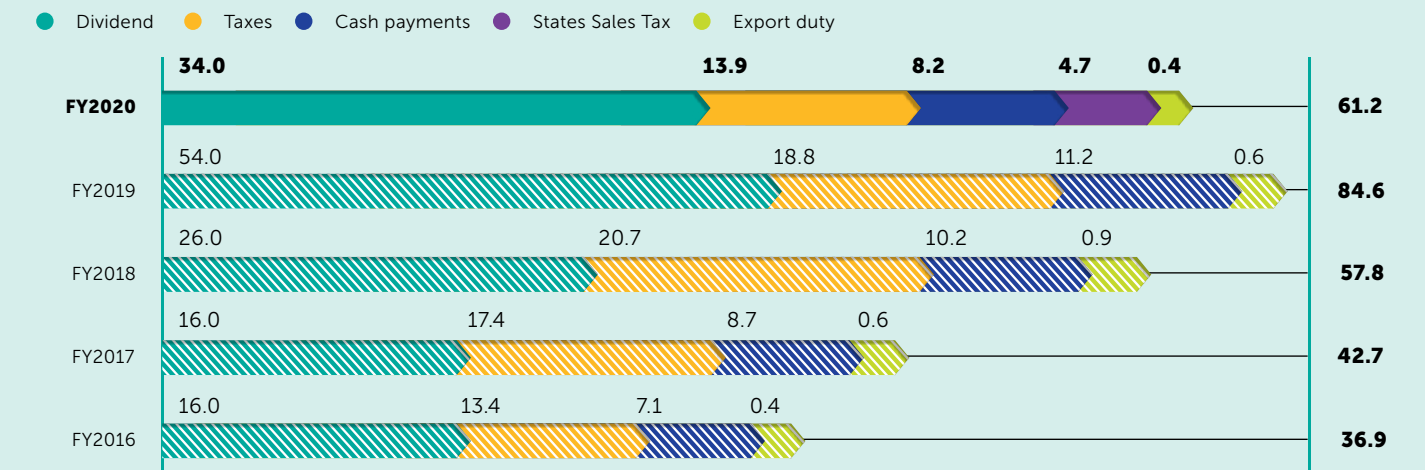
PETRONAS' credit ratings remain strong at A2, A- and BBB+ as affirmed by Moody's, Standard & Poor's (S&P) and Fitch respectively. Our standalone credit profile is four notches above our credit ratings as assessed by S&P and Fitch. Notably, the standalone credit profile was reaffirmed by S&P despite their actions to revise the Oil and Gas exploration and production (E&P) industry risk, from "intermediate" to "moderately high" risk, due to increasing risk from energy transition that has cast uncertainty over the supply and demand of fossil fuels. These ratings bear testimony to PETRONAS' robust financial strength and solid business fundamentals, which bolster our ability to adapt to and remain resilient amidst the new normal for the industry and market.

**Contributions to Governments**

PETRONAS' contributions to the Federal Government of Malaysia and state governments for the year ended 31 December 2020 amounted to RM61.2 billion, lower by RM23.4 billion compared with FY2019.

**Components of Contributions to the Federal and State Governments of Malaysia**

(RM billion)



**Outlook**

Under the current COVID-19 pandemic environment, the outlook for the oil and gas industry remains uncertain and challenging with the expectation of a tentative and modest recovery in demand and prices for products. Nevertheless, we remain confident that our efforts and continued focus on commercial and operational excellence while preserving healthy levels of liquidity, will ensure the sustainability of PETRONAS' businesses.

To ensure we have the financial means to move forward effectively and grow in a sustainable manner, we will set our sights on strengthening liquidity and working capital management, enhancing commercial excellence, plugging value leakages along the integrated value chain as well as supporting the Group's Sustainability Agenda.

**Liza Mustapha**

Executive Vice President and Group Chief Financial Officer

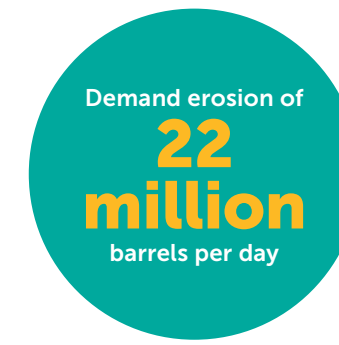
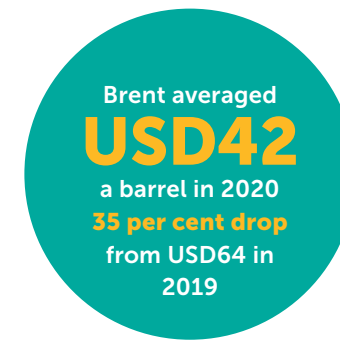
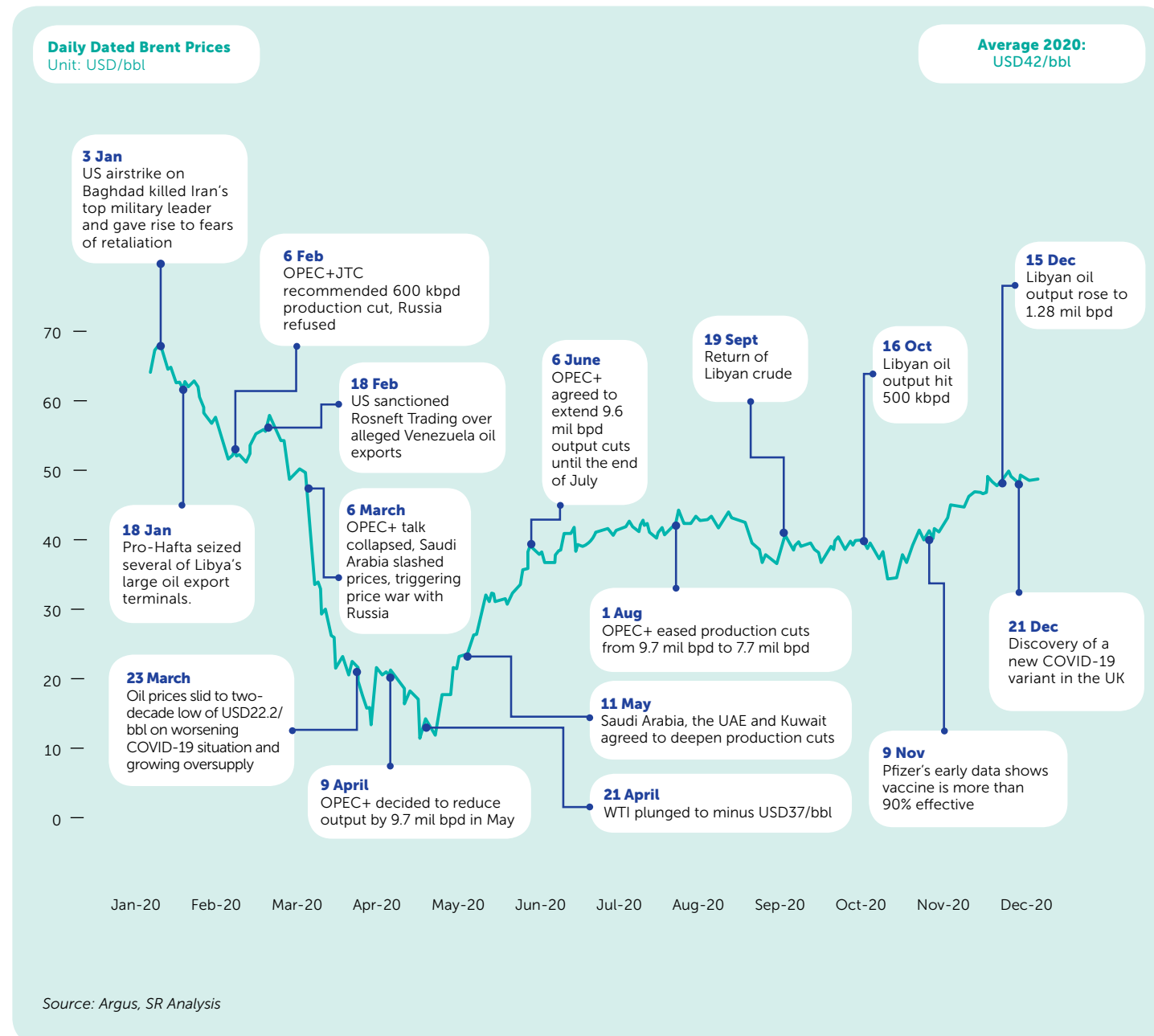


# Mounting Challenges

The year 2020 will be remembered as one of the most challenging years for people and businesses the world over. Oil and gas industry players in particular had to contend with the unprecedented double blows stemming from the COVID-19 pandemic and ensuing national lockdowns as well as an oil price rout. The combination of events coming together had an adverse effect not only on oil and gas players but also on nations and economies alike.

## The Year 2020 in Review

### Oil



In the oil sector, Dated Brent averaged USD42 a barrel (bbl) in 2020 – a 35 per cent drop from USD64 in 2019. The COVID-19 pandemic and an oil price war between Saudi Arabia and Russia triggered a massive collapse in prices of US crude oil West Texas Intermediate (WTI), which nosedived to negative USD37/bbl on 20 April 2020, while Dated Brent plunged to a 21-year low of USD13/bbl on 21 April.

In April alone, global lockdowns and travel restrictions caused by the pandemic led to demand erosion of 22 million barrels per day (bpd) in comparison to the year before. The road transport and aviation sectors in particular were deeply affected, which consequently led to negative global refining margins. The pandemic forced refiners to review their operations and that led to the accelerated closure of refineries producing up to 2 million bpd in capacity worldwide.

Oil prices improved gradually in the second half of 2020, supported by OPEC+'s strong compliance with a historic production cut of 9.7 million bpd that was agreed upon in April. Tumbling US oil production from a peak of 13 million bpd in March, curbed output from Iran and Venezuela due to strict US sanctions and optimistic news of COVID-19 vaccine rollouts helped support the oil market. However, price upsidess were capped by lacklustre road transport fuel demand as well as an abundance of oil supplies idling in storage facilities on both land and sea.

### Geopolitics

There was an increase in geopolitical tensions across the world due to an escalation of conflicts, coupled with new anti-government sentiment as unemployment and inadequate healthcare were magnified by the impact of the growing COVID-19 pandemic. Massive public unrest such as in Iraq heightened security risks around assets and personnel.

Against this backdrop, stakeholder management especially in relation to governments and the close monitoring of security risks were crucial in ensuring the safety of PETRONAS' business interests.

### The Economy

In lessening the impact from the pandemic and the ensuing nationwide lockdowns as well as to support the livelihood of people and businesses, governments across the world announced the introduction of fiscal stimuli at an unprecedented speed and scale. More than USD10 trillion of fiscal incentives were allocated during the first two months of the crisis. For some countries, their response as a percentage of Gross Domestic Production (GDP) was nearly 10 times what it was during the 2008/2009 crisis.

All in all, the fiscal packages announced over 2020 totalled a staggering USD23 trillion. Yet, some 90 per cent of these packages were concentrated in developed nations such as the US, Europe and Japan, as well as richer countries like China. Amid these costly pandemic relief measures and falling revenue, global debt reached record-high levels. The World Economic Forum (WEF) estimated that total debt touched USD277 trillion by the end of 2020, or some 365 per cent of 2019's global GDP.

In the first half of 2020, Fitch Ratings had downgrades for a record 33 sovereign ratings and placed 40 countries and sovereign entities on a 'negative' outlook – a sign of the rising risk of sovereign debt default. The year 2020 was the year in which the global economy plunged into the worst peacetime recession in history with all major economies, barring China, charting a contraction in total output in the second and third quarter of 2020. The widespread nationwide lockdowns caused a severe 13.5 per cent contraction in exports year-on-year between January and May 2020, while values for April and May showed a 25 per cent contraction – a historic low. As new COVID-19 cases continued to rise and the reopening of borders were stalled, economies had to deal with a long and difficult ascent out of the recession.

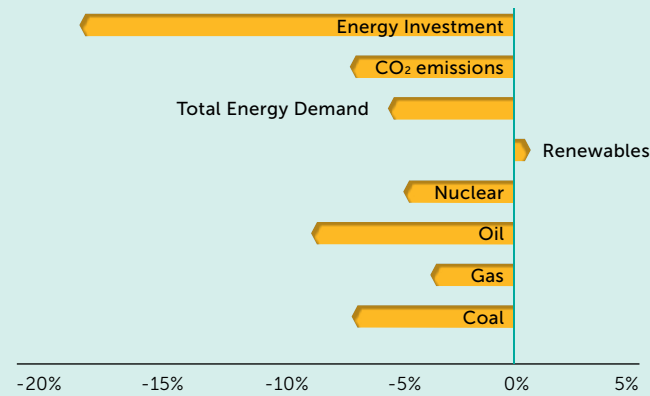
In November 2020, a total of 15 Asia Pacific nations formed the Regional Comprehensive Economic Partnership (RCEP) – the world's largest free-trade pact. This China-backed deal cemented the country's position in shaping the region's trade rules amid deepening rifts with the US and Australia. China's trade war against Australia has revealed another side of Beijing's increasingly assertive diplomacy. Canberra has invited the wrath of Beijing as the largest country in Australasia called for an international inquiry into the origins of the coronavirus. China continued to tighten the screws on Australia by placing USD40 billion worth of Australia's exports at risk.

December 2020 saw China signing another deal, this time with the European Union (EU). The China-EU investment deal agreed in principle to retain multiple deep carve-outs to protect Chinese interests in key sectors, including the automotive, aviation, healthcare and telecommunications sectors. For the EU, the landmark investment deal with China after seven years of talks sought to liberalise trade between Brussels and Beijing.

## Energy

The COVID-19 pandemic caused disruption to the energy sector while accelerating energy transition. Governments provided green stimuli to assist in the economic recovery. The year also saw a magnitude of companies championing net zero carbon emissions by 2050 (NZCE 2050) while heavy-emitting nations including China and Japan pledged carbon neutrality. Renewable energy was supported by priority access to grids, low operating costs and additional output from newly completed wind and solar projects over the past year.

Energy demand, CO<sub>2</sub> emissions and investment indicators, 2020 relative to 2019



Source: International Energy Agency (IEA), SR Analysis

## Upstream

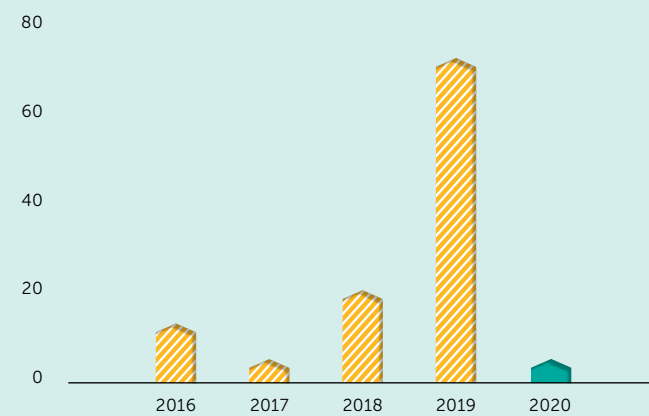
Upstream capital expenditure (CAPEX) in 2020 shrank to its lowest level in more than 15 years, as tumbling oil and gas prices forced players to cut back on spending and conserve cash. Early-stage projects were either cancelled or deferred, which will have a long-lasting impact on production in the years to come. Players held on to their large and low-cost producing assets, ranging from those in Guyana and Brazil to the Gulf of Mexico, USA.

Bankruptcies increased in the unconventional oil sector in North America while mergers and acquisitions also took place as smaller players buckled under the weight of their previous debt-fuelled expansion. Larger companies with the financial means purchased smaller rivals to access resources and improve economies of scale.

For Liquefied Natural Gas (LNG), the sanctioning of projects hit a record low, with only the 3.2 million tonnes per annum (mtpa) Costa Azul development in Mexico taking Final Investment Decision (FID). Plans for more than 60 mtpa of FID were put on hold by Qatar and developers in the US after Asian spot LNG prices tumbled in mid-2020 to the lowest ever amid lockdowns and port closures as cargoes were cancelled.

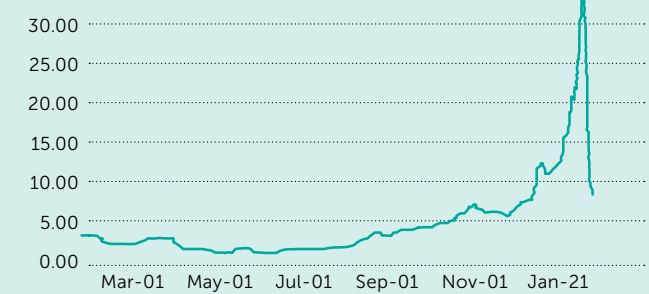
LNG prices surged by the end of the year, to almost 10 times the price in mid-2020, as delays in the resumption of supply after plant maintenance and shipping congestion met with a surge in demand due to a cold snap in China and other parts of Northeast Asia.

LNG Project FID (Unit: mtpa)



Source: Wood Mackenzie

Northeast Asia LNG Prices (Unit: USD/mmBtu)



Source: Platts

■ Japan/Korea Spot Crg DES

## Chemicals

COVID-19 and the oil price rout also had the effect of shrinking petrochemicals demand globally, putting pressure on a market that was already in a downcycle and prolonging the downturn for another year. As a result, average ethylene prices in Southeast Asia fell to USD698/tonne in 2020, lower than the USD860/tonne during the global financial crisis in 2009.

Chart 1: Ethylene CFR SEA Price (Unit: USD/tonne)



Source: ICIS, Platts

The specialty chemicals segment, the most resilient chemical products segment, was also not spared from the impact of the pandemic. This was particularly evident on the oilfield chemical and textile chemical market fronts. However, rising concerns on personal hygiene and safety boosted demand for surfactants, nutraceutical ingredients and packaging materials.

In regards to the sustainability initiatives, governments globally acknowledged the growing public demand to implement green policies, which include a reduction in plastic waste. Against this backdrop, China unveiled plans to cut the production and consumption of single-use plastics by 2025, and the EU said it will impose taxes on plastic packaging waste starting 2021. Chemical companies are actively collaborating in an effort to reduce plastic waste and single-use plastics while new technologies are being tested to accelerate circularity.

### The Outlook For 2021

## Oil

The path towards sustained oil demand recovery remains fragile. Rising new COVID-19 cases, made worse by new strains of the virus, have resulted in governments imposing further rounds of lockdowns which are deterring travel.

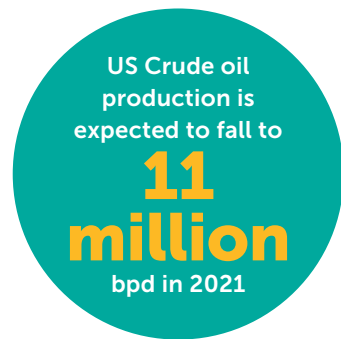
A pervasive rollout of vaccines to the masses starting in the second half of 2021 should provide some support for the recovery of road transport fuels such as gasoline and gasoil. A recovery in the aviation sector is expected to be delayed to beyond 2021 as governments continue to implement border closures while business travels remain muted due to cost-cutting measures and the rapid proliferation of virtual Meetings, Incentives, Conferences and Exhibitions (MICE).





Despite the gradual recovery, oil demand in 2021 is still expected to remain below pre-pandemic levels of 100 million bpd.

Refiners face an uphill battle running their facilities due to uneven demand recovery for transport fuels, challenged by robust mega-integrated capacity additions from China and the Middle East. On top of this, they have to contend with the growing traction for clean alternative fuels to meet NZCE 2050. Amidst these developments, PETRONAS will need to adapt quickly to the fast-changing landscapes of the refining and petroleum products segments.



In terms of oil supply, the OPEC+ coalition is expected to continue managing oil production to drive down oil stocks amidst renewed COVID-19 lockdowns. Saudi Arabia's decision in January 2021 to cut another 1 million bpd of its own output in February and March highlights its determination to hold OPEC+ together and rebalance the market. US crude oil production is expected to fall to 11 million bpd in 2021 due to rising bankruptcies, lack of access to capital amongst the US shale producers, and the need to focus on paying back investors. However, as oil prices continue to be sustained above USD55/bbl, tight oil producers could return to the market.

As a producer, refiner and marketer of oil, PETRONAS needs to ensure it is ready to adapt to continuing oil price volatility.

## Geopolitics

The geopolitical outlook for 2021 will continue to be challenging as governments face greater pressure to revitalise their economies amid fresh waves of the pandemic and oil prices that are only gradually recovering. The pace of vaccine rollouts, including in emerging economies, will determine how fast life will be able to return to normal and how fast economies will be able to recover.

Tensions and power struggles among global and regional powers will continue to play out in 2021, as the world rebounds from major upheavals in 2020 and experiences the shift in US policies.



## The Economy

The global economic outlook for 2021 remains weak as most countries are still facing a resurgence in new COVID-19 cases, along with the latest strains of the coronavirus that are more potent and infectious. The rise in infection rates has pushed the governments to re-impose lockdowns to curb the spread, which is taking a heavy toll on the economies. In Malaysia, the second round of the Movement Control Order (MCO) is expected to cost the country RM660 million a day – about a fourth of the cost from the first round of lockdown imposed between March and May 2020 but still a significant loss to the country's productivity and businesses.

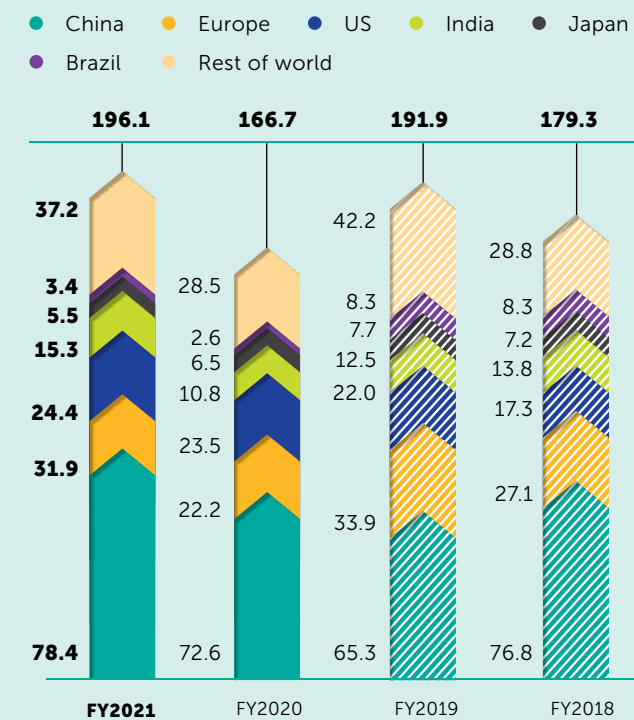
Amid the limited production ability and hoarding of vaccines in developed countries, the global growth this year and for the medium term will see a disparity between the haves and have-nots. The mounting global debt, which has swelled to an unprecedented USD277 trillion, will limit the ability of countries to borrow further and to widen stimulus to cushion the impact of the lingering pandemic. Countries will be forced to wind down and eventually withdraw stimulus to prevent a sovereign rating downgrade or any default.

Ultimately, economic activities, including demand for oil, oil products and chemicals will improve in due course as nations gradually open borders and fully shift to the new normal. This is expected to take place at the earliest juncture in the fourth quarter of 2021 for richer nations and possibly in 2022 or beyond for others.

## Energy

Global capital investment on renewables is expected to return to pre-pandemic levels in 2021. The solar photovoltaic (PV) segment is set to account for the majority of clean energy capacity additions while there is the expectation of an increase in the offshore wind segment. Battery storage will be significant as prices decline and demand for excess energy to be stored will increase when the sun and wind are at their peak, ensuring it can be made available to the grid. In terms of alternative sources of energy such as hydrogen, we expect to continue seeing more investments, joint ventures and large-scale projects announcement being made.

Global Renewables Capacity Outlook  
(Unit: GW)



The year 2021 could be a turning point as the US re-joins the Paris Agreement and participate in the UN Climate Change Conference (COP26), to be held in November 2021 with countries revisiting their Nationally Determined Contributions.

## Upstream

Going into 2021, the capital expenditure for upstream is expected to remain at below USD400 billion, less than half the peak of the almost USD800 billion recorded in 2014. Due to the uncertainties in the oil and gas market, the industry will most likely remain reluctant when it comes to loosening their purse strings. The oil and gas industry, led by the North American unconventional sector, will tap technology in an increasing manner to drive cost compression as crude oil prices remain volatile. This is set to intensify competition even as demand remains weak.

Moving forward, host governments will have to compete for a smaller pie of investments, forcing them to accept a smaller take in return for players' presence in their countries.

LNG developers are looking to revive plans and take FID for projects amid an improved outlook for demand, especially in emerging markets. Demand for LNG is forecast to double as countries from China to India, and regions including Southeast Asia, seek cleaner-burning fuels to meet the rising consumption of electricity and to complement it with renewables to meet their clean-air goals. The increased competition will force suppliers to seek innovative and new technological solutions to meet the changing needs of buyers, especially those from emerging markets. Greater volatility is expected for LNG spot prices in the coming years as weather patterns change and sudden policy swings alter supply-demand dynamics.

## Chemicals

The chemicals industry is showing signs of recovery with demand expected to improve significantly, driven by the US and Asia Pacific. Stronger consumer confidence and gradual deployment of the COVID-19 vaccines will stimulate economic activities globally. In the US, the stimulus package approved by the US Congress in December 2020 will lead to increased economic activities, create jobs, aid businesses and boost consumer spending. Robust demand for plastics in the healthcare sector and packaging materials driven by online shopping will intensify, if the risk of infections from COVID-19 is prolonged.

A return to growth in specialty chemicals is also expected in 2021, in line with gradual improvements in the global economy. However, the rebound of this segment will be less pronounced as the impact of the downturn was less severe compared to commodity chemicals. In terms of market segment, catalysts are projected to register the highest growth in 2021, followed by specialty polymers and electronic chemicals, in line with the growth in the high-tech sector.

**PETRONAS is increasingly pursuing growth in specialty chemicals to insulate the company from the cyclical nature of the commodity chemical business and to capture long-term market potential. PETRONAS will continue to pursue its Sustainability Agenda which will continue to gain traction in 2021.**

This will be driven by rising consumer demand for sustainable products, growing recognition of the adverse impact of climate change and the needs of a growing global population in a resource-constrained world. Nature-based solutions and the circular economy are the key pathways towards a greener chemical industry and will support PETRONAS' aspiration towards achieving NZCE 2050.



Engaging with Stakeholders

# Partnering with Our Stakeholders

For PETRONAS, ongoing engagement with stakeholders improves our understanding of their needs and interests and helps position us for a sustainable future. Our stakeholders are partners in realising our aspirations. Earning their trust, gaining recognition from them and having them advocate our cause, is therefore very meaningful to us.

**Our Stakeholders**

Guided by PETRONAS' Statement of Purpose: A progressive energy and solutions partner enriching lives for a sustainable future, we strive to be transparent, deliver on expectations and co-develop solutions for our stakeholders. We look beyond our own lens when providing solutions and conveying our messages to stakeholders.

Each stakeholder group is important to us, as we seek to build a strong network of relationships based on trust, transparency and open communication. Through established engagement platforms, we keep our stakeholders updated on our operations, performance and direction, while understanding their needs, interests and expectations. Our strategies, plans and daily decisions are developed with consideration of the feedback we receive from stakeholders.

Our purpose is to become a credible partner and create solutions for sustainable shared values. To this end, PETRONAS continues to be a socially responsible organisation, investing in sustainable initiatives that contribute to the well-being of employees and society as a whole. We identify, assess and monitor stakeholders' expectations as well as track our commitments and the issues that stakeholders raise. We do all this through an end-to-end stakeholder management process guided by the PETRONAS Stakeholder Management Guidelines (PSMG).


Federal Government/Host Governments		
<p><b>Value for Stakeholders</b></p> <ul style="list-style-type: none"> <li>Nation-building</li> <li>Human capital development</li> <li>Employment</li> <li>Compliance with laws and regulations</li> <li>Ethical business practices</li> <li>Health and safety</li> <li>Environment</li> <li>Social development</li> </ul>	<p><b>Our Response</b></p> <ul style="list-style-type: none"> <li>Supported nation-building initiatives and national-level crisis mitigation such as COVID-19 pandemic contributions and response</li> <li>Partner for social development projects</li> <li>Thought partner in policy shaping initiatives</li> <li>Strategic partnership to achieve common objectives</li> <li>Adhered to applicable regulations and legislation including environmental obligations and Malaysia's Central Bank regulations</li> <li>Provided regular updates on issues affecting our operations and the economy</li> <li>Supported the Malaysian government's New Plastics Economy (NPE) programme via PETRONAS Chemicals Group Berhad (PCG) which is spearheading the NPE initiative</li> <li>Active engagements and continuous collaborations with host authorities and embassies to build strong relationships</li> </ul>	<p><b>Engagement Initiatives</b></p> <ul style="list-style-type: none"> <li>Formal face-to-face engagements</li> <li>Virtual meetings during the Movement Control Order (MCO)</li> <li>Periodical reporting to relevant government agencies (including statutory and regulatory reporting)</li> <li>Periodical briefings to government agencies</li> <li>Partner for government programmes</li> </ul>
<p><b>Value for Us</b></p> <p>We continued to have strong relationships with the Federal/host governments so that we could stay ahead of changing policies and regulations as well as be a key partner to the government in shaping policies that support the industry and the broader economy.</p>		<p><b>Link to Material Topics</b></p>


Engaging with Stakeholders

State Governments		
<p><b>Value for Stakeholders</b></p> <ul style="list-style-type: none"> <li>Social development</li> <li>Human capital development</li> <li>Employment</li> <li>Compliance with laws and regulations</li> <li>Ethical business practices</li> <li>Health and safety</li> <li>Environment</li> </ul>	<p><b>Our Response</b></p> <ul style="list-style-type: none"> <li>Undertook business collaboration/commercial agreement</li> <li>Collaborated on COVID-19 response and mitigation efforts</li> <li>Supported state economic transformation projects</li> <li>Participated in economic recovery efforts</li> <li>Collaborated with relevant agencies for common objectives</li> </ul>	<p><b>Engagement Initiatives</b></p> <ul style="list-style-type: none"> <li>Formal face-to-face engagements</li> <li>Virtual meetings during MCO</li> <li>Dialogue and feedback</li> <li>Regular meetings, briefings and updates</li> <li>Participation in state governments' programmes</li> <li>Joint working committee meetings</li> </ul>
<p><b>Value for Us</b></p> <p>We earned the trust and gained endorsement from state governments to ensure the sustainability of our operations in the respective states. In return, our operations contributed to each state's local economy and enriched local communities.</p>		<p><b>Link to Material Topics</b></p>
Customers		
<p><b>Value for Stakeholders</b></p> <ul style="list-style-type: none"> <li>Positive customer experience</li> <li>Reliable product quality and timely product delivery</li> <li>Competitive product pricing</li> <li>After-sales support</li> <li>Consumer data protection</li> <li>Collaborative solutions and technologies</li> <li>Confidence and trust in PETRONAS brands</li> </ul>	<p><b>Our Response</b></p> <ul style="list-style-type: none"> <li>Accommodated customers' needs for better experience</li> <li>Offered customer-centric and innovative solutions in products and services</li> <li>Ensured undisrupted and continuous supply of products and services</li> <li>Ensured safety and standard operating procedure (SOP) compliance at all service stations and facilities</li> </ul>	<p><b>Engagement Initiatives</b></p> <ul style="list-style-type: none"> <li>Marketing activities and outreach programmes</li> <li>Virtual engagements</li> <li>Online customer surveys</li> <li>Feedback management system</li> <li>Customer appreciation programmes</li> </ul>
<p><b>Value for Us</b></p> <p>Our customers are core to our business and its sustainable growth. By being responsive to customers' needs and expectations, we deliver customer-centric solutions via superior quality products, services and technological solutions, as well as improve the overall customer experience. This supported thriving mutual value creation.</p>		<p><b>Link to Material Topics</b></p>
Internal/Employees		
<p><b>Value for Stakeholders</b></p> <ul style="list-style-type: none"> <li>Career growth and learning opportunities</li> <li>Business sustainability</li> <li>Health and safety</li> <li>Work-life integration</li> <li>Employee welfare</li> <li>Workplace environment</li> <li>Responsible and ethical business practices</li> <li>Diversity and inclusivity</li> </ul>	<p><b>Our Response</b></p> <ul style="list-style-type: none"> <li>Provided regular updates to keep employees informed</li> <li>Undertook continuous implementation of the Employee Assistance Programme (EAP), as well as counselling and stress management programmes for employees' mental health and well-being especially during the pandemic</li> <li>Enhanced flexible working arrangements and encouraged Work-From-Home (WFH) mode</li> <li>Provided safe working environments through stringent SOP compliance and measures</li> <li>Continuously implemented programmes for awareness and promotion of gender diversity and women in leadership</li> <li>Conducted governance-related training and awareness programmes</li> <li>Implemented health-related initiatives including among others digital lifestyle coaching, ergonomics for WFH and virtual HSSE training programme</li> </ul>	<p><b>Engagement Initiatives</b></p> <ul style="list-style-type: none"> <li>Virtual town halls and staff engagement sessions</li> <li>Employee feedback sessions</li> <li>Intranet announcements</li> <li>Virtual staff engagements</li> <li>Group Health, Safety, Security and Environment (GHSSE) safety campaigns</li> <li>Online training</li> <li>Annual health survey and bi-annual culture survey</li> </ul>
<p><b>Value for Us</b></p> <p>Our employees are key to our success as well as our most important asset. Their health, safety and well-being remain our top priority. A clearly communicated business strategy, plans and direction ensure employees remain engaged and motivated. Ongoing communications keep employees positive, optimistic and productive amidst the unprecedented crisis.</p>		<p><b>Link to Material Topics</b></p>





Engaging with Stakeholders

Media		
Value for Stakeholders	Our Response	Engagement Initiatives
<ul style="list-style-type: none"> <li>Credible information partner</li> <li>Advocate for transparency</li> <li>Ethical business conduct and practices</li> <li>Business performance</li> <li>Environmental, social and corporate governance</li> <li>Health and safety commitment</li> <li>Innovation and technology</li> </ul>	<ul style="list-style-type: none"> <li>Undertook robust activation of media strategies and plans</li> <li>Ensured timely communication and dissemination of information</li> <li>Provided access and platforms for open and constructive engagement</li> <li>Initiated collaboration and support for meaningful and worthy media initiatives</li> </ul>	<ul style="list-style-type: none"> <li>Physical and virtual engagement sessions</li> <li>Dialogues with Senior Management</li> <li>Supported media causes and accolades</li> <li>Domestic and international media interviews and exposure</li> </ul>
<b>Value for Us</b> <ul style="list-style-type: none"> <li>PETRONAS has always been and continues to be a partner to the media providing access to timely, accurate, reliable and transparent information about our operations.</li> <li>Regular media engagement complemented stakeholder engagement efforts to manage the PETRONAS Group's reputation.</li> </ul>		<b>Link to Material Topics</b> 

Shareholders/Investors/Credit Rating Agencies/Financial Institutions		
Value for Stakeholders	Our Response	Engagement Initiatives
<ul style="list-style-type: none"> <li>Business outlook</li> <li>Shareholders' returns</li> <li>Corporate governance</li> <li>Health and safety</li> <li>Sustainability matters</li> <li>Regulatory compliance</li> <li>Leadership within the organisation</li> </ul>	<ul style="list-style-type: none"> <li>Maintained business excellence across operations to optimise financial performance</li> <li>Enhanced business continuity and crisis management plans</li> <li>Integrated sustainability development objectives into long-term corporate strategy and decision-making process</li> <li>Adopted corporate governance best practices</li> <li>Ensured compliance with internal and external policies and regulations</li> <li>Ensured timely communication and dissemination of relevant information to guide assessment on business performance and prospect</li> </ul>	<ul style="list-style-type: none"> <li>Investor and analyst briefings by PETRONAS' listed subsidiaries</li> <li>Annual Reports</li> <li>Virtual Annual General Meetings by PETRONAS' listed subsidiaries</li> <li>Virtual meetings and conferences</li> <li>Announcements via corporate websites</li> </ul>
<b>Value for Us</b> <ul style="list-style-type: none"> <li>Consistent and clear communications relating to financial and strategic information enhance shareholders' and investors' trust.</li> <li>The sustained trust and confidence of shareholders, investors and lenders enables business growth, reduces cost of borrowing and increases the share prices of our public listed subsidiaries.</li> <li>Market intelligence and insights enable us to tap into opportunities and adapt to new trends within the financial and capital markets.</li> </ul>		<b>Link to Material Topics</b> 

Engaging with Stakeholders

Government Linked Companies (GLCs)/Industry Players/Partners		
Value for Stakeholders	Our Response	Engagement Initiatives
<ul style="list-style-type: none"> <li>Governance and integrity</li> <li>Business continuity and sustainability</li> <li>Health, safety and environment</li> <li>Industry requirements, local content, regulations and policies</li> <li>Business opportunities and continuous value creation through partnerships</li> <li>Capability development</li> </ul>	<ul style="list-style-type: none"> <li>Collaborated on innovative technology and digital solutions to meet market and industry needs</li> <li>Strengthened good governance of business partnerships</li> <li>Facilitated continuous business operations during the MCO by establishing clear guidelines, procedures and communications for affected parties</li> <li>Partnered with local banks for Vendor Finance Programme</li> <li>Collaborated with local partners and government for community empowering programmes</li> <li>Strengthened the supply chain through programmes and initiatives</li> <li>Continued to bolster the signature Vendor Development Programme (VDP) to enhance the capabilities of homegrown energy companies</li> </ul>	<ul style="list-style-type: none"> <li>Collaborations with industry players, banks, regulators and other GLC players</li> <li>Dialogues with industry players</li> <li>Periodic meetings</li> <li>Virtual engagements</li> <li>Virtual forums/conferences</li> </ul>
<b>Value for Us</b> <ul style="list-style-type: none"> <li>We collaborated with industry partners to jointly find innovative solutions to spur a thriving and robust industry amidst the economic and global health crisis.</li> <li>We also partnered with stakeholders to pivot the industry for continuous growth and sustainability.</li> </ul>		<b>Link to Material Topics</b> 

Communities/Non-Governmental Organisations (NGOs)		
Value for Stakeholders	Our Response	Engagement Initiatives
<ul style="list-style-type: none"> <li>Governance and integrity</li> <li>Health, safety and environment</li> <li>Education</li> <li>Social well-being</li> <li>Compliance with relevant legislation</li> </ul>	<ul style="list-style-type: none"> <li>Community-empowering programmes to improve economic livelihood (MEKAR programme)</li> <li>A member of the World Business Council for Sustainable Development (WBCSD), on the development of sustainability policies</li> <li>Initiated humanitarian and flood-relief activations for communities affected by natural disasters</li> <li>Provided internet support for PETRONAS scholarship candidates in rural areas to facilitate online assessment during the pandemic</li> <li>Collaborated with NGOs for the protection and preservation of wildlife, environment and social causes (i.e. Project BEACON, Smart House Programme, solar panels and co-generation with waste recovery at international operations)</li> <li>Activated COVID-19 relief response for domestic and international communities at PETRONAS' operations</li> <li>Continued to undertake Human Health Risk Assessments (HHRAs) to ensure the health and safety of people in key operational areas</li> <li>Undertook facilities improvement for health and sanitation of international and domestic communities (i.e. Water For Life in the Republic of South Sudan)</li> <li>Collaborated with NGOs on environmental innovation and stewardship initiatives by way of reducing CO<sub>2</sub> emissions at our Canada operations</li> </ul>	<ul style="list-style-type: none"> <li>Continuous collaboration with government agencies and NGOs for CSR programmes</li> <li>COVID-19 and flood relief measures for affected communities</li> <li>Periodic briefings</li> <li>Engagement with local communities and availability of a grievance management system for communities to channel their concerns and feedback</li> </ul>
<b>Value for Us</b> <ul style="list-style-type: none"> <li>The sustainability of our business is premised on the relationships we build with communities and the contributions we make to uplift the communities that we operate in.</li> <li>We gave back by contributing to community well-being and livelihoods through collaboration with relevant government agencies and NGOs.</li> </ul>		<b>Link to Material Topics</b> 



## Material Topics

## Material Topics

**P** People **E** Environment **A** Asset **R** Reputation

### Our Materiality Approach: What Matters Most in Creating Sustainable Value













#### This Report is Framed on Our Material Topics

In ensuring effective management of our value creation efforts over the short, medium and long term, we identify topics that are material or important to our stakeholders. We employ a structured approach to pin-point what is most material to us. Consistent with IPIECA/API/IOGP Sustainability reporting guidance for oil and gas industry and the Global Reporting Standards Initiatives (GRI), we conduct our Materiality Assessment on a periodic basis to identify Environment, Social and Governance issues that are relevant to our stakeholders. The non-financial topics identified are vital for us to measure, monitor and manage its performance and the related impacts on society towards sustainable progress.

These include 1) broad scanning of the ecosystem that we operate in and benchmarking by referring to internal and external factors. The external factors include peer benchmarking and reference to IPIECA/API/IOGP Sustainability reporting guidance for oil and gas industry (IPIECA) and GRI Standards, 2) engagement with relevant stakeholders and Subject Matter Experts (SMEs) for input and verification, 3) prioritisation of the material topics and material issues, and 4) endorsement by the SD and HSSE Council Working Committee. In 2020, revisions were made to the abovementioned standards and guideline. The key

changes that affect our disclosure in this report are: IPIECA, the global oil and gas industry association for advancing environment and social performance, along with American Petroleum Institute (API), and the international Oil and Gas Producers (IOGP) published the fourth edition of 'Sustainability reporting guidance for oil and gas industry'. On top of this, GRI made effective the revised GRI 303: Water and Effluents (2018), GRI 403: Occupational Health and Safety (2018) and GRI 306: Waste (2020). Consequently, the PETRONAS Group undertook a revalidation of our material topics against the updated reporting standards and framework. Our findings revealed that our current six material topics remained relevant and valid in addressing the overall industry risks, energy transition and stakeholders' expectations. As part of the Group's management of Health and Well-Being, we have included disclosures on our COVID-19 pandemic responses throughout this Integrated Report.

The content below explains how each material topic can impact the Group's business model and operations. While this list also highlights our responses, the SDGs we align with, and which stakeholder groups are affected, it is not an exhaustive listing. The material topics are used to report on the non-financial disclosures in this report. Please refer to our 'Non-Financial Content Index' on page 228 for a mapping of the locations of information regarding these issues.

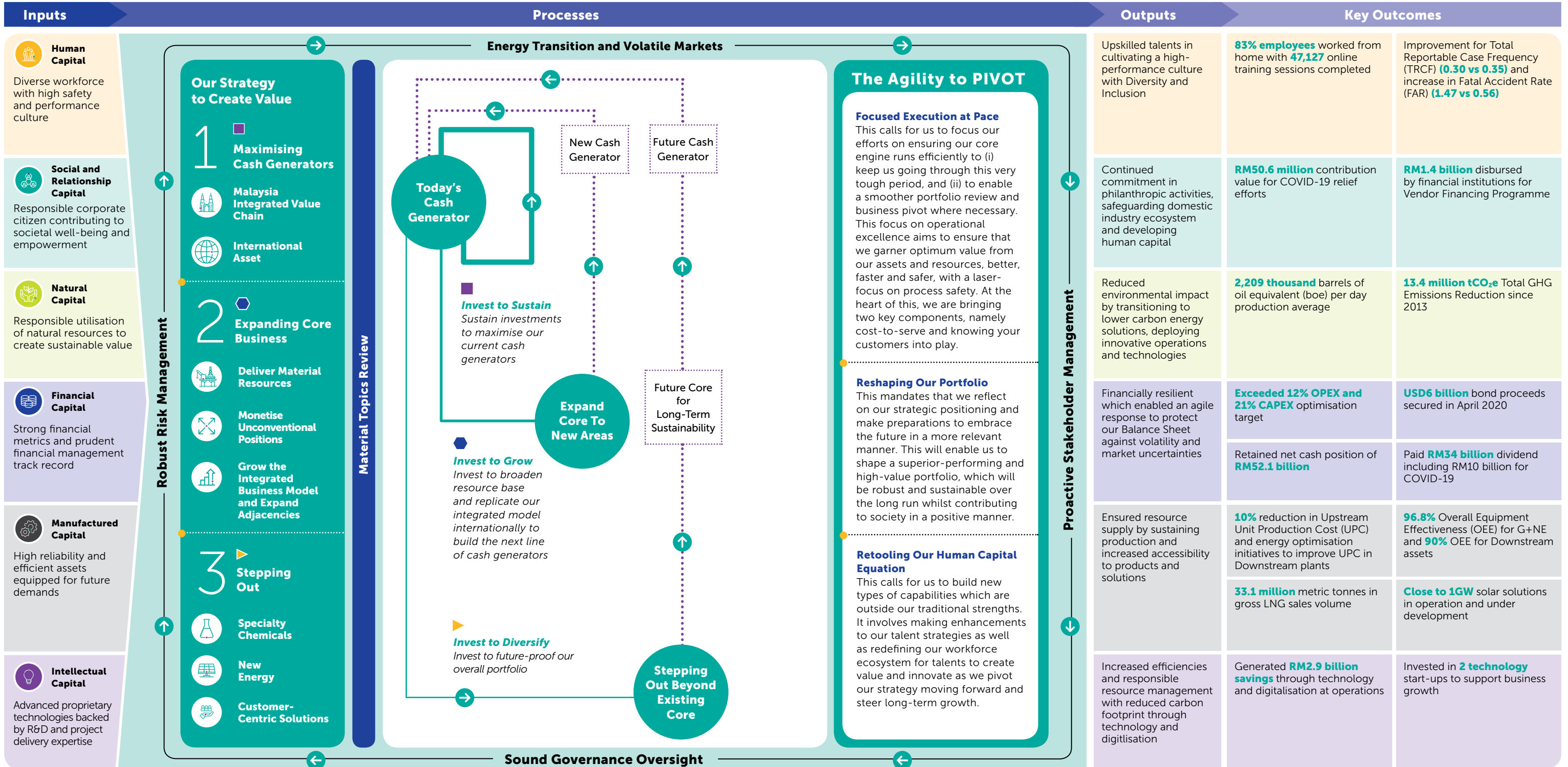
Material Topic	Impact	SDGs	The Group's Response	Affected Stakeholder Groups
<b>Safeguard the Environment</b>				
 <p><b>Climate Change and Environmental Management –</b> We duly recognise our corporate responsibility as a player in the global energy sector to balance the issue of climate change with the challenge to sustainably produce affordable and reliable energy.</p>	<p><b>P</b> <b>E</b> <b>A</b> <b>R</b></p>		<p><b>Climate Change</b></p> <ul style="list-style-type: none"> <li>Focused our efforts on collaboratively reducing climate change impacts by supporting host countries' Nationally Determined Contributions, while implementing climate actions that included low-carbon energy solutions as well as innovative operations and technologies, guided by our Climate Change Framework and PETRONAS' Carbon Commitments.</li> </ul> <p><b>Environmental Management</b></p> <ul style="list-style-type: none"> <li>Continued operational excellence improvements through equipment monitoring, spill prevention, Best Practicable Environmental Option (BPEO) for decommissioning and sustainable waste management; fortified these with internal controls beyond compliance to drive optimum use of hydrocarbon and water, while managing our emissions, wastewater and hazardous waste.</li> </ul> <p><b>Biodiversity and Ecosystem Services</b></p> <ul style="list-style-type: none"> <li>Minimised and prevented disruptions to biodiversity and the ecosystem through holistic Biodiversity and Ecosystem Services risk assessments, including the one-stop global dataset, the Integrated Biodiversity Assessment Tool (IBAT), while seeking to restore and nurture the ecosystems around us through conservation efforts.</li> </ul>	<ul style="list-style-type: none"> <li>Federal Government/Host Governments</li> <li>State Governments</li> <li>Customers</li> <li>Internal/Employees</li> <li>Media</li> <li>Shareholders/Investors/Credit Rating Agencies/Financial Institutions</li> <li>Government Linked Companies (GLCs)/Industry Players/Partners</li> <li>Communities/Non-Governmental Organisations (NGOs)</li> </ul>
<b>Positive Social Impact</b>				
 <p><b>Health, Well-Being and the Workplace –</b> We place employee well-being and enriching experiences at the forefront of our priorities for an agile, passionate, high-performing workforce.</p>	<p><b>P</b> <b>R</b></p>		<p><b>Health and Well-Being</b></p> <ul style="list-style-type: none"> <li>Promoted the holistic well-being of our employees while addressing occupational health risks such as chemical, physical, biological, ergonomic and psycho-social hazards that include fatigue and mental health; as well as addressed unhealthy habits such as physical inactivity, unhealthy diet and inadequate sleep.</li> </ul> <p><b>Human Capital</b></p> <ul style="list-style-type: none"> <li>Enabled a high-performing workforce by developing new types of capabilities, tools and ways of working, while nurturing leadership skills and broadening their career prospects in support of the Group's growth ambitions.</li> </ul>	<ul style="list-style-type: none"> <li>Federal Government/Host Governments</li> <li>Internal/Employees</li> <li>Government Linked Companies (GLCs)/Industry Players/Partners</li> </ul>
 <p><b>Safety –</b> We remain committed to ensuring there is no loss of life and to mitigating the possibility of injuries to our employees, contractors and communities.</p>	<p><b>P</b> <b>E</b> <b>A</b> <b>R</b></p>		<p>Ensured our facilities, assets, products and services fully comply with all government regulations, legal requirements and industry best practices with proactive analyses and robust risk mitigation strategies.</p> <p><b>Personal Safety</b></p> <ul style="list-style-type: none"> <li>Shaped a Generative HSSE Culture supported by proactive and comprehensive policies, frameworks and digital technology application to align our initiatives.</li> </ul> <p><b>Process Safety</b></p> <ul style="list-style-type: none"> <li>Deployed the Process Safety Loss of Primary Containment Reduction (PSLR) and Fire Prevention and Mitigation Framework (FPMF) for effective management and improvement of process safety events.</li> </ul> <p><b>Crisis and Incident Management</b></p> <ul style="list-style-type: none"> <li>Deployed clear role demarcation for crisis events with Emergency Response Exercise (ERE) drills at the facility/asset level to ensure full readiness in the event of an emergency or crisis. Established Business Continuity Plans (BCPs) for crisis or prolonged business disruption.</li> </ul> <p><b>Security</b></p> <ul style="list-style-type: none"> <li>Built physical and digital security preparedness for optimum readiness against emerging security threats governed by the PETRONAS Security Policy, PETRONAS Security Management System, PETRONAS Mandatory Minimum Security Standards and Cyber Security Control Standards.</li> </ul>	<ul style="list-style-type: none"> <li>Federal Government/Host Governments</li> <li>State Governments</li> <li>Customers</li> <li>Internal/Employees</li> <li>Media</li> <li>Shareholders/Investors/Credit Rating Agencies/Financial Institutions</li> <li>Government Linked Companies (GLCs)/Industry Players/Partners</li> <li>Communities/Non-Governmental Organisations (NGOs)</li> </ul>
 <p><b>Product Stewardship and Supply Chain –</b> We enhance the sustainability and safety of our products by incorporating elements relating to supply chain sustainability and responsible procurement.</p>	<p><b>P</b> <b>E</b> <b>R</b></p>		<p><b>Product Stewardship</b></p> <ul style="list-style-type: none"> <li>Carried out Product Risk Assessment to ensure product risks are well managed and to strengthen public trust in our products.</li> </ul> <p><b>Supply Chain</b></p> <ul style="list-style-type: none"> <li>Strengthened the local OGSE ecosystem through efforts such as the annual PETRONAS Activity Outlook, Cyber Security Control Standards, the Vendor Finance Programme (VFP) and the signature Vendor Development Programme (VDP).</li> <li>Undertook supply chain due diligence on raw materials to phase out substances of very high concern.</li> </ul>	<ul style="list-style-type: none"> <li>Customers</li> <li>Internal/Employees</li> <li>Media</li> <li>Shareholders/Investors/Credit Rating Agencies/Financial Institutions</li> <li>Government Linked Companies (GLCs)/Industry Players/Partners</li> <li>Communities/Non-Governmental Organisations (NGOs)</li> </ul>
 <p><b>Social Responsibility –</b> We resolutely support human rights with fair and ethical treatment to communities and those who perform work for our business, while delivering sustainable value and elevating the social well-being of the communities that we operate in.</p>	<p><b>P</b> <b>E</b> <b>R</b></p>		<p>Invested in sustainable initiatives to contribute to the well-being of society and the environment as well as to uphold our position as a socially responsible organisation.</p> <p><b>Social Performance</b></p> <ul style="list-style-type: none"> <li>Managed the impacts and associated risks to our business and operations with a commitment to human rights applicable to the staff and the contractor value chain, while adopting the outcome-based Just Transition approach to generate inclusive opportunities for social impact through our operations.</li> </ul> <p><b>Human Rights in Supply Chain</b></p> <ul style="list-style-type: none"> <li>Embedded the Contractors Code of Conduct on Human Rights (COCHR) in our procurement process to cascade ethical practices which is also part of our contractual obligations for goods and services procured.</li> </ul> <p><b>Corporate Social Responsibility</b></p> <ul style="list-style-type: none"> <li>Delivered value in societal well-being focusing on Education, Community Well-Being and Development, and the Environment to deliver sustainable, scalable impacts to society through our philanthropic arm, Yayasan PETRONAS.</li> </ul>	<ul style="list-style-type: none"> <li>Federal Government/Host Governments</li> <li>State Governments</li> <li>Customers</li> <li>Internal/Employees</li> <li>Media</li> <li>Shareholders/Investors/Credit Rating Agencies/Financial Institutions</li> <li>Government Linked Companies (GLCs)/Industry Players/Partners</li> <li>Communities/Non-Governmental Organisations (NGOs)</li> </ul>
<b>Responsible Governance</b>				
 <p><b>Governance and Ethics –</b> We uphold the organisation's integrity and trustworthiness, while delivering value through strong governance mechanisms and ethical business practices.</p>	<p><b>P</b> <b>R</b></p>		<p><b>Good Governance and Compliance</b></p> <ul style="list-style-type: none"> <li>The PETRONAS Legal Compliance Framework (LCF) as a control oversight and monitoring of legal and regulatory compliance to the Critical Legal Areas to effectively manage legal compliance which embeds and integrates compliance assurance and reporting for the Group.</li> <li>Implementation of the third-party due diligence process and controls to the Group as part of strengthening third-party risk management in assessing integrity risks and compliance in the Critical Legal Areas.</li> <li>Exercised zero tolerance towards any forms of bribery and corruption through robust policies and frameworks; signed the Corruption-Free Pledge (CFP) in committing to a graft-free organisation; ensured a continuous commitment to upholding high standards of governance by maintaining the International Organization for Standardization 37001 on Anti-Bribery Management System (ISO 37001) certification, validating PETRONAS' strategy in implementing global best practices to combat bribery and corruption.</li> </ul>	<ul style="list-style-type: none"> <li>Federal Government/Host Governments</li> <li>State Governments</li> <li>Customers</li> <li>Internal/Employees</li> <li>Media</li> <li>Shareholders/Investors/Credit Rating Agencies/Financial Institutions</li> <li>Government Linked Companies (GLCs)/Industry Players/Partners</li> <li>Communities/Non-Governmental Organisations (NGOs)</li> </ul>

Value Creation Model

Value Creation Model

**Lens 1**  
**Continued Value Creation**

**Statement of Purpose:** A progressive energy and solutions partner enriching lives for a sustainable future



**Stakeholders**

- State Governments (page 55)
- Customers (page 55)
- Internal/Employees (page 55)
- Shareholders/Investors/Credit Rating Agencies/Financial Institutions (page 56)
- Government Linked Companies (GLCs)/Industry Players/Partners (page 57)
- Communities/Non-Governmental Organisations (NGOs) (page 57)



Value Creation Model

Key Inputs	Key Outcomes and Outputs
<b>Human Capital</b> <ul style="list-style-type: none"> <li>48,679 employees</li> <li>47% below 35 years old</li> <li>14% women in technical positions</li> <li>Established the Corporate Command Centre (C3) and PETRONAS Pandemic Preparedness and Response Team (PPRT)</li> <li>Established Diversity and Inclusion (D&amp;I) Council</li> <li>More than RM170 million invested in learning</li> </ul>	<ul style="list-style-type: none"> <li>Improvement for TRCF (0.30 vs 0.35) and increase in FAR (1.47 vs 0.56)</li> <li>Process Safety: Reduction in Loss of Primary Containment (LOPC) incidents: 5 major and 24 minor / Reduction in fire-related incidents: 2 major incidents and 58 minor / Tier 1 incident: 7 cases</li> <li>Total Recordable Occupational Illness Frequency (TROIF) increased to 0.16</li> <li>Remobilisation of staff and dependents to 13 host countries and evacuation from 33 countries</li> <li>Achieved 1 million safe man-hours on the Kasawari Integrated Offshore High Contaminant project</li> <li>Strengthened the leadership pipeline by accelerating talent development to become more transformative, agile and inventive</li> <li>Raised awareness on unconscious bias through Theatre Exchange sessions which was initiated by PETRONAS Leading Women Network in collaboration with LeadWomen</li> <li>83% of employees working from home said Work-from-Home (WFH) arrangements are "satisfactory", based on an internal survey</li> <li>30,268 digital learning users with 47,127 online learning sessions completed</li> <li>Good progress made in shaping the way our people think and act toward becoming an agile workforce to face oncoming challenges and seize new opportunities for future progress</li> </ul>
<b>Social and Relationship Capital</b> <ul style="list-style-type: none"> <li>Annual RM100 million allocation for Yayasan PETRONAS for philanthropic activities</li> <li>Digitalisation of procurement system</li> <li>Support of Malaysia's Oil and Gas Service Equipment (OGSE) sector through Vendor Financing Programme (VFP) and Road to Bursa initiatives</li> <li>PETRONAS Education Sponsorship Programme (PESP) and Graduate Employment Enhancement Scheme (GEES) programme</li> </ul>	<ul style="list-style-type: none"> <li>Total contribution of RM50.6 million for COVID-19 relief efforts in Malaysia and countries where we operate</li> <li>Set-up of government quarantine centres at facilities</li> <li>Developed standard operating procedures (SOPs) and Contact Tracing Guide Book for Malaysia's oil and gas industry</li> <li>200,000 users benefited from the online tendering platform's ease of use</li> <li>RM1.14 billion in loans approved and disbursed to 214 applications by financial institutions through the VFP</li> <li>Facilitated high potential vendors to meet IPO requirements for listing on Bursa Malaysia</li> <li>Awarded 370 scholarships, recruited 133 (61%) PETRONAS scholars and 140 GEES trainees</li> </ul>
<b>Natural Capital</b> <ul style="list-style-type: none"> <li>Fossil fuels</li> <li>Air</li> <li>Water</li> <li>Biodiversity and ecosystem</li> </ul>	<ul style="list-style-type: none"> <li>Oil and gas daily production average: 2,209 thousand barrels of oil equivalent (boe) per day</li> <li>Total Petroleum Reserves (2P): 8.6 bboe (as at 1 Jan 2021) / Total Contingent Resources (2C): 15.27 bboe (as at 1 Jan 2021)</li> <li>Total Reduction of 13.4 million tCO<sub>2</sub>e of GHG emissions since 2013</li> <li>Reduced freshwater withdrawal: 60.0 million cubic metres (m<sup>3</sup>) from 60.3 million cubic metres</li> <li>Reduced oil in water content: 532 metric tonnes (MT) from 648 metric tonnes</li> <li>Reduced sulphur oxides emissions: 84,225 metric tonnes (MT) compared with 110,214 metric tonnes in 2019</li> <li>Hazardous waste reduction of 20,183 MT</li> <li>Recycled and recovered waste 65,173 MT (71% of generated waste)</li> <li>Completed feasibility study for Plastic Waste to Crude Naptha project</li> <li>Signatory member of the Methane Guiding Principles partnership</li> <li>Collaboration with Malaysian government agencies for: forest-based carbon offset potential, Rigs-to-Reefs decommissioning approach and Malaysian Oil Spill Contingency Plan</li> <li>Conducted and mitigated risks based on Environmental Impact Assessment and Biodiversity and Ecosystem Services Assessment for all 28 onshore and 74 offshore facilities in Malaysia</li> </ul>
<b>Financial Capital</b> <ul style="list-style-type: none"> <li>Efficient capital management in pursuit of business objectives with appropriate balance between risk and reward</li> <li>Reputable credit rating</li> <li>Robust liquidity management, cash preservation efforts and optimum source of funding</li> <li>Strong governance mechanism</li> </ul>	<ul style="list-style-type: none"> <li>Exceeded OPEX and CAPEX optimisation target of 12 per cent and 21 per cent respectively</li> <li>Solid corporate credit ratings at A2, A- and BBB+ as affirmed by Moody's, Standard &amp; Poor (S&amp;P) and Fitch respectively, underpinned by strong stand alone credit rating at four notches above our credit ratings as assessed by S&amp;P and Fitch</li> <li>Secured proceeds of USD6 billion in April 2020 through issuance of multi-tranche senior bond offering</li> <li>Retained unique net cash position of RM52.1 billion and low leverage level amongst peers in 2020</li> <li>Paid RM34 billion dividend including RM10 billion for COVID-19</li> </ul>
<b>Manufactured Capital</b> <p>Sustained optimum level operations and innovative solutions offerings through</p> <ul style="list-style-type: none"> <li>247 producing fields</li> <li>432 offshore platforms</li> <li>30 floating facilities</li> <li>3 LNG plants</li> <li>2 Floating LNG facilities</li> <li>2 Regasification terminals</li> <li>4 Refineries</li> <li>11 Petrochemical production sites</li> <li>4 Virtual Pipeline System trucks</li> <li>14 ROVR trucks</li> </ul> <p>Product availability in more than 90 countries</p>	<b>Operations</b> <ul style="list-style-type: none"> <li>Upstream achieved first hydrocarbon and Final Investment Decision (FID) for 17 and 13 projects respectively, plus 10 exploration discoveries</li> <li>10% reduction in Upstream Unit Production Cost (UPC) and energy optimisation initiatives to improve UPC in Downstream plants</li> <li>Sustained Overall Equipment Effectiveness (OEE): G+NE (97.2%) and Downstream (90%)</li> <li>PFLNG DUAs achieved Ready for Start-Up milestone</li> <li>Signed a Memorandum of Understanding (MoU) with Sarawak Energy Berhad (SEB) for the commercial production of Green Hydrogen</li> <li>Pengerang Integrated Complex (PIC) on track for operations by second half of 2021</li> <li>Diversifying into derivatives and specialty chemicals to cater to prioritised markets</li> </ul> <b>Distribution</b> <ul style="list-style-type: none"> <li>Achieved 33.1 mtpa LNG sales including 6.5 mtpa new deals through innovative solution offerings (Virtual Pipeline System, LNG bunkering capabilities and LNG export via ISO tank)</li> <li>Secured 600 MMscfd minimum daily gas offtake during Movement Control Order (MCO) in Malaysia and achieved 274.4 MMscfd new and extended gas sales</li> <li>Facilitated 7 MMscfd capacity of third-party shipper supply under the Third Party Access (TPA)</li> <li>Delivered 16 MW of power and 105 MT of steam to customers</li> <li>Increased solar capacity in Malaysia (90MW); India and Dubai (over 900MW)</li> <li>Expanded chemical distribution channel in Indonesia</li> <li>Launched PETRONAS Primax 97 with Pro-Race fuel for advanced technology engines and widened access to Sprinta lubricant through e-commerce</li> <li>Supplied 10 million litres of fuel through ROVR mobile refueling system</li> <li>Increased growth in non-fuel retail segments (Makan@Mesra food-to-go solutions, Deliver2Me service under Setel e-payment solution and PRYSM motorsport and lifestyle merchandise)</li> </ul>
<b>Intellectual Capital</b> <ul style="list-style-type: none"> <li>Top quartile project management expertise</li> <li>Patented technologies and digital tools for operational efficiencies and low carbon solutions</li> <li>Venture capital investments in technology start-ups to grow adjacent to and beyond oil and gas sphere</li> <li>Facilities of the Future programme</li> </ul>	<ul style="list-style-type: none"> <li>Generated RM2.9 billion cost savings through expertise, technology and digital tool deployments in project delivery and operations</li> <li>Invested in Braintree Technologies for smart farming solutions and SOLS Energy as a one-stop solutions start-up for high quality solar energy systems</li> <li>First in Southeast Asia to receive ISO 19650:2-2018 certification for PETRONAS New Leadership Campus construction</li> <li>Achieved on-track deployment of the Kasawari Integrated Offshore High Contaminant project with CO<sub>2</sub> separation technology currently under development to convert CO<sub>2</sub> into fuel for land transportation</li> <li>Built green hydrogen testing facility for efficient and cost-effective production</li> <li>Progressed the Bio-Agenda with projects to turn biomass to chemicals, bio-based specialty surfactants and plant-based aviation fuel</li> <li>Pilot Remote Autonomous Operation in Resak field, offshore Terengganu to reduce carbon footprint, increase safety on offshore platforms and reduce operational expenditure by 50%</li> </ul>

Value Creation Model

Key Actions	Trade-offs
<ul style="list-style-type: none"> <li>Drive sustainable HSSE performance through solid frameworks benchmarked against industry best practices, robust risk mitigation measures, generative HSSE culture and digitalisation</li> <li>Close collaboration with the Malaysian government, host governments and authorities for COVID-19 HSSE measures</li> <li>Cascaded PETRONAS D&amp;I statement and D&amp;I awareness through virtual immersive sessions and workshop and escalated D&amp;I discussions at ELT and Board levels</li> <li>Implemented special working arrangements with split teams, equipped with digital collaboration tools and support desks with cyber security measures</li> <li>Converted 23 training programmes to fully digital and blended learning; and leveraged on extensive e-learning facilities</li> <li>Undertook constant engagement with staff focusing on mental and physical well-being through various programmes and provided accessibility to coaches and dedicated mental health helpline</li> <li>Refreshed the PETRONAS Cultural Beliefs as part of internal rally towards meeting desired results</li> </ul>	<ul style="list-style-type: none"> <li>All capitals are affected by the fatalities and the incidents that lead to the fatalities</li> <li>Transformation exercise may cause fatigue which could negatively affect human capital and benefit intellectual and manufactured capital</li> <li>Lower remuneration due to cost-cutting measures would affect human capital and benefit financial capital</li> <li>Investment in upskilling broadens career prospects and benefit human capital and manufactured capitals while causing a requirement for additional financial capital</li> </ul>
<ul style="list-style-type: none"> <li>Ensured continued commitment to CSR activities via focusing on the areas of Education, Community Well-Being and Development, as well as the Environment</li> <li>Continued the close collaboration with the Malaysian government, host governments and authorities for COVID-19 relief efforts</li> <li>Timely acquisition and delivery of medical equipment and supplies for COVID-19 relief efforts</li> <li>Accelerated transformation to fully digitalised procurement ecosystem</li> <li>Forged innovative collaborations with 9 financial institutions, 5 investment banks and financial institutions to support the Vendor Financing Programme and Road to Bursa listing initiatives</li> </ul>	<ul style="list-style-type: none"> <li>Contributions, donations and support programmes would require financial capital and serve social, manufactured, human and intellectual capitals by securing our licence to operate and bolster local industry's ability to thrive in crises</li> </ul>
<ul style="list-style-type: none"> <li>Established short-term targets and identified 4 levers towards achieving PETRONAS' net zero carbon emissions by 2050 (NZCE 2050) aspiration</li> <li>Made operational excellence improvements: hydrocarbon flaring and venting reduction as well as renewable energy generation in operations</li> <li>Low-carbon energy and solutions delivery: gas supply as low carbon fuels; increased installed renewable capacity in portfolio mix; and improved fuel efficiency in energy products</li> <li>Technology and innovation: Accelerated technology development for Carbon Capture, Utilisation and Storage (CCUS), biofuels, hydrogen and renewable feedstock and New Plastics Economy (NPE) initiatives</li> <li>Responsible reporting: Improved climate actions performance disclosure through digitalisation and continuous engagements, internal and external verification exercises</li> </ul>	<ul style="list-style-type: none"> <li>Operations powered by non-renewable sources, with emissions and waste production would negatively impact natural capital</li> <li>More efficient operations with sound environmental and biodiversity management would benefit social and manufactured capitals over the mid and long term and may adversely impact financial capital in the short term</li> </ul>
<ul style="list-style-type: none"> <li>Continued to strengthen liquidity management through robust strategies to protect and grow cash</li> <li>Established guardrails for financial risks management by establishing liquidity buffers and identifying pre-defined borrowings level within acceptable affordability threshold</li> <li>Maintained prudent financial approach in making capital investments decisions for capital efficiency to strike optimum balance between risks and rewards</li> <li>Implemented disciplined cost management and successful cost compression initiatives across the Group</li> <li>Upheld strong corporate governance at all times</li> </ul>	<ul style="list-style-type: none"> <li>Cost compression efforts would positively impact financial capital and lower allocation for investment would potentially impact manufactured and intellectual capital</li> </ul>
<ul style="list-style-type: none"> <li>Leveraged on an integrated value chain to adapt to price and market volatility</li> <li>Forged enduring relationships with host governments, authorities and industry peers</li> <li>Built resilience in operational excellence with stringent SOPs, minimum manning and adjusted production levels</li> <li>Reset commercial strategies to generate long-term margins</li> <li>Implemented customer-centric and demand-led solutions to capture broader markets in Reshaping Portfolio</li> <li>Created new value through pervasive digitalisation across the operations and business value chain</li> </ul>	<ul style="list-style-type: none"> <li>Lower overall production and supply cause an adverse impact on financial capital and benefit natural capital</li> <li>Ability to sustain and optimise production in an agile manner cushions the impact on financial capital and benefits all capitals</li> <li>Go-to-market innovation benefits the natural, social, financial and intellectual capitals</li> <li>Clean energy business would benefit natural capital and adversely impact financial capital in the short term and positively impact all capitals in the mid and long term with improved valuation, brand equity and value</li> </ul>
<ul style="list-style-type: none"> <li>Prioritised delivering top quartile projects at a fraction of cost and time to support NZCE 2050 aspiration and delivered value on the cost reduction and operational efficiency fronts</li> <li>Leveraged on 3,934 IPs ranging from patents, trade secrets, copyrights and trademarks across technology segments to improve facility and equipment reliability as well as deliver products and solutions of superior quality</li> <li>Collaboration with companies with proven technologies and commercially viable products to accelerate scalability</li> <li>Built on in-house R&amp;D capabilities and technologies to accelerate low carbon technologies to support NZCE 2050 aspiration and Reshaping Portfolio</li> </ul>	<ul style="list-style-type: none"> <li>Scalability limitations of new technologies in uncertain markets and operating environments would adversely impact financial and manufactured capitals</li> <li>New technologies for operating in high risk environments would benefit human, social and natural capitals by minimising HSSE risks and our environmental footprint</li> <li>Investment towards NZCE 2050 would benefit social and natural capitals with a cost to financial capital</li> </ul>

# Preserving Value Through

As an integrated energy player, the PETRONAS Group is exposed to a variety of significant risks that can have an impact on our operations, prospects, future performance, financial position, liquidity, asset value, growth potential, sustainable development and reputation. To ensure that the Group is able to continue creating, preserving and realising value, we are proactively leveraging on an effective and comprehensive system of risk management and internal control to mitigate these significant risks.

Chart 1: Risk Management

## PETRONAS Board

Risk management is one of the core responsibilities of the PETRONAS Board, and is central to the decision-making process. The Board is responsible for overseeing and ensuring a sound system of risk management and internal control across the Group.

## President and Group Chief Executive Officer, supported by the Executive Leadership Team

The President and Group Chief Executive Officer (CEO) is assisted by the Executive Leadership Team (ELT) in ensuring a holistic approach is taken for all business development strategies as well as high-impact and high-value investments including mergers and acquisitions.

The establishment of the ELT is to review key risk management matters and provide guidance and direction to the RC and Board. In addition, the ELT undertakes Focused ELT Meetings to discuss specific matters which include Health, Safety, Security and Environment (HSSE) and People Development.

### Supported by

## Risk Management Committee (RMC)

The RMC is tasked with assisting the ELT, the RC and the Board in identifying principal risks and reviewing governing documents at the corporate level. It also provides assurance on risk management practices across the PETRONAS Group to protect and safeguard the Group's interests. The RMC also promotes sound risk management practices through the sharing of information, best practices and lessons learnt to enhance the risk culture across the Group.

## Risk Management Function

Dedicated risk management functions exist within the Group, particularly for listed subsidiaries, to assess and evaluate the risk management processes for reporting to their respective Leadership Teams and Board of Directors. Internal controls have also been developed to facilitate the standardisation of processes and practices across the Group for areas of risk such as Financial, HSSE, Plant and Facilities, Project, Procurement, Digital, Reputation, Human Capital and Country.

## Focus Risk Areas

The Group's Risk Management Framework helps identify and manage risks in a way that is supportive of our strategic priorities towards building a successful and sustainable business. Our approach towards risk management is framed by our ongoing understanding of the risks that we are exposed to, our risk appetite and how these risks change over time. Risks across the Group are being managed on an integrated basis within stipulated and approved Limits of Authority (LOA). Evaluations of those risks are incorporated into the decision-making process.



# Effective Risk Management

This system, which includes identifying, assessing, responding to and monitoring a range of financial and non-financial risks, remains a cornerstone of our business strategy and is fundamental to our goal of delivering sustainable long-term value. It is not intended to eliminate risk entirely, but instead to manage our risk exposure across our businesses, whilst at the same time making the most of any opportunities. This system provides reasonable but not absolute assurance against material misstatement or loss, or the occurrence of unforeseeable circumstances.

Oversight Across the PETRONAS Group

The PETRONAS Board is also responsible for providing risk oversight as well as setting the tone to ensure risk management practices are embedded within the Group's culture and the mindset of its people. As per the requirements of the Companies Act 2016, the Board Charter encompasses risk management and internal control oversight as one of the main functions of the Board.

The Board is supported by the Audit Committee and the Risk Committees in carrying out its risk oversight responsibilities:

## Risk Committee (RC)

The RC assists the Board in providing, among others, direction, guidance and oversight on risk management matters. The RC reviews risk policies, strategies, principal risks, risk practices and oversees the adequacy of the risk management system to effectively monitor and manage risks in the Group.

## Audit Committee (AC)

The AC assists the Board in fulfilling its responsibilities relating to internal controls and financial reporting by performing oversight functions on behalf of the Board. This is to ensure good governance practices and proper conduct while safeguarding the Group's assets.

All employees have a role to play in risk management and internal control. Assurance programmes are conducted regularly to ensure compliance with established governing documents and to gauge the effectiveness of the risk management implementation processes.



Risks Linked to Creating Value

**Risk Policy**

The PETRONAS Risk Policy (refer Chart 2) stipulates the general principles and guidelines for actions which influence decisions. It clearly communicates the management's expectations in relation to risk management practices throughout the Group.

It is complemented by the PETRONAS Resiliency Model that provides an integrated and holistic view of the overall strategy to manage the Group's risks, focusing on three areas of business resilience, namely Enterprise Risk Management (ERM), Crisis Management (CM) and Business Continuity Management (BCM). These are supported by the risk management frameworks and the relevant guidelines to govern, guide and institutionalise risk management practices across the Group. The status of risk management practices across the Group are continuously monitored and reported quarterly to the RMC.

**Chart 2: PETRONAS Risk Policy and PETRONAS Resiliency Model**

PETRONAS is committed to become a risk resilient organisation.

PETRONAS shall continuously strive to implement:

- Risk management best practices to protect and create value within the set boundaries.
- Risk-based decision-making by providing a balanced and holistic view of exposures to achieve business objectives.

Managing risk is everyone's responsibility.

- **Enterprise Risk Management**  
Structured and holistic approach to identify, assess, treat and monitor risks. The aim is to reduce the likelihood and impact of identified risks to enhance the organisation's ability to achieve its strategic objectives.
- **Crisis Management**  
Comprehensive set of processes that aim to prepare the organisation to respond and manage crises in the risk areas to protect people, environment, assets and reputation.
- **Business Continuity Management**  
Holistic management process that aims to build the capability of an organisation to recover and continue delivery of products or services at acceptable predefined levels following a prolonged disruptive incident.

**Enterprise Risk Management**

The ERM (refer Chart 3) process is an integral part of managing the business as it provides a guide to systematically identify, assess, treat, monitor and review risks. It aims to improve the ability to reduce the likelihood and/or impact of the identified risks that may affect the achievement of business objectives.

The risk profiles, which are established through the ERM process are monitored at the corporate level and across the Group, consist of identified principal risks with the corresponding risk mitigations and key risk indicators. This allows actions to be taken to ensure that risks are being effectively managed by the respective units. Such actions are endorsed by the Heads of Division of the respective Holding Company Units (HCUs), Business Units (BUs) or Operating Units (OPUs), and are reported to the respective Leadership Teams and Board of Directors on a quarterly basis.

The Group's Risk Appetite articulates the type of risks that the Group is willing to accept to guide strategic decisions at the corporate level in pursuit of business values and objectives. It reflects the Group's position, propensity and acceptability to take risks in various areas, namely strategic, financial, operational, reputational, while maintaining legal and regulatory compliance and is defined by the respective area's tolerances and threshold levels. At the corporate level, the PETRONAS Group's Risk Appetite is monitored and reported on quarterly basis to the ELT, RC and the Board.

**Chart 3: ERM Framework**



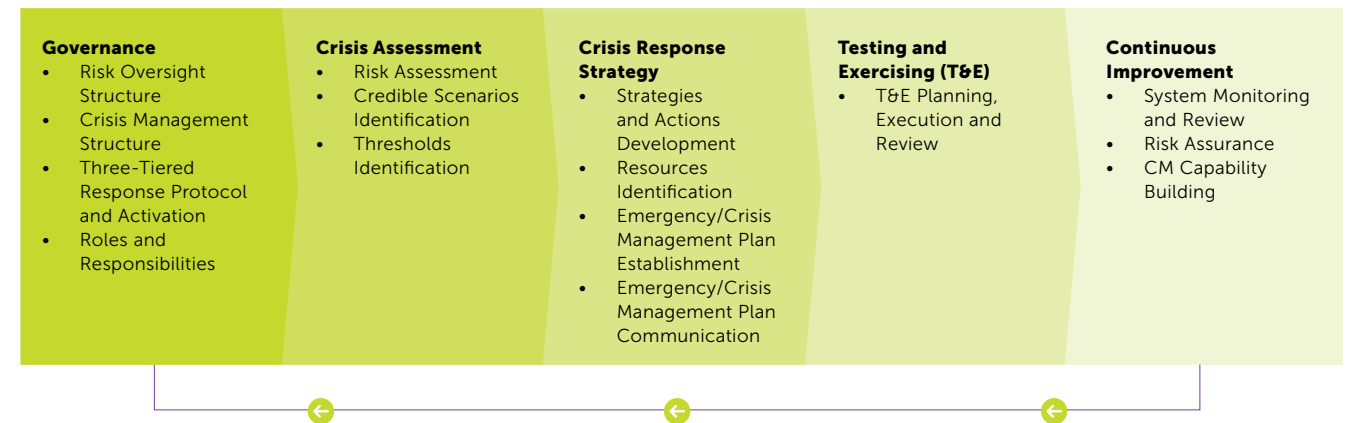
Risks Linked to Creating Value

**Crisis Management**

CM (refer Chart 4) is an integrated process that aims to prepare an organisation's domestic and international operations to respond to and manage crises in risk areas to protect People, Environment, Asset and Reputation (PEAR).

Under CM, there is a three-tiered response protocol that demarcates the roles and responsibilities of the emergency site management, operating unit management, corporate and internal/external response agencies, and/or authorities. Testing and Exercising (T&E) via simulation of test scenarios validates the effectiveness of response strategies as well as promotes continuous improvement as identified in the Emergency/Crisis Management Plan. T&E programmes are carried out at the respective HCUs, BUs and OPUs.

**Chart 4: CM Framework**

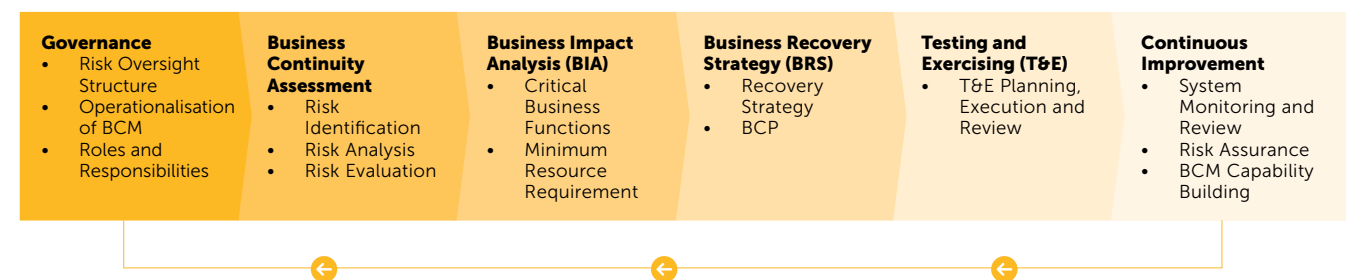


**Business Continuity Management**

BCM (refer Chart 5) is a management process that aims to build the capability of the Group to recover and continue delivering products or services at acceptable predefined levels following any prolonged disruption.

Key to the BCM Framework is the Business Continuity Plan (BCP) which has been established to enhance the Group's preparedness to recover and restore business critical functions within a reasonable period, so as to sustain activities and minimise disruptions to stakeholders. T&E via simulation of test scenarios validates the effectiveness of recovery strategies as well as maintains a high level of competence and readiness as identified in the BCP. T&E programmes are carried out at the respective HCUs, BUs and OPUs.

**Chart 5: BCM Framework**



Risks Linked to Creating Value

Mitigating Key Risks

The Group's businesses are subject to a number of factors, some of which are beyond our control. These and other risks, whether known or unknown, may have potential material adverse impacts on our operations. The risks set out below are linked to our Three-Pronged Growth Strategy and are not an exhaustive list of the challenges that we currently face or may develop in the future. The order in which these risks and uncertainties appear does not necessarily reflect the likelihood of their occurrence or the relative magnitude of their potential material adverse impact on our business.

**Market Risk** Our financial performance is impacted by the volatility of commodity prices, change of customer preferences, fluctuations of exchange rates, and the general macroeconomic outlook.

Context of Risk (Implications on PETRONAS)

As PETRONAS' core business is predominantly in oil and gas, our financial performance is highly influenced by the volatility of commodity prices, which is generally determined by the supply and demand in the market. The COVID-19 pandemic and movement restrictions imposed globally have a substantial impact on the fluctuation in commodity prices and customers' demands.

There is also a shift in customers' preferences, namely an increased demand for lower carbon sources of energy. The shift in customers' preferences and emergence of cleaner sources of energy intensifies the competition within the oil and gas industry and indirectly affects PETRONAS' value chain.

PETRONAS' reporting currency is in Ringgit Malaysia, however there are transactions dealt in the US Dollar which expose the Group to the volatility of the US Dollar to Ringgit Malaysia exchange rate. Additionally, our presence globally has exposed us to the changes in the value of other currencies and exchange controls imposed by the countries we are in.

Mitigations Conducted

In response to the wide-ranging market risks and the corresponding challenge in generating values from our business, a thorough review of PETRONAS' portfolio mix is being undertaken, with a focus on prioritising resources to the areas that are of the highest value to the organisation and business whilst meeting the expectations of our customers.

Additionally, the PETRONAS Financial Policy (PFP) sets the overarching philosophy and outlines high level principles for PETRONAS to be financially resilient for longer-term sustainability through efficient capital and liquidity management practices, as well as financial risk management practices. Relevant Supporting Guidelines are also in place to further guide and ensure financial management and financial risk management practices are implemented. This also enables visibility of the Group's key financial risk exposures for improved risk management.

In addition to the PFP, digital and strategic initiatives are outlined to address the integrated demand and supply chain, creating new demands and the optimisation of values within the value chains.

Elements of market risk also make up the PETRONAS Risk Appetite which is implemented across the Group. Key factors affecting PETRONAS' financial performance and risk appetite are reviewed and monitored regularly to ensure compliance and timely response to risks.

Link to Strategy Link to Material Topics

**Execution Risk** Our business, financial performance and results of operations are dependent on the successful delivery of complex, long-term, capital-intensive projects, as well as asset portfolio optimisation. Consequently, insufficient insurance coverage could have material adverse impact on PETRONAS' fiscal bottom line.

Context of Risk (Implications on PETRONAS)

PETRONAS' business and financial performance within the Upstream, Downstream, Gas + New Energy, corporate and other Divisions are highly dependent on the successful execution of the projects. The complex nature of oil and gas projects relies on the high degree of technology applied, technical capabilities of PETRONAS' talent, our capacity to undertake the required capital investments and market conditions at the point of the investment decision.

Mitigations Conducted

The progress of PETRONAS' key projects is reviewed and monitored regularly, aligned to the risk appetite established for project delivery.

Project risk management is implemented in accordance with the PETRONAS Project Management System (PPMS), with the objective of reducing the risk of unexpected technical and/or commercial factors significantly affecting the project's viability. The PPMS Phase Gated Process is designed to retain and maximise project value across a project's life cycle from the identification of business opportunity until operationalisation of the project and to bring a measure of rational processes to the decision-making associated with transforming business opportunity into operational assets.

Group Project Delivery (GPD) has oversight for all of PETRONAS capital projects, technical deployment projects and plant change projects, plus executes the role of Asset Owner Representative where PETRONAS is the major shareholder.

Throughout execution, performance of the projects schedule, cost and scope are monitored on a regular basis. Emerging risks and early warning signals are tracked and mitigated accordingly to protect the overall projects' value.

The risk management of plant and facilities in PETRONAS is governed by various governing documents and processes such as the Reliability and Integrity Management Systems (RIMS), PMMS Guideline, Plant and Facilities Risk Management (PFRM) Guideline, PETRONAS Technical Standard (PTS), PETRONAS Basic Technical Requirement (PBTR) and PETRONAS Technical Guideline (PTG). These governing documents and work processes outline the requirements to ensure proper management of operational risk and safe operations of the assets.

PFRM prescribes the principles and structured processes in managing operational risks in accordance with the PETRONAS Resiliency Model. It guides plants and facilities to systematically identify, assess, control, monitor and review operational risks to improve the ability to reduce the likelihood and/or impact of identified risks. The remaining governing documents prescribe the specific system and work processes required by the Group's plant and facilities over the asset life cycle in order to operate safely and achieve the targeted reliability, integrity and performance.

Additionally, businesses conduct capability development programmes to equip personnel with the technical knowledge required.

Collaborative efforts with peers/partners within the oil and gas industry facilitate the transfer of technical knowledge to PETRONAS.

Link to Strategy Link to Material Topics

Risks Linked to Creating Value

**Legal and Regulatory Risk** Changes in the regulatory landscape and rising climate change concerns could increase the cost of compliance, reduce demand for our products, affect our provisions and limit our access to new growth opportunities.

Additionally, inherent uncertainty of litigation proceedings could have adverse material impact on PETRONAS' business operations, financial condition and/or reputation.

Context of Risk (Implications on PETRONAS)

As a multinational corporation, PETRONAS is subject to compliance with the wide-ranging legal and regulatory requirements that are unique to each country that we operate in. These include critical legal areas such as international sanctions, antitrust, anti-bribery, anti-corruption, anti-money laundering and data protection laws with extraterritorial effect.

PETRONAS is exposed to various claims, suits and legal proceedings that could involve shareholders, labour, intellectual property, tax and other matters. The disputes and legal proceedings that PETRONAS may be involved in are often subject to many uncertainties beyond our control and have outcomes that are difficult to predict. Due to the inherent uncertainty of the litigation and dispute resolution process, the resolution of any particular legal proceeding or dispute may have adverse material impact on PETRONAS' business operations, results of operations and/or financial condition.

Additionally, within PETRONAS' approximately more than 48,000 strong workforce, limited awareness and misaligned incentives can lead to intentional or unintentional non-compliance with laws and regulations by personnel, which is beyond PETRONAS' control. The impact of these actions may go beyond personal liability and could have a wider impact on the organisation.

Rising concerns over climate change could lead to additional legal and regulatory measures and add on to our compliance obligations including higher compliancy costs. The nature of oil and gas operations exposes us to potential claims and suits by environmental and legal authorities as well as communities on issues pertaining to carbon emissions, waste materials, as well as commissioning and decommissioning activities of our operations.

Mitigations Conducted

The establishment of relevant governance, compliance and legal frameworks and the PETRONAS Code of Conduct is central to managing legal and regulatory risks.

PETRONAS via Group Legal conducts regular communications, awareness sessions and training programmes on the critical legal areas and specific laws affecting the respective entities to enhance awareness and emphasise strict compliance with legal and regulatory requirements.

The Legal Compliance Framework (LCF) is developed to serve as a control oversight and measure of legal compliance for the Group. The foundation of the LCF is based on five critical legal areas, posing an enterprise risk to the Group.

PETRONAS via Group Legal conducts regular communications, awareness sessions and training programmes on the critical legal areas and specific laws affecting the respective entities to enhance awareness and emphasise strict compliance with legal and regulatory requirements.

The state of compliance by the workforce and business is reviewed and monitored regularly, in alignment with the risk appetite established for compliance with critical laws and anti-corruption measures. PETRONAS emphasises strict compliance with legal and regulatory measures and has no tolerance for non-compliance with legal and regulatory measures and acts of bribery and corruption.

As PETRONAS aspires to achieve net zero carbon emissions by 2050 (NZCE 2050), the Group's Sustainability Agenda will support our efforts to reduce carbon emissions and better manage other environmental impact resulting from our business operations.

Link to Strategy Link to Material Topics

**HSSE Risk** The nature of our business operations give rise to exposure to a wide range of health, safety, security threats and environmental risks which could cause harm to people, the environment and our social assets as well as result in regulatory action, legal liability, business interruption, increased costs and damage to our reputation, potentially affecting our social licence to operate. Additionally, the onset of the COVID-19 pandemic has further increased the health risks to PETRONAS staff.

Context of Risk (Implications on PETRONAS)

Any occurrence of incidents during the operations of our business could result in injury or loss of life, environmental damage, resulting in rectification costs, equipment damage and damage to PETRONAS' facilities. A shutdown of the affected facilities could disrupt PETRONAS' production and increase its production costs.

The ongoing COVID-19 pandemic and movement restriction orders globally have to a certain extent resulted in business interruptions, deterioration of financial performance resulting from adverse market impact, as well as affected our people.

Security threats such as acts of terrorism, piracy and kidnapping may adversely affect our business operations, the safety of our people and assets as well as do damage to the environment.

Mitigations Conducted

The Group's Health, Safety, Security and Environment (HSSE) policy is supported by the HSSE Management System (HSSE MS) and the HSSE Mandatory Control Framework (MCF), which includes clear requirements for health, operational and process safety, as well as the environment for consistent and effective groupwide implementation.

Additionally, the PETRONAS Security Policy is supported by the Security Management System (SeMS) with Minimum Mandatory Security Standard (M2S2) which outlines the minimum security standards required to effectively manage security risks and protect the Group's assets. Both framework and management systems facilitate the strengthening of HSSE governance within the Group.

Operational discipline is further heightened through intervention and oversight via HSSE assurances, enhancements to contractor management, and by leveraging the HSSE digital system. This is supported by Generative Culture Leadership Programmes at all levels focusing on psychological safety and conscious risk awareness. Furthermore, the Loss of Primary Containment (LOPC) Reduction Framework and Fire Prevention and Mitigation Framework have been established to strengthen Process Safety Management.

At the start of the COVID-19 pandemic, the PETRONAS Pandemic Preparedness and Response Team (PPRT) was activated. The PPRT comprises subject matter experts from various disciplines across the Group (including Occupational Health, Crisis Management, Business Unit Occupational Health, Group Human Resource Management and Group Security) with the key objectives of minimising risks to our staff and operations from the pandemic outbreak as well as reducing business disruption by ensuring business continuity and the maintenance of essential operations.

The Corporate Command Centre (C3) taskforce was established with the mandate to monitor the impact of the pandemic and prolonged low oil prices on the business, as well as to ensure overall coordination and monitoring of the response across PETRONAS. The taskforce comprises senior representatives from all Business Units and selected Corporate Units namely PD&T, Procurement, HSSE, Security and Crisis Management, HRM, Finance, Risk, Legal, Group Digital, Communications and Corporate Strategy. Their key objectives are to make critical cross-business decisions, ensure there is a unified crisis response for the Group, and undertake reputation management under crisis.

Link to Strategy Link to Material Topics



Risks Linked to Creating Value

**Reserves and Resources Risk**

The level of PETRONAS' oil and gas reserves, resources and production may decline over time. The level of our reserves depends on the successful discovery and development of commercially-exploitable oil and gas reserves and resources as well as the reliability of discovered resource estimation.

**Context of Risk (Implications on PETRONAS)**

Future oil and gas production will depend on our access to investment opportunities and new reserves and resources through exploration, success of negotiations with relevant parties and acquisitions, as well as development and application of new technologies to existing fields. Ineffective management of reserves and resources can severely threaten the viability of PETRONAS' current business operations, deterioration of financial performance, and adverse impact on the achievement of our growth ambitions.

PETRONAS' crude oil and natural gas discovered resource estimates involve some degree of uncertainty and may prove to be incorrect over time

or may not accurately reflect actual discovered resource levels. The reliability of discovered resource estimates depends on the quality and quantity of technical and economic data, the production performance of the fields and may also be subject to revision due to changes in published rules and guidance.

**Mitigations Conducted**

The oil and gas reserves and resources are being reviewed via the Annual Review of Petroleum Resources (ARPR) process.

PETRONAS' international ventures form part of the strategy to secure new sources of supply. The successful execution of our international ventures will provide us with additional security of supply.

Ongoing efforts to manage sustainability of supply include development of the Carbon Capture, Utilisation and Storage (CCUS) technology for the development of the High CO<sub>2</sub> fields for competitive LNG pricing and optimising the value of remaining indigenous gas resources.

→ **Link to Strategy**

→ **Link to Material Topics**

**Geopolitical Risk**

Our businesses domestically and globally, are exposed to a wide range of political, legal and fiscal developments, which could affect our business operations and financial condition.

**Context of Risk (Implications on PETRONAS)**

PETRONAS operates in numerous countries which have differing degrees of political, legal and fiscal stability. This exposes us to a wide range of political developments that could result in changes to contractual terms, laws and regulations.

PETRONAS' global business activities are also subjected to regulations and directives of the national and host governments with respect to matters such as limitations on production volumes and exports, pricing policies, environmental protection controls and possible nationalisation of assets, expropriation and cancellation of rights. Governments may intervene directly or indirectly in PETRONAS' commercial and operational affairs, which would have adverse material impact on PETRONAS.

Inability to mitigate the internal and external challenges within the domestic and international business landscapes may result in the deterioration of our financial condition and constrain our growth capacity.

**Mitigations Conducted**

Country Risk Management Framework (CRMF) established to govern the oversight structure, roles and responsibilities, and assessment tools in ensuring country risks are managed in a systematic and structured manner across the Group. It also prescribes requirements on pre-entry, in-country and exit management to support decision-making in relation to international investments and managing in-country risk holistically, which are also reported to respective country's Management and Board.

The geopolitical landscape and investment concentration in the countries we are in is reviewed and monitored regularly, aligned to the risk appetite established for our international investments.

Additionally, PETRONAS is undertaking a rigorous review of its investment portfolio through the formation of a dedicated Portfolio Intervention and Transition team. This effort involves identifying the most valuable assets within the portfolio and undertaking the relevant high-grading strategies. These efforts aim to optimise the value of the overall portfolio.

→ **Link to Strategy**

→ **Link to Material Topics**

**Financial Liquidity Risk**

Our business activities require significant capital investments, sufficient operating cash flows and/or sufficient external financing to support business activities and growth projects.

**Context of Risk (Implications on PETRONAS)**

Deterioration of PETRONAS' financial performance and inability to obtain the required financing during these challenging times may affect PETRONAS' capital investments and achievement of our growth projects.

In addition, a global or regional financial crisis and unfavourable credit and market conditions may negatively affect PETRONAS' liquidity, customers, businesses, and operational results.

The downgrade of Malaysia's sovereign rating has put pressure on PETRONAS' final credit rating and may affect our cost of financing and ability to tap the capital market.

**Mitigations Conducted**

PETRONAS' liquidity position is reviewed and monitored regularly, aligned to the risk appetite established for liquidity and indebtedness level.

The PETRONAS Liquidity Risk Contingency Protocol (LRCP) is intended to safeguard the Group's liquidity position and its financial sustainability.

Whilst the Liquidity Crisis Management Team (LCMT) is established to deliberate the impact assessment and mitigation strategies to safeguard the Group's liquidity position and its financial sustainability in the event of crisis, the onset of COVID-19 necessitated the establishment of Liquidity Plus (L+) at the beginning of the year, to review PETRONAS' groupwide liquidity position, highlight potential liquidity issues and provide guidance for groupwide strategies in managing liquidity.

→ **Link to Strategy**

→ **Link to Material Topics**

Risks Linked to Creating Value

**Technology Risk**

Technology and innovation are essential for PETRONAS to remain competitive. If we inadvertently develop technologies and products that cause an unfavourable effect on the environment or the safety of people, there could be a potential material adverse impact on our financial condition and reputation.

The acceleration of digital efforts within PETRONAS has exposed us to cyber security threats which may impact the safety of our operations, people, environment, data and sensitive information. It may also lead to legal and regulatory breaches as well as reputational damage.

**Context of Risk (Implications on PETRONAS)**

Technology and innovation are essential if we are to remain competitive in this challenging business environment. PETRONAS is dedicated to delivering the best solutions for our customers and this includes keeping up with the latest innovations and technologies within the industry. However, the adoption of new technologies always comes with an inherent set of risks covering adoption, legal and regulatory compliance, cyber security exposure and in-house capabilities.

There could be an adverse material impact on the delivery of our strategy and our licence to operate if we do not develop the right technologies and products, do not have access to such technology and products or do not deploy these effectively. If we are unable to develop the right technologies and products in a timely and cost-effective manner, or if we develop technologies and products that adversely impact the environment or safety of the people, there could be adverse material impact on our financial condition and reputation.

PETRONAS is subject to fast-evolving risks from cyber threats. A breach or failure of our digital infrastructure from cyber-attacks could result in the loss or misuse of data or sensitive information, injury to people, disruption to our business and harm to the environment or our assets. It could also lead to legal or regulatory breaches and legal liability.

**Mitigations Conducted**

PETRONAS drives competitive advantage with dynamic in-house research and innovation solutions by having an immaculate and unique system in place to mitigate and manage risk through the PETRONAS Technology Management System (PTMS). The PTMS ensures that we develop the right technology solutions that meets business needs and which are aligned with the current challenges and agenda. It curates the value chain and ensures focus in technology journey from ideation, development, management, deployment and optimisation of technology programmes up until the commercialisation aspects of individual technology.

PETRONAS also maintains a strong position in mitigation of risk on the Intellectual Property (IP) front where we hold over 3,000 IPs ranging from patents and trade secrets to copyrights and trademarks across different technology segmentations including Bio-Chemical and Advanced Materials, amongst others. This robust and extensive strategy of protecting our innovations include the development of an IP Policy at the enterprise level which provides a systematic structure, procedures and guidelines for effective management of PETRONAS' IPs for technology. In addition, the IP Guidelines is included as part of the key processes in the PTMS.

PETRONAS has set in place a strict recruitment policy for its research and development arm that hires best-in-class experts to help aid the development and deployment of technology as well as continuously upskill its current crop of researchers to a higher level.

PETRONAS Group Digital is responsible for shaping and driving a unifying digital vision and strategy groupwide as well as for accelerating concerted efforts to drive digital transformation for the PETRONAS Group. PETRONAS Group Digital is also accountable for upholding Digital and ICT governance across the Group in the areas of Cyber Security, Enterprise Architecture and Enterprise Data.

Additionally, any incidents involving ICT and Operational Technology (OT) and cyber-attacks are reviewed and monitored regularly, aligned to the risk appetite established for ICT, OT and cyber security.

PETRONAS Information Security is guided by the PETRONAS ICT Principles and PETRONAS Records Management Principles and supported by ICT Standards and Guidelines which set out the purpose, commitment and governance of ICT and Records Management for the Group.

PETRONAS is guided by the Group's ICT Principles, Standards and Guidelines. In 2020, a new framework, namely the Enterprise Cyber Security Governance Framework, was introduced to ensure relevance to the current environment. It replaces the PETRONAS Information Security Standards and Guidelines.

The Enterprise Cyber Security Governance Framework (ECSGF) has been established based on leading industry standards and best practices such as NIST, ISO 37001, ISA/IEC 62443, PDPA, GDPR and PCIDSS. The ECSGF provides a single consolidated view of the frameworks, standards and guidelines required to govern and manage cyber security across PETRONAS.

PETRONAS Group Digital also has in place a Disaster Recovery Plan (DRP) for identified critical business applications. Scheduled drills and exercises are conducted periodically to ensure readiness in the event of an ICT disaster.

**Technology Risk In Action**

**Towards Large-Scale and Accelerated Deployment of M365**

The year 2020 was the year the rules of the game changed and business as usual was no longer possible. The year saw PETRONAS leveraging on technology and innovation in an even greater manner to ensure we remained competitive. As restrictions were imposed on the number of people allowed at the workplace at any one time and Work-from-Home (WFH) mode became necessary and commonplace, we got down to seeing how best to maintain our competitive edge. To this end, Microsoft 365 (M365) was identified by PETRONAS as the best transformative tool for the organisation to adopt as it aligned with PETRONAS' overall digital transformation ambitions and accorded users heightened cyber security measures.

Prior to the COVID-19 pandemic, the plan was for M365 to be deployed in stages across a 14-month period, beginning with a pilot phase for 4,000 users. However, given the trend of growing COVID-19 cases at the beginning of 2020, the M365 deployment team foresaw the need for a full-scale WFH arrangement to curb infections. As such, the team readjusted the 14-month timeline to ensure full support for all staff during the movement restrictions. As this had not been done at such a large scale and in such an accelerated manner, the team faced the risk of a failed migration to the new platform and an ineffective transition to WFH mode.

The plan was for M365 to be deployed in stages across a 14-month period, beginning with a pilot phase for

**4,000** users

M365 deployment team foresaw the need for a full-scale WFH arrangement to curb infections. The team readjusted the 14-month timeline to ensure full support for all

**52,000** M365 users during the movement restrictions

As they got down to the task at hand, the M365 deployment team saw the need to leverage forward planning and agility to ensure a successful rollout under the WFH arrangement. They also put in place the necessary guardrails for the seamless adoption of M365 across the Group, including a comprehensive governance framework, an adoption plan, and the necessary remedial steps to address common issues. With all the necessary elements in place to mitigate an effective transition, the team pressed on with the unprecedented exercise.

In March 2020, Microsoft Teams was successfully rolled out to all staff, and this was followed by the effective deployment of other M365 services throughout 2020. All in all, the entire M365 suite of products were successfully deployed across the Group well ahead of the original pre-pandemic deployment schedule. Despite the sudden but necessary switch to WFH mode, PETRONAS' businesses experienced fluid business continuity. Moreover, given the necessary safeguards available in the M365 suite that make it a suitable productivity tool for digital workspaces, cyber security risks to the organisation during remote working were minimised.

→ **Link to Strategy**

→ **Link to Material Topics**





# Upstream



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The unprecedented events that unfolded in 2020 served as the perfect catalyst for Upstream to reinvent itself. We continued to deliver results operationally through a combination of strategic and decisive measures. This was no doubt made possible by the herculean efforts of our frontliners despite the challenges they faced. As we implemented rigorous measures to reduce costs and maintain liquidity, we also strengthened our portfolio by encouraging more value-driven exploration and development of discovered resources to promote a vibrant oil and gas landscape. This was especially true in Malaysia. In parallel, bold efforts were undertaken within Upstream to support PETRONAS' Sustainability Agenda, including making ground-breaking progress in Carbon, Capture and Storage (CCS) as well as emissions reduction initiatives.

We are well on our way towards becoming a safe, resilient, low cost and low carbon exploration and production (E&P) business through value-focused, purposeful strategies combined with world class execution, anchored on PETRONAS' integrated business model. We are resolutely adopting digitalisation and technology in the way we work and deliver business excellence. Last but not least, we remain uncompromising in our safety endeavours to ensure everyone goes home safely.

”

**Adif Zulkifli**

Executive Vice President and Chief Executive Officer,  
Upstream

The Upstream business continued to create value and achieve business excellence whilst remaining resilient despite the disruptions brought about by the COVID-19 pandemic and energy demand volatility. Upstream activities in Malaysia and internationally were inevitably affected due to the prolonged lockdowns implemented all over the world.

The impact of the challenges was largely hedged by the deliberate steps we undertook to enhance our operational performance while keeping costs down. Upstream implemented prudent measures to ensure continued business resilience, including reviewing all its activities as well as prioritising and rephasing projects. We also continued to focus our efforts on maintaining asset integrity and reliability, whilst ensuring that our customers were optimally served.

In addition, we also enhanced our strategies to address future uncertainties which included the implementation of innovative technology and digital infrastructure. These continued to fuel the way forward in Upstream, empowering our people and redefining the way we work. All this enabled us to capitalise on opportunities, ensure sustainable production and carry on operating safely.

We continued to uphold disciplined capital and operational spending as well as preserved liquidity to ensure business sustainability for the long term.

The upstream industry is expected to face an increasingly uncertain outlook given the low oil price environment, lower spending across the industry, higher costs, finite resources and production gaps as the shift to a low-carbon economy picks up pace. Moving forward, the strategies in place to reinvent Upstream will hold us in good stead in our aspiration to be a safe, resilient, low cost and low carbon E&P business.



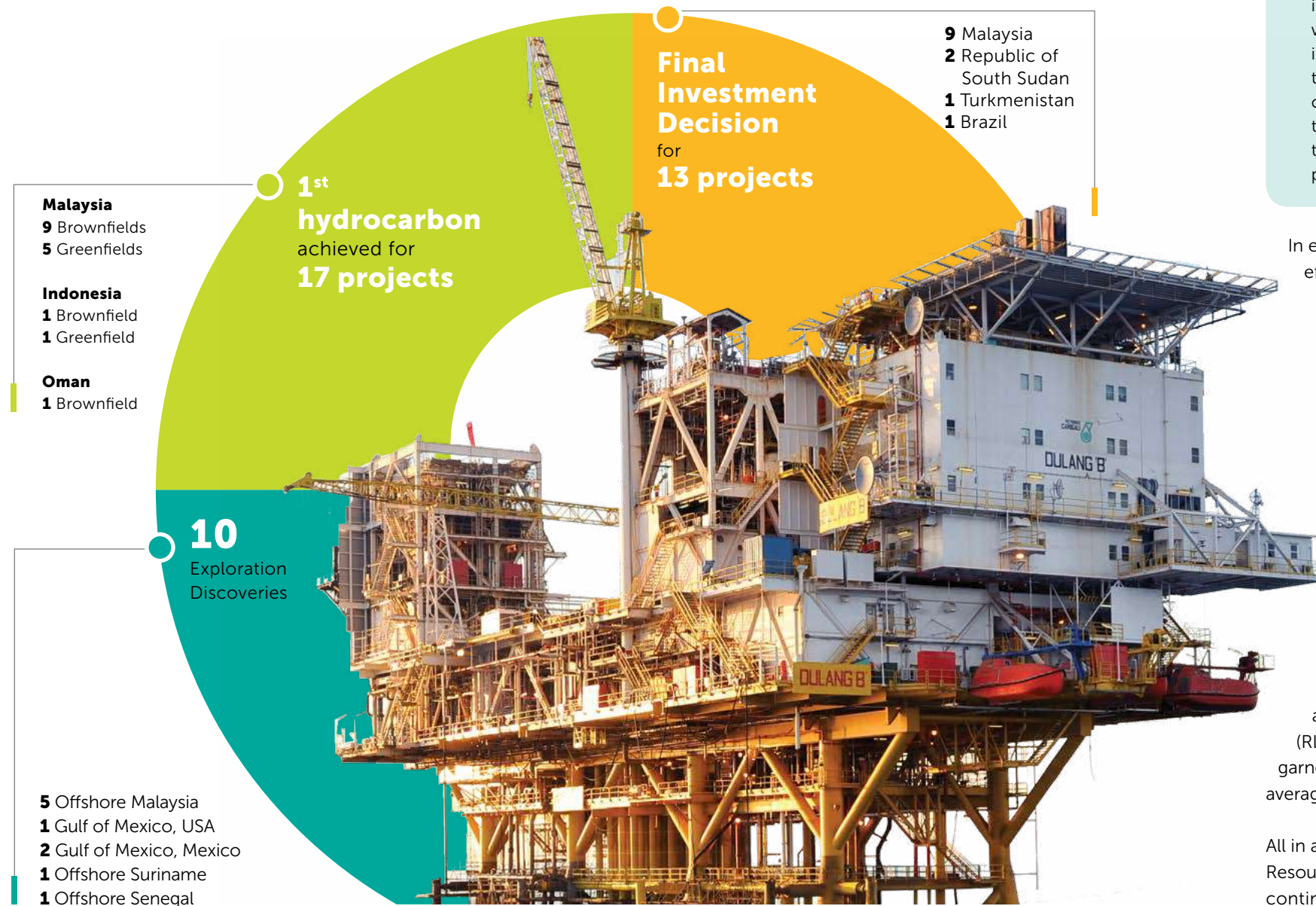


## How We Created Value

### 1 Ensuring Sustainable Supply

We remain focused on two strategic prongs, namely **Maximising Cash Generators** and **Expanding Core Business**, by taking prudent steps to ensure sustainable production despite the challenges faced during the pandemic. We ensured continued energy supply to our stakeholders, attesting to our resilience and agile operations.

During a tough 2020, Upstream recorded a total daily production average of 2,209 thousand barrels of oil equivalent (boe) per day, an 8.2 per cent decrease in comparison to 2019. This was attributed to the low oil price environment and reduced demand brought on by the prolonged impact of the COVID-19 pandemic. Despite an unpredictable year, a total of 17 Upstream projects achieved first hydrocarbon. These comprised nine Brownfields and five Greenfields in Malaysia, one Brownfield in both Indonesia and Oman respectively, as well as one Greenfield in Indonesia.



### Expanding Core Business



Monument Discovery

The Monument discovery in the Gulf of Mexico, USA marked a significant milestone for PETRONAS in our efforts to expand our oil and gas business portfolio by growing our international resource base. This was our first entry and discovery into oil and gas operations in the Gulf of Mexico, USA. We will continue to explore opportunities in the Americas region to strengthen the sustainability of our global portfolio.



Polok-1 and Chinwol-1 Deepwater Discoveries

In line with our expansion into the Americas, PETRONAS made two deepwater oil discoveries in Mexico from the Polok-1 and Chinwol-1 exploration wells in Block 29, located in the Salina Basin, Gulf of Mexico, Mexico. PETRONAS currently holds interest in 10 exploration blocks across three of Mexico's prolific main basins encompassing a total area of approximately 22,000 sq. km.



Drilling Success of Sloanea-1

The successful discovery of the Sloanea-1 exploration well in Block 52, located in the Suriname-Guyana basin, offshore Suriname paves the way for PETRONAS to continue exploring in Suriname, which is one of our focus basins in the Americas.

In ensuring sustainability of production, we continued our efforts to replenish our resources and reserves, focusing on prudent growth. Upstream recorded a total of 13 projects which achieved Final Investment Decision (FID). These FID projects encompassed nine projects in Malaysia, two in the Republic of South Sudan, one in Turkmenistan and one in Brazil. As at 1 January 2021, PETRONAS' total Petroleum Reserves (2P) stood at 8.6 bboe, a decrease of 7 per cent from 2019.

PETRONAS' total Contingent Resources (2C) stood at 15.3 bboe, an increase of 1 per cent from 2019. A total of ten discoveries were made in 2020 comprising seven discoveries which contributed to our resource addition namely in Malaysia, Suriname as well as Gulf of Mexico, USA and Gulf of Mexico, Mexico.

Our strong performance track record saw Upstream achieve a three-year average 1P Reserves Life Index (RLI) of 8.9 years, an increase over the 1P RLI of 8.0 years garnered in 2019. This also led to a commendable three-year average 1P Reserves Replacement Ratio (RRR) of +1.6.

All in all, we recorded a three-year average Overall (2P+2C) Resource Life Index (ORLI) of 38.7 years. PETRONAS will continue to focus on high value and material prospects



moving forward, by leveraging technology and our world class capabilities. We will continue to set our sights on ensuring a balanced, value-driven and healthy funnel of resources and reserves in sustaining a robust portfolio.



## 2 Banking on Operational Excellence

We continued to enhance operational excellence through technology, digitalisation and intelligent facilities to reduce costs as well as increase productivity and efficiency across Upstream's operations.

The introduction of Upstream's Operational Excellence Management System (OEMS) incorporates a value-driven approach that delivers bespoke solutions in each field to ensure safe, reliable, and sustainable operations. This was seen in the Asset Reference Plan (ARP), where a holistic long-term asset strategy was established and applied in the Samarang Production Sharing Contract (PSC) off the coast of Sabah, offshore Malaysia. This has led to the identification of potential value creation of RM519 million over the next five years. Of this, RM16.5 million has been earmarked to be realised by the end of 2021.

Another example is the implementation of the Run-To-End (RTE) operating model in late life fields. As of the first quarter of 2021, OEMS successfully implemented the RTE model in three fields. This is expected to deliver a potential value creation of over RM40 million in the next five years. OEMS continues to set the standard for Upstream's value-driven approach by continuously improving asset management and efficiency.

In line with Upstream's expansion into the area of intelligent facilities, the Resak platform located offshore Kertih in Terengganu is the first platform in Malaysia to pilot remote operations with a 30 per cent potential operational expenditure (OPEX) reduction. This comes on the back of swift technological advancements in automation, robotics and Artificial Intelligence (AI).

In Canada, we continue to gain capital and operational efficiencies through technological advancements and cost compression efforts. In 2020, PETRONAS Energy Canada Limited (PETRONAS Canada) further refined the updated well design that was implemented in 2018, which has over 60 per cent longer lateral sections, as a minimum, and up to 100 per cent longer lateral sections than the previous design. As a result, PETRONAS Canada's wells on certain pads were drilled up to 25 per cent faster and completion costs were 15 per cent lower than planned for the year.

PETRONAS Canada also completed the construction and commissioning of key infrastructure for gas processing plants and compressor stations to support its production ramp-up plan over the next five years. This includes the construction of its Town North gas plant which was completed in November 2020 with commissioning well underway. Serving as its flagship gas plant, this facility will have a processing capacity of 555 million standard cubic feet per day (MMscfd) when the third phase is completed (tentatively in 2025). This will help us deliver our long-term production commitment for our North Montney venture in Canada.

Further improving operational efficiencies in our La Amarga Chica (LAC) block in Argentina, we reduced cost per well by 20 per cent. The adoption of longer wells, robust well design and High-Density Completion improved our resources and reserves by 13 per cent. The accelerated learning experience also helped LAC achieve comparable cost efficiency in just one year compared to six to seven years in neighbouring blocks. LAC under PETRONAS E&P Argentina S.A. (PEPASA), is on track to be Best-in-Class in unconventional play by 2025. This coupled with the first crude export deals in collaboration with its partners in June–August 2020, cemented PETRONAS' ability to monetise its unconventional resources in the region.

In addition, PETRONAS' Unconventional Centre of Excellence located in Calgary, Canada, continues to enhance our unconventional expertise, refine technical innovations, strengthen collaborations and share best practices with our other operating regions that have unconventional resources including Argentina, Australia and Oman.

Other highlights for the year include:

**50%** reduction in operating rig time following the deployment of the **Enhanced Single-Trip Multizone (ESTMZ)** at Samarang, off the coast of Sabah, offshore Malaysia for well extension packing. This was achieved by simplifying complex operational processes which also led to a **50 per cent capital expenditure (CAPEX)** reduction in the gravel pack operation.

**0.34 million tCO<sub>2</sub>e/year** of Greenhouse Gas (GHG) emissions reduction at Samarang field off the coast of Sabah, offshore Malaysia by recovery of associated gas through separator pressure tuning and recommissioning of additional lines to deliver all gas from satellite platforms to a central platform.

**75%** cumulative OPEX reduction since 2016 for mature field operations at the Tembungo field, off the coast of Sabah, offshore Malaysia through successful process simplification, maintenance optimisation and Run-to-End approach (RTE).

**33%** reduction in OPEX from the pilot **Corrosion Under Insulation (CUI) system** at Erb West, off the coast of Sabah, offshore Malaysia. The CUI system, which incorporates a portable lightweight x-ray device designed to monitor and detect corrosion without removing any insulation, has proven to be **10 times swifter** than conventional methods.

## 3 Focused on Progress

Anchoring on PETRONAS' Three-Pronged Growth Strategy, Upstream has clear targets underpinned by a robust strategy to safely deliver superior performance.

We continuously look at innovative solutions to mitigate any potential risks or challenges that may impact the industry. With this purpose in mind, we are leveraging technology, digitalisation, and data as our differentiator, accelerator and asset respectively, to deliver our strategy with pace, while being cost effective and low carbon-oriented. As a result, our digitalisation efforts, namely the Facilities of the Future programme, is helping us reduce our carbon footprint and enhancing safety at offshore platforms, allowing us to reduce future OPEX by up to 50 per cent.

Similarly, among Upstream's new initiatives include incorporating virtual inspection and performance testing which have enhanced our Process Cycle Efficiency (PCE). This includes Factory Acceptance Testing (FAT) which was done online. This has helped us to move away from conventional on-site testing at vendor and offshore facilities, saving time and costs. Furthermore, our focus on intelligent facilities, which includes remote operations such as the Resak platform offshore Terengganu, is set to be more pervasive across our operations.

Meanwhile, our GHG emissions reduction efforts are focused on achieving zero continuous flaring and venting of hydrocarbons

which aim to reduce GHG emissions by approximately 2 million tCO<sub>2</sub>e per year, and potentially recover about 33 million standard cubic feet per day towards the sale of gas.

We are also applying Carbon Capture and Storage (CCS) in our high CO<sub>2</sub> fields; and considering Renewable Energy as our preferred source of power at platforms. Our focus on CCS innovation aims to target further carbon emissions reduction, while seeking to expand our portfolio of technologies to create value.

The Kasawari CCS project off the coast of Sarawak, offshore Malaysia is a strategic project that supports the PETRONAS Carbon Commitment (PCC) and GHG emissions reduction efforts. We plan to commence the first injection of CO<sub>2</sub> by the end of 2025. Once onstream, the project is expected to reduce CO<sub>2</sub> volume emitted via flaring by 76 million metric tonnes with an annual average of 3.7 million metric tonnes per annum (mtpa).

As the energy landscape continues to change, particularly in the upstream space, our continuous efforts are focused on making our business safe, resilient, low cost and low carbon.





### Digitalisation at Upstream

Innovative technologies and digital solutions will continue to be deployed at scale to improve the bottom line across our assets and increase the efficiency of our growth engines.

#### Delivering New Value

**Recorded RM180.6 million incremental value** with Alpha LNG which integrates Upstream's production optimisation with G+NE's cargo delivery needs.

**Delivered 2.1 kboed incremental production** from six fields in Malaysia via data driven production optimisation. This was enabled on a scaled-up Digital Fields techno-digital solution which has generated more than RM756 million in value since its implementation in 2017.

**Realised RM41 million in cost savings** by implementing a combination of off-the-shelf wells and sand management technologies in drilling operations and **gained approximately 230,000 boe in incremental production** in 2020. Among the technologies piloted were Single Trip Multizone (STMZ), SMART Digital Artificial Lift (DIAL), and Enhanced Single Trip Multizone (ESTMZ) at four fields which were then replicated in other fields in Malaysia.

#### Improving Safety, Productivity and Efficiency

**Achieved 90% reduction in human exposure to onsite data collection activities** and removed the need for facility modification by digitising assets through Internet of Things (IoT) and Edge Analytics (Edge) Technologies.

**Accelerated up to 36 times faster seismic data transfer** (from 12 days to eight hours) by leveraging on global cloud and networking infrastructure.

PETRONAS progressed from being a participant to an implementor with the **Software as a Service (SaaS) Open Subsurface Data Universe (OSDU) exploration and production (E&P) data platform**. This aims to free up 1,000x more E&P data for users, integrating 12 corporate data stores to a single data platform and lowering data management and infrastructure costs by 10 per cent over a two-year period.

**Attained 30% efficiency improvement in Field Development Planning** with step changes in subsurface big data processing and analysis workflows.

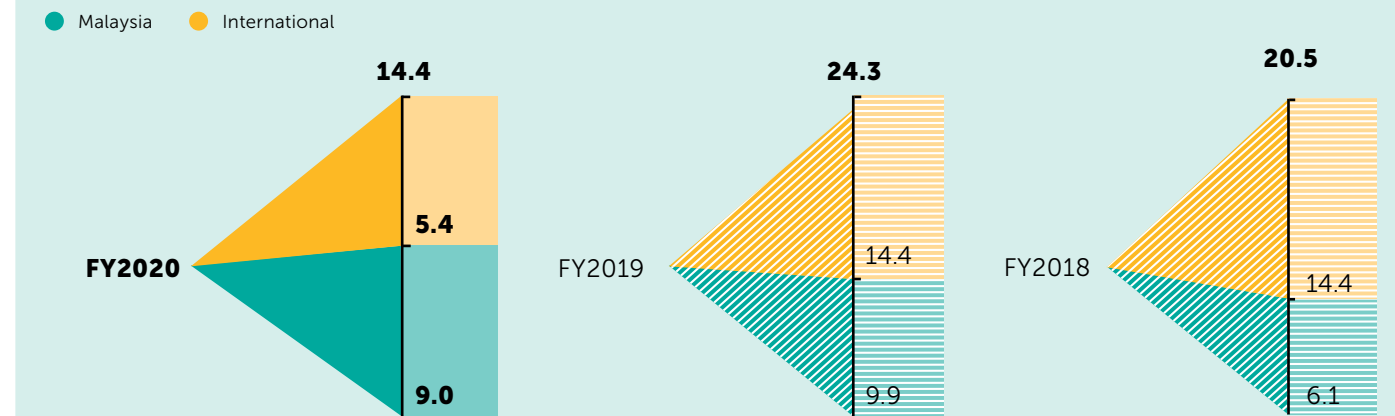
#### Partnerships and Collaboration in Data Liberalisation

As a progressive and innovative regulator, PETRONAS through its regulatory arm, Malaysia Petroleum Management (MPM), introduced new guidelines for its Petroleum Arrangement Contractors (PACs) to utilise cloud computing to accelerate their businesses. Combined with the establishment of advanced data centres in Malaysia by public cloud service providers in 2022, cloud will establish an open and cyber-secure data ecosystem to revitalise the Malaysian E&P landscape.

### Doing More with Less

Upstream CAPEX was lower in 2020 against 2019, mainly due to volatile demand and fluctuating oil prices that affected our cashflow. In 2020, we embarked on an extensive cost optimisation exercise on both CAPEX and OPEX to maintain PETRONAS' resilience and competitiveness. We streamlined projects and activities, focused on prudent and efficient operations, and implemented technology and digital solutions to bring down costs. On the domestic front, we continued to commit to maintain spend to sustain the local oil and gas industry and to spur economic growth in Malaysia amidst the prolonged crisis.

#### CAPEX (RM million)



Note: Graphs are not to scale.



The year 2020 was undoubtedly a year that prompted a great reset across all industries, no less in the oil and gas industry. For the medium to long term, the upstream industry is expected to face an increasingly challenging outlook given the low oil price environment, lacklustre spending, higher costs, finite resources and production gaps as the shift to a low-carbon economy picks up pace. These factors are expected to be compounded by the ongoing COVID-19 pandemic.

Upstream's game plan to address future challenges at pace is to be a safe, resilient, low cost and low carbon E&P business.

Our overall focus will be on being leaner, more efficient and more competitive than before as guided by the Group's Three-Pronged Growth Strategy which is changing the way we do business and the way we work.



**Governance and Disclosure  
(Reserves and Resources)**

PETRONAS' Discovered Reserves and Resources framework, governance and procedures, known as the PETRONAS Reserves and Resources Management System (PRRMS), is closely aligned with globally recognised industry standards that are guided by the Society of Petroleum Engineers' Petroleum Resources Management System (SPE PRMS). The PRRMS governance framework stipulates that PETRONAS' Management can call for a fully independent third-party audit at least once every four years or more often, in the event of any special requirements. Annually, PETRONAS' Reserves and Resources department is also required to perform independent audits on PETRONAS' hydrocarbon portfolio to assess the integrity and robustness of PETRONAS' Reserves and Resources as reported in its Annual Review of Petroleum Resources (ARPR) to be approved by the PETRONAS Executive Leadership Team (ELT).

In 2018 and 2019, PETRONAS appointed Sproule International Ltd (Sproule), a global energy consulting firm, as its independent oil and gas Reserves auditor, based on a competitive bidding process. The last independent third-party audit was conducted in April 2019, and the scope of audit covered by this fully independent third-party audit included PETRONAS' Reserves and Contingent Resources base and the ranges associated with the subsurface uncertainties as per the ARPR of 1 January 2019, as well as the Net Present Value of PETRONAS' total Entitlement of Reserves and Contingent Resources as of the same date. The following is Sproule's audit opinion in respect of PETRONAS' Reserves and Contingent Resources as per the ARPR of 1 January 2019:

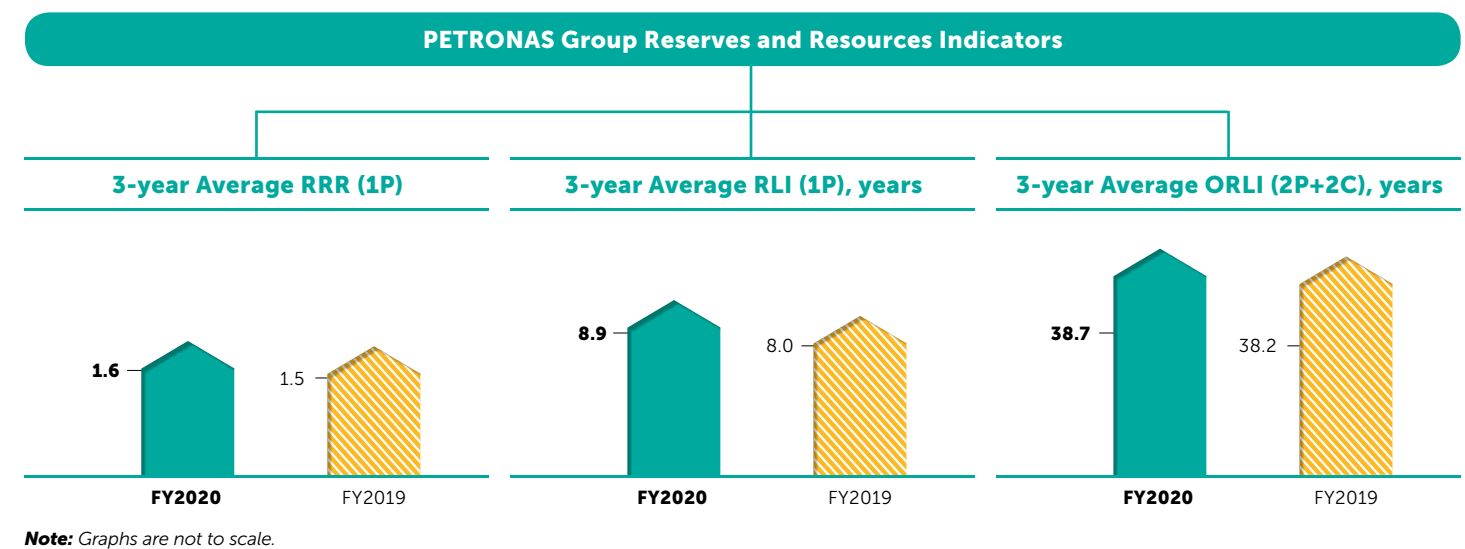
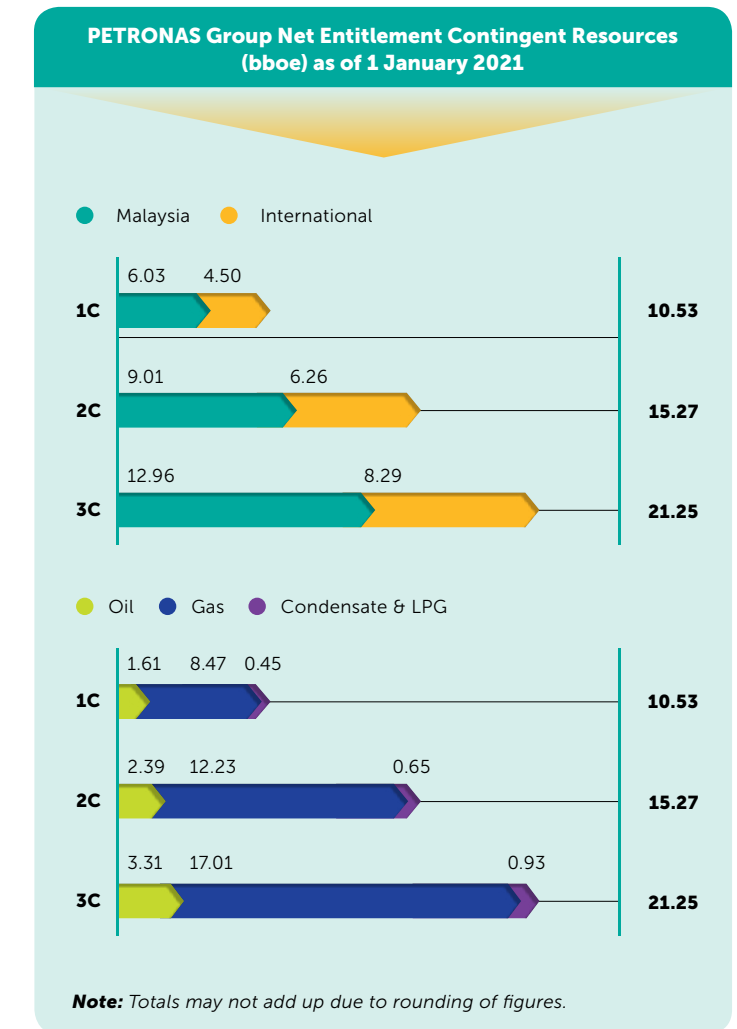
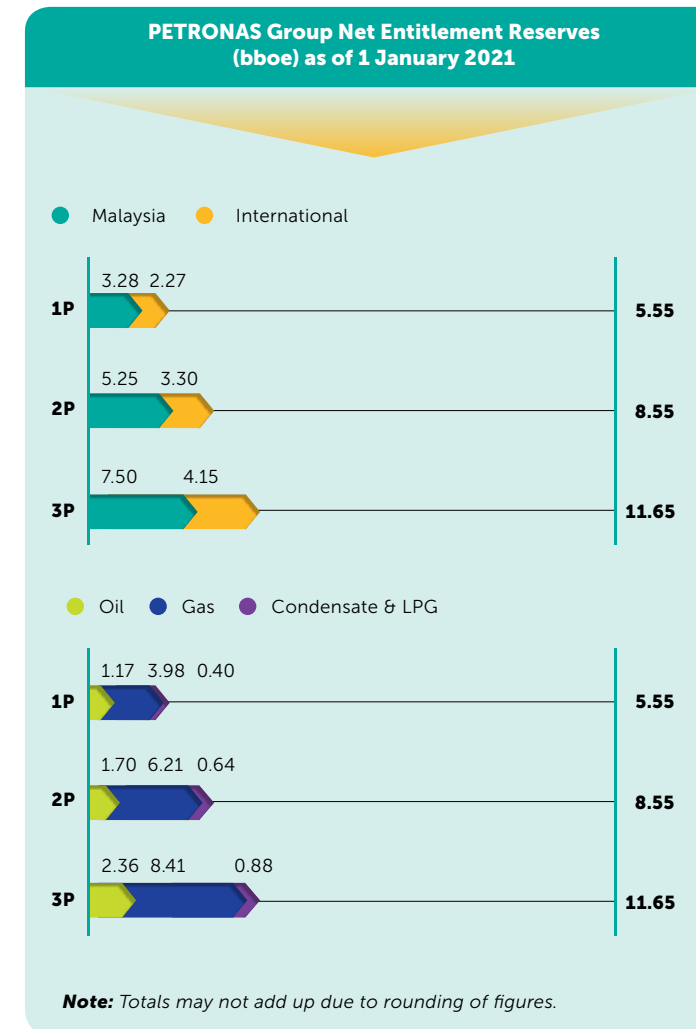
Based on the results of our audit, it is our opinion that PETRONAS' internally generated 1P, 2P and 3P\* crude oil, natural gas and natural gas products Reserves and the related Net Present Value at 8% discount factor (NPV8) (based on Key Planning and Budget Input basis), as well as the 1C, 2C and 3C\*\* crude oil, natural gas and natural gas products Contingent Resources and the related NPV8 value (KPBI basis) are, in aggregate, reasonable, and have been prepared in accordance with generally accepted oil and gas engineering and evaluation practices as set out in the PRRMS.

\* The term 1P is used to denote Proved Reserves; 2P is the sum of Proved and Probable Reserves; and 3P is the sum of Proved, Probable and Possible Reserves.  
\*\* The term 1C denotes low estimate of Contingent Resources; 2C is the best estimate of Contingent Resources; and 3C denotes a high estimate of Contingent Resources.



PETRONAS' estimated volumes came within +/- 0 per cent of Sproule's estimates for 2P and +/- 3 per cent for 2C for the data as at 1 January 2019. These results demonstrate the integrity and robustness of PETRONAS' internally generated Reserves and Contingent Resources estimates.

Although no fully independent third-party Reserves audit was conducted in 2020, PETRONAS believes the same independence, rigour and standards as applied by third-party auditors were upheld by PETRONAS' Reserves and Resources Department in assuring the integrity and robustness of PETRONAS' Reserves and Resources estimates as at 1 January 2020 and 1 January 2021. For example, for the finalisation of the ARPR as at 1 January 2021, a total of 81 fields were audited between March and August 2020 by PETRONAS' Reserves and Resources department, covering approximately 70 per cent of the top NPV fields, and approximately 65 per cent of the 2P and 2C fields. These fields span PETRONAS' operations in 11 countries (including Malaysia) and 44 contracts.







# Gas + New Energy



Despite a challenging year in 2020, G+NE successfully weathered the storm by implementing agile measures to preserve value, optimise production and ensure our contractual obligations with our customers were met. We leveraged PETRONAS' integrated gas value chain to respond to price volatility and market challenges while continuing to expand our market presence. These efforts saw us make good progress by way of securing new natural gas sales and concluding liquefied natural gas (LNG) deals that encompassed contract extensions, new customer segments and expansion into new markets.

Today, as a reliable provider of cleaner energy solutions, G+NE with its expanded portfolio is well positioned to respond to the shifting needs of governments and customers as they move toward their goal of net zero carbon emissions. By tapping our strength as an adaptive organisation, we will endeavour to ensure long-term value creation for PETRONAS via innovative, sustainable and customer-centric solutions in LNG, gas, renewable energy and hydrogen.



**Adnan Zainol Abidin**  
Executive Vice President and Chief Executive Officer,  
Gas + New Energy

In 2020, the LNG market was faced with oversupply and unprecedented low prices due to demand destruction. Against this backdrop, the Gas + New Energy (G+NE) business leveraged PETRONAS' robust integrated gas value chain and adaptive advantage, to switch from a traditional produce-and-sell approach to a demand-led approach to deliver innovative LNG and natural gas solutions. At the same time, we collaborated with our term buyers and provided flexible contractual terms, as well as introduced more accessible, affordable and sustainable cleaner energy solutions to our customers.

G+NE maintained its LNG sales volume at 33.1 million tonnes per annum (mtpa) and achieved an overall Operational Equipment Effectiveness (OEE) rate of 96.8 per cent. We also successfully delivered 11,547 cargoes to date, while our second floating LNG facility, PFLNG DUA, achieved its Ready for Start-Up (RFSU) milestone.

In Malaysia, PETRONAS Gas Berhad (PGB) went on to achieve top quartile performance in both energy index and maintenance costs, as well as sustained world class asset reliability propelled by its four-year strategic roadmap, 301Q99 Pushing Forward, which was launched in 2019 with clear goals to be achieved every year up to year 2022. In 2020, the identified efforts generated a RM97.7 million improvement in PGB's Profit Before Tax (PBT). On the back of these robust financial results, PGB declared total dividends amounting to 127 sen per share for the year (the highest dividend payout in the company's history) which translated into a dividend payout ratio of 125 per cent to its shareholders in 2020.

On the New Energy front and through M+ by PETRONAS, we rolled out rooftop solar solutions for commercial and industrial customers such as Lotuss Stores (previously known as TESCO) and for our own sites. Today, we have over 90-megawatt (MW) solar capacity under development and operation in Malaysia. Internationally, our subsidiary Amplus Energy Solutions (Amplus), has secured projects with over 900 MW of solar capacity under operation and development in India and Dubai.

In November 2020, G+NE established the Hydrogen business and signed a Memorandum of Understanding (MoU) with Sarawak Energy Berhad (SEB) to explore the commercial production of green hydrogen. Our venture into hydrogen builds upon our experience in extracting blue hydrogen from our facilities as well as our experience as a reliable LNG supplier.

The year also saw the energy transition to cleaner and more sustainable energy sources gather greater momentum as governments reaffirmed their commitment to achieving net zero carbon emissions by 2050 (NZCE 2050). In response to this, G+NE continues to strengthen its position as a one-stop-centre for cleaner energy solutions to meet future demand and requirements.





## How We Created Value

### 1 Delivering Operational Excellence

The G+NE business segment, comprising the Liquefied Natural Gas (LNG), Gas & Power (G&P), New Energy and Hydrogen businesses, aims to deliver long-term value creation and profitable growth to PETRONAS and its partners.

#### Providing a Reliable and Competitive Natural Gas Supply

PETRONAS continues to make the case for natural gas as a crucial component of the global energy mix and LNG as a cleaner choice of fuel for our global customers. Natural gas provides clean, secure, reliable and flexible energy to drive the energy transition towards a sustainable future. It is also the ideal complementary fuel for renewable energy sources such as solar.

In Malaysia, PETRONAS supports the liberalisation of the gas market in Malaysia through the Third Party Access (TPA) mechanism governed by Malaysia's Energy Commission. Allowing third parties to access gas facilities in the country will contribute positively towards market-based pricing and a more competitive gas industry. We will also be pursuing growth opportunities leveraging on our integrated industrial park power generation capacity in Malaysia.

In the global LNG space, PETRONAS continues to assure its customers with a reliable supply of cleaner energy by leveraging on our global portfolio of assets and various supply nodes located in Malaysia, Egypt, Australia and, in the future, Canada. The bedrock of our operations, the PETRONAS LNG Complex (PLC) in Bintulu, Sarawak delivered its 11,547<sup>th</sup> LNG cargo in 2020, a testament of PLC's world-class performance and our focus on delivering operational excellence.

#### In Maximising Cash Generators, we:

Worked with the **Malaysia's Energy Commission** during the Movement Control Order (MCO) phase to ensure energy security by maintaining power sector sales gas offtake at a minimum of **600 million standard cubic feet per day (MMscfd)**, while securing new and extended **sales gas volume at 1,123 MMscfd**.

Produced **26.7 million metric tonnes (MMT)** of LNG and achieved gross LNG sales of **33.1 MMT**, to meet our customers energy requirements, despite the challenges posed by the pandemic.

We also accomplished the following in 2020:

Sustained **top quartile performance of our G&P and LNG assets** demonstrating our strength in operational excellence and enabling us to extract more from less in difficult market conditions. This saw us turning in a world-class operational performance on the gas processing, gas transportation, regasification and utilities fronts:

→ The gas processing business achieved an **Operational Equipment Effectiveness or OEE rate of 99.4%, 99.6%, 99.7% and 99.7%** for sales gas, ethane, propane and butane respectively – above the targets set. The business also attained **100% Product Delivery Reliability (PDR)** for sales of gas, propane and butane.

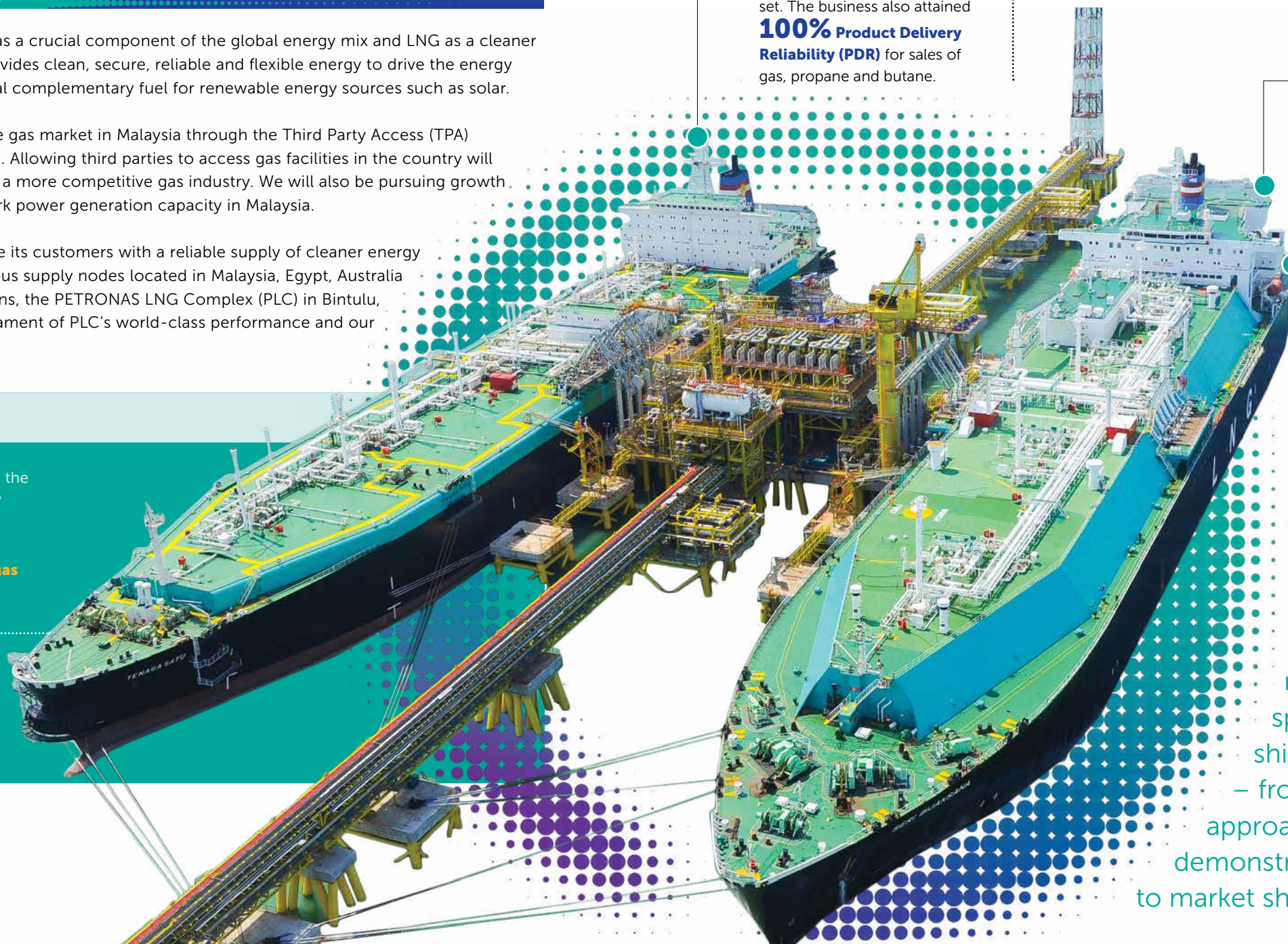
→ Our gas transportation business and utilities plant for steam, electricity and industrial gases as well as LNG regasification terminals achieved **100% reliability** and PDR respectively.

→ Our onshore gas and offshore floating LNG plants in Malaysia achieved an **overall OEE of 96.8%**.

**Facilitated third-party shipper supply** under the TPA for a **7 MMscfd capacity** at the offshore LNG Regasification Terminal Sungai Udang (RGTSU) and the Peninsular Gas Utilisation (PGU) gas pipeline network.

Bolstered shareholders' confidence via PGB's **total dividend payout of 127 sen per share including special dividend of 55 sen per share**, was achieved through the Group's focus on safety, reliability and efficiency of operations, despite the global pandemic.

Strong commercial excellence enabled G+NE to respond well to fundamental and emergent shifts in the market while at the same time maximising value. In the LNG space for example, a significant shift in our mode of operations – from a produce-and-sell approach to demand-led planning – demonstrated our agility in responding to market shifts.





## 2 Innovative, Customer-centric Solutions for Growth

We support the PETRONAS Group in its efforts to expand its existing markets and capture new markets through innovative, end-to-end customer-centric solutions across the cleaner energy value chain.

### From Reliable Supplier to Innovative LNG Solutions Partner

With more than 37 years to our name as a reliable supplier of LNG and some 11,547 LNG cargoes delivered to date from the PETRONAS Integrated LNG Complex in Bintulu, Sarawak (one of the world's largest LNG production facilities in a single location with a total capacity of 29.3 mtpa), we continue to deploy innovative solutions to existing and new markets. The year saw G+NE **Maximising Cash Generators** by securing over 6.5 mtpa of LNG deals through innovative, end-to-end customer-centric solutions that opened up new routes-to-market to serve new customer segments.

In 2020, G+NE went on to deliver the following achievements:



#### PETRONAS Floating LNG SATU and DUA

PETRONAS continues to harness its capabilities in floating LNG (FLNG) technologies to monetise stranded gas fields and further augment Malaysia's resource investment potential. In 2020, PETRONAS became the first global energy company to own and operate two FLNG facilities, following the successful arrival of the PFLNG DUA at the Rotan gas field in Block H, offshore Sabah, where it has achieved its Ready for Start-Up (RFSU) milestone and progressing towards commercial operations. PETRONAS' first FLNG, PFLNG SATU, has delivered 38 cargoes to date since start of production in 2017. These floating facilities provide an environmentally-friendly alternative to conventional onshore plants, which would otherwise require sizeable tracts of land to build and whose longevity depends on the supply of nearby gas reserves.



#### Virtual Pipeline System (VPS)

This first-of-its-kind business solution for Peninsular Malaysia enables LNG to be supplied to small-scale customers and off-grid customers located away from the PGU gas pipeline network via trucks fitted with cryogenic tanks. In 2020, a total of 62 tanks of LNG were delivered via the VPS.



#### LNG Bunkering service via an LNG Bunkering Vessel (LBV)

PETRONAS is one of the first service providers in Southeast Asia to launch the LBV service. The maiden delivery saw LNG from our modified Floating Storage Unit 1 at RGTSU being loaded onto the MV Avenir Advantage, PETRONAS' first LNG bunkering vessel. The vessel then sailed for the ship-to-ship transfer to the SIEM Aristotle in the waters off Pasir Gudang in Johor. This solution underscores the Group's efforts to drive greater use of LNG as a cleaner and economically competitive source of energy in the marine industry as well as support the concerted efforts under the IMO 2020 Regulations to limit sulphur content in marine fuels.



#### LNG export via ISO tank

This customer-centric and pragmatic solution supports and enables greater accessibility to cleaner energy, particularly for remote customers located away from physical LNG pipelines and customers with smaller parcel requirements. Furthermore, the delivery of LNG via ISO tanks can also act as an agile backup solution to address importing terminal restrictions for large vessel deliveries. In 2020, we signed a long-term deal with Tiger Clean Energy Limited (TCEL) for the supply of LNG to TCEL's LNG ISO Tank filling facility at Bintulu for distribution to China.

### Securing New Markets with Novel Solutions

By tapping PETRONAS' strength as an adaptive organisation, we endeavour to ensure long-term value creation and profitable growth for the Group and its partners by providing innovative, end-to-end customer-centric solutions that will help the Group secure new markets covering gas, renewable energy and hydrogen in the near future. The renewable energy developments that took place in the year under review were:

We introduced **Yelo (a last mile logistic provider)** in the B2B segment as a unique offering in the electric vehicle (EV) space in India.

Today, **Amplus is offering risk-free solar solutions to its customers via a service model** where Amplus invests its own capital to set up rooftop solar photovoltaic (PV) plants on customers' premises.

Amplus has also introduced innovative products that suit urban homeowners' needs to render their terrace space useful rather than occupying it with low height solar structures. Under the **HomeScope** brand, Amplus offers **real time and remote monitoring of solar generation and home energy consumption** on a HomeScope app.

### Digitalisation at G+NE



Note: This photo was taken before the pandemic.

In 2020, several measures were taken to strengthen G+NE's digital focus and transformation. These included the following:

Implemented **PGB's Gas Processing Unit (GPU) Technical Centre (GTC)**, a centralised location empowered by digital that provides descriptive, predictive and prescriptive analyses to maximise plant reliability and prevent business interruptions.

Upgraded our signature **Alpha LNG** digital solution to enable demand-led production in order to improve the agility of our value chain amidst a volatile LNG market. To date, some **USD42.4 million** in value has been realised from data-driven planning and optimisation of scheduled deliveries.

Embarked on the digital transformation for our **RGTSU asset** to build a new way of working through step-changes in the terminal's digital operations. This entailed a **Unified Operation Centre, Virtual Asset Walkabout and JIT (Just in Time) Field Responder** which all led to improved operational efficiency.

Improved pipeline and Right-of-Way (ROW) encroachment monitoring through technological and digital means such as **PiriGIS, Drone, CCTV and Parameter Intrusion Detection System (PIDS)**.



### 3 Blazing a Trail on the New Energy Front

In line with PETRONAS' **Stepping-Out** strategy and NZCE 2050 aspiration, G+NE continues to make good progress in the energy transition by diversifying its suite of cleaner energy solutions. In 2020, we fast-forwarded our presence in the renewables and new energy space by making strategic moves into new areas of opportunity. The following are some of the developments that took place and are underway:

#### Bolstering Our End-to-End Solar Solutions Market Position

In Malaysia, PETRONAS is **focusing on rooftop solar solutions** for commercial and industrial customers via M+ by PETRONAS which has over 90 MW capacity under development. In 2020, a **total of 13 out of 15 Lotuss stores** (previously known as TESCO) across Malaysia were fitted with rooftop solar solutions. Upon completion, this initiative will help Lotuss reduce approximately **13,624 tCO<sub>2</sub>e**.

We are also making good progress by way of cleaner energy generation in our own backyard. PETRONAS' assets and facilities including our retail stations, operations sites, as well as the Malaysia Marine and Heavy Engineering Holdings Bhd and Universiti Teknologi PETRONAS sites, are all being fitted with rooftop solar solutions. A **49 MW rooftop and ground mounted solar panel installation** is being planned for PETRONAS Refinery and Petrochemical Corporation (PRPC) and Projek Air Mentah RAPID (PAMER) as part of the PRPC Solar Master Plan located at Pengerang, Johor.

With **close to 1GW of solar capacity** projects under operation and development in India and Dubai, PETRONAS New Energy's wholly-owned distributed energy company, Amplus, continues to reinforce its position as a key regional clean energy provider. **Amplus** is now capable of providing cleaner energy to India's utility sector on top of its commercial, industrial and residential customers. It is also the first solar company in India to trade power online through the **Green Term Ahead Market (GTAM)** for electricity, a move that will spur participation in India's renewable energy sector.

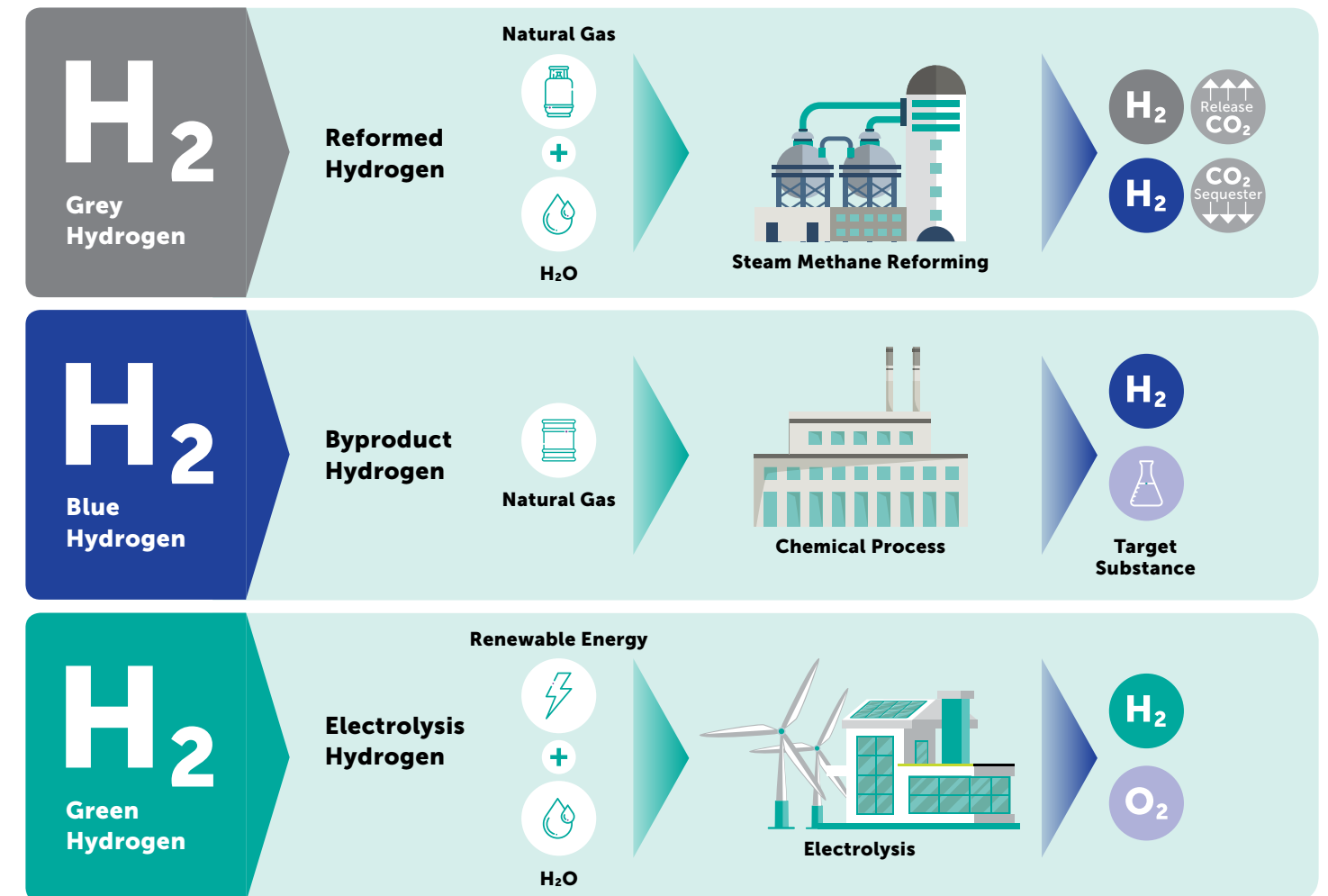
We also encouraged PETRONAS' employees to transition to solar energy to power their homes with competitive solar solutions offered through the employee-exclusive **HomeScope by PETRONAS programme**. This resulted in the registration of a **total capacity of 3.2MW** for installation at the employees' homes in Peninsular Malaysia.



#### Hydrogen Solutions



G+NE rolled out its Hydrogen business through the signing of an MoU with Sarawak Energy Berhad (SEB) in November 2020, to explore the development of competitive green hydrogen production and a value chain to serve emerging markets in Asia. These efforts will supplement the low-carbon hydrogen that PETRONAS is already producing as a co-product at its facilities. PETRONAS has to date been involved in producing grey and blue hydrogen; and will now work with stakeholders to explore the production of green hydrogen.



Hydrogen is a clean and a versatile source of energy that can be used as an energy carrier as fuel for mobility, power and heating, as well as feedstock for industry. Grey hydrogen is produced using fossil fuels like natural gas and coal, which emit CO<sub>2</sub> into the air in the process. Blue Hydrogen is made in a similar manner using carbon capture technologies to prevent CO<sub>2</sub> from being released, enabling the captured carbon to be safely stored deep underground or utilised in industrial processes. Green hydrogen, the cleanest of these three varieties, produces zero carbon emissions. It is produced using electrolysis powered by renewable energy, like offshore wind, to produce a clean and sustainable fuel.





Moving into 2021, G+NE will execute PETRONAS' Three-Pronged Growth Strategy to push our four businesses forward. In line with the Group's Stepping-Out strategy and NZCE 2050 aspiration, G+NE continues to reinforce its position on the energy transition front by making strategic moves into new areas of opportunity in the cleaner energy space.

Having reviewed our business portfolio, G+NE as PETRONAS' one-stop-centre for cleaner energy solutions, is determined that moving forward, it will anchor itself on this winning formula, namely Operational Excellence, Commercial Excellence and Customer-centricity and Sustainability.

G+NE's focus on Operational Excellence will see us leveraging the years of experience we have accumulated, to enable us to ride out the current challenges brought on by the pandemic. Our current assets will continue to prioritise reliability and efficiency, while we will benchmark ourselves against industry leaders to match or surpass their performances. It is through these lenses that we will fulfil our role of maximising value through LNG and domestic gas sales. However, in our pursuit of operational excellence, there will be no compromise on safety, and it will continue to be one of our topmost priorities.

Commercial Excellence and Customer-centricity focuses G+NE's efforts on value-centric opportunities. It covers our existing business segment as well as our new growth engines.



The pace of global economic recovery post pandemic and governments' decarbonisation efforts will greatly influence the short-term and long-term energy supply demand outlooks. Gas + New Energy is well positioned to capitalise on the evolving market dynamics.

In our LNG business, as market leadership comes under pressure, we will be defending our core markets and getting expanding to new ones. To do so, our LNG marketing efforts and touch points with customers will be increased to truly provide innovative customer-centric solutions such as our VPS, LBVs and ISO tank solutions. This will enable us to capture opportunities in this period of low demand and amidst the global supply glut.

The Gas & Power (G&P) is also expected to continue facing a growingly competitive domestic market. While routes to increase sales are being explored including scaling up sales via VPS and LNG bunkering, we are also looking into

more fundamental shifts for the G&P business to realise its growth plans. In Malaysia, PETRONAS remains committed to support the gas market liberalisation and is working closely with the government to shape the future of gas demand through energy policy developments such as the National Energy Policy and Natural Gas Roadmap.

New Energy and Hydrogen, will serve as the new growth engines for G+NE. New Energy continues to gain momentum in both the domestic and international markets and is currently on track with its growth trajectory that is set to hit 3 gigawatts (GW) in 2024. This will be achieved through partnerships and acquisitions on top of building New Energy's capacities organically. With the increased push towards a green and sustainable energy, growth in this sector is expected to be substantial although competition is expected to intensify. Our focus markets in India, Malaysia and Asia Pacific offer sizeable opportunities and we hope to capture significant capacity from these markets. New Energy is expected to grow considerably in our portfolio to capture new value pools as well as contribute to our reduced emissions target.

For the Hydrogen business, we continue to set in place the building blocks to drive the business with the immediate target of exporting hydrogen from our existing facilities. Through partnerships, we are also making our move to become a competitive green hydrogen producer. The MoU with SEB to explore the commercial production of green hydrogen bodes well in supplementing the ongoing low carbon hydrogen production efforts. Additionally, pursuing low carbon solutions through renewables and hydrogen, lend support to our Sustainability Agenda as well as contribute to PETRONAS' NZCE 2050 aspiration.





# 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 11<sup>th</sup> consecutive year. In addition, Engen Petroleum was voted as South Africa's Coolest Petrol Station brand for the 11<sup>th</sup> consecutive year, as well as the favourite petrol station brand for the 10<sup>th</sup> 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.

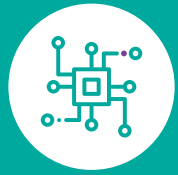
**Our next step is to move towards a portfolio beyond traditional oil and gas and into the broader energy solutions market.**

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.





# Project Delivery and Technology



Serving as PETRONAS' Centre of Excellence, Project Delivery and Technology (PD&T) is mandated with servicing, safeguarding and shaping PETRONAS' business portfolio across the value chain with its distinctive research and technical expertise, innovative solutions, as well as robust systems and processes.

Amidst 2020's disruption that delayed projects and prevented targets from being met, PD&T took extraordinary measures to safeguard the PETRONAS value chain. From containing project costs and safeguarding investments, to optimising emerging technologies and tapping innovation to accelerate projects, we were able to successfully swing things around for the Group's businesses. Moving forward, we will look to PD&T's mantra of "Technology as a differentiator; Digital as an accelerator; and Data as an asset" to guide us in our efforts to bring a semblance of normality back to an otherwise highly disrupted playing field.



**Samsudin Miskon**  
Senior Vice President,  
Project Delivery and Technology



The year's twin shocks saw PD&T facing an uphill task as all areas of project delivery, technology and technical solutions were affected. This in turn hindered projects and prevented sanctioned targets from being met. The period March-October 2020 was the most harrowing, with some projects registering 30 to 90 days of zero productivity. Moreover, there were supply chain interruptions for equipment and materials from pandemic-impacted nations; delays in procurement activities; restrictions in critical staff movements; and a lack of access to manufacturing facilities. These resulted in project cost overruns with contractors requiring Extensions of Time and activating the force majeure clauses in contracts.

Amidst this backdrop, PD&T took extraordinary measures to contain project costs, safeguard investments and optimise emerging technologies to safeguard the value chain. To protect value, PD&T and the businesses took swift and decisive steps to rationalise capital expenditure (CAPEX) to free up cash flow. We also secured alternative supply sources from non-affected countries and Original Equipment Manufacturers (OEMs), while technology was leveraged as a differentiator to ensure projects that are critical to PETRONAS' future growth such as our Facilities of the Future (FOF) programme, our Remote Autonomous Operations (RAO), and the commercialisation of Hydrogen, maintained their momentum.

We strengthened the resiliency of operations by tapping digital tools including predictive and prescriptive analytics as accelerators. This helped maximise operational uptime and cost compression across the Group's operations. Utilising data as an asset, we leveraged tech-digital solutions to proactively monitor the well-being of our people across diverse locations and environments. PD&T's efforts generated RM2.9 billion in cost savings across the PETRONAS Group. This included the on-track deployment of the Kasawari Integrated Offshore High Contaminant Project, which recorded 1 million safe man-hours on the back of stringent SOPs and zero COVID-19 cases.



## How We Created Value

### 1 Delivering World Class Projects

Since PD&T's inception in 2016, we have tripled the value for the PETRONAS Group by delivering Top Quartile projects at a fraction of cost and time. Our achievements to date include the construction of the novel PETRONAS Floating Liquefied Natural Gas (LNG) vessels, the PFLNG SATU; the world's first and PFLNG DUA.

Amid the year's supply disruptions, we successfully rolled out several key projects to keep the Group on track to deliver on its net zero carbon emissions by 2050 (NZCE 2050) aspiration. These projects also helped to deliver more value to the Group on the cost reduction and operational efficiency fronts.

#### Methane Watch

Successfully quantified the total methane emissions from Malaysia LNG Sdn Bhd and PETRONAS Gas Bhd (PGB)'s operations as part of effective methane management practices. This is a significant step towards achieving our NZCE 2050 aspiration.

#### Plant Reliability Extension

Extended the run length of the Propane Dehydrogenation (PDH) plant at PETRONAS Chemicals MTBE Sdn Bhd in Gebeng, Kuantan in Pahang. Tapping the Hybrid Dynamic Process Advisor or HDA methodology (a hybrid digital solution combining data analytics with engineering-first principles), the plant achieved an extended run length of 830 days and 100 per cent reliability. This has ensured the supply of 301 kmta to customers, thus surpassing 2019's production capacity.

#### Drone Delivery

Instead of depending on the availability of supply vessels, drones are now used for inter-platform delivery at the Bekok Field, offshore Terengganu.

#### Kasawari Integrated Offshore High Contaminant Project

The offshore installations works for Southeast Asia's biggest and heaviest platform in Sarawak is on track. The project achieved 1 million safe man hours by stringently adhering to SOPs and ensuring zero COVID-19 cases.

#### PETRONAS New Leadership Campus (PNLC)

The PNLC is the first construction project in Southeast Asia to receive ISO 19650:2-2018 certification, meeting world class standards of project execution. The project is also the first to leverage both Building Information Modelling (BIM) and Common Data Environment (CDE) technologies simultaneously and is on target to attain Green Building Index (GBI) Platinum status.

*Note: This photo was taken before the pandemic.*

### 2 Technology-Driven Operational Excellence

PD&T's aim is to innovate with pace and enable a tech-digital transformation in line with PETRONAS' Industry Revolution (IR) 6.0 ambition. In 2020, several initiatives were rolled out:



#### ADaPT

The Advanced Diagnostic and Prognostics (ADaPT) technology provides early warning and intervention to prevent creep failure. By tapping ADaPT, we have achieved production gains of 7 per cent and avoided unplanned shutdowns.



*Note: This photo was taken before the pandemic.*

#### PIVOT

The PETRONAS Integrated Vision for Operation Excellence Technology (PIVOT) tool is a descriptive and predictive analytics tool that helps address business pain points and improves efficiency. Use of the PIVOT PETRONAS Machine Monitoring and Prescriptive Diagnostic (P-MMPD) at PETRONAS Chemicals Fertiliser Kedah Sdn Bhd and PGB has helped improve machinery reliability via early detection of mechanical failure.



#### I-PIMS

By leveraging the Integrated Pipeline Integrating Management System (I-PIMS), we have seen improvements of up to 67 per cent in Process Cycle Efficiency (PCE) and achieved cost savings of RM50 million.



#### Robotics (ANYmal and BIKE)

By tapping these robotic technologies to enable remote and autonomous operations, we are minimising HSE issues and improving efficiencies as there is less human intervention.



### 3 Focused On Progress

#### Facilities of the Future (FOF) Programme

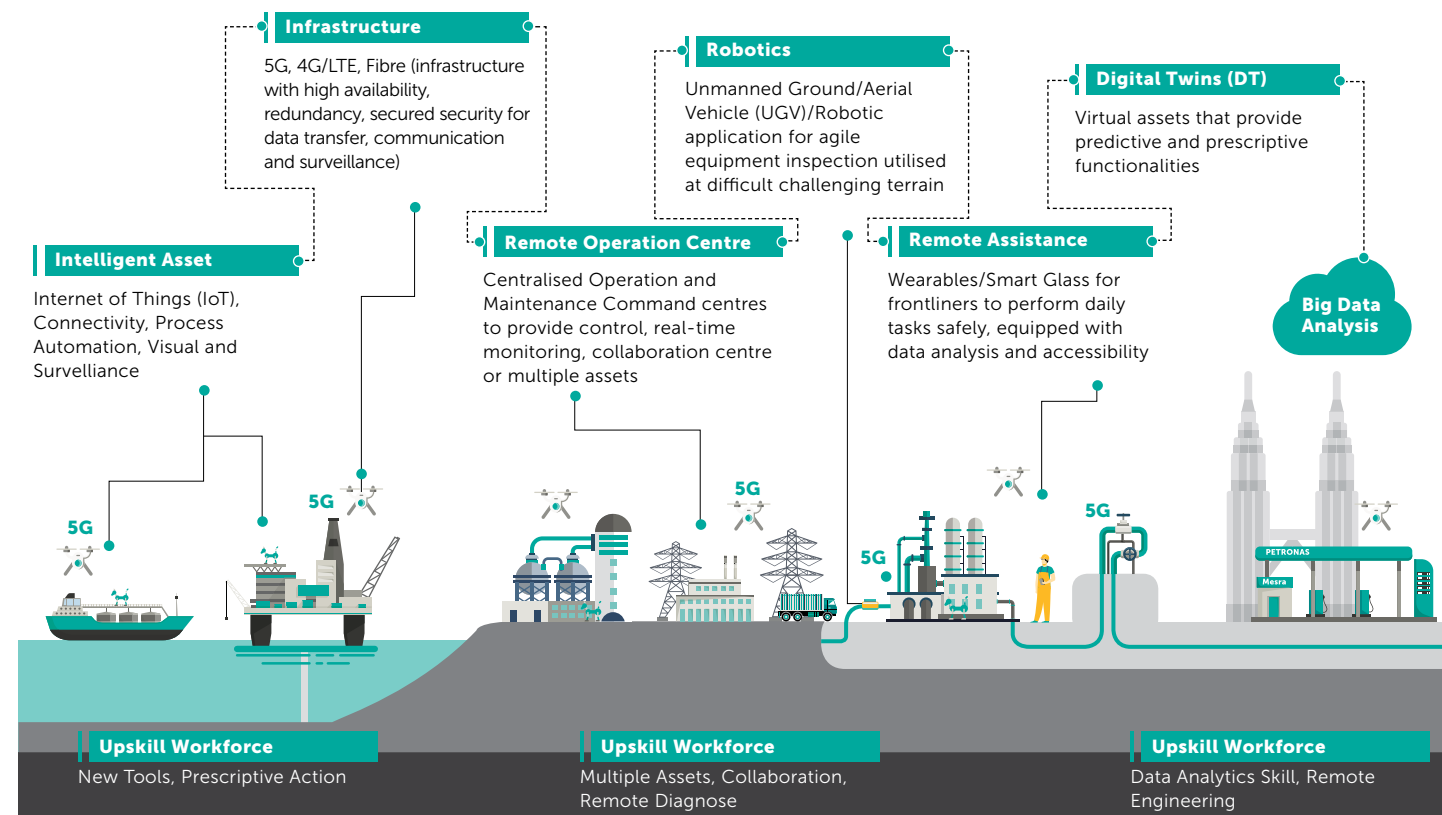
As part of our efforts to reduce our carbon footprint, increase safety on our offshore platforms and reduce operational expenditure (OPEX) by up to 50 per cent, we are leveraging the FOF programme. It is part of the paradigm shift that PETRONAS is aggressively pushing by making the most of Remote Autonomous Operation (RAO) technologies. Under the RAO approach, there will be zero exposure to any sort of hazardous risk and faster response time as there is no requirement to travel and be physically present at site.

As we move into the new norm, members under the purview of the International Association of Oil & Gas Producers (IOGP) have embarked on a long-term sustainability effort of operating oil and gas facilities remotely. This is to standardise and ensure industrial acceptance of a safe and reliable remote operation of Normally Unattended Facilities (NUF). In addition, a remotely operated facility also reduces carbon emissions as there would be less need for marine vessels to mobilise crew visits. PETRONAS sees this as an important and critical milestone that is safer and more cost effective. As such, PETRONAS has positioned itself to play a critical role in supporting the NUF task force and the Joint Industrial Practices of IOGP.

The remote capability and autonomous operation functions augmented by technologies such as digital twins do not just accord us a safe working environment, they also help to improve the availability and predictability of our assets.

This will result in a more reliable, sustainable plant operations and a significant reduction in our operating costs. The groundwork needed to accomplish this includes enhancing the readiness of our infrastructure such as our information technology/operational technology (IT/OT) system; ensuring reliable and robust connectivity; implementing process automation, cloud-enabled solutions, remote assistance, robotics, software and applications; and more importantly, strengthening our safety shutdown philosophy and the overall functional safety system.

Our pilot RAO project, the platform at the Resak field offshore Terengganu, is progressing well and has the potential to achieve a 30 per cent reduction in OPEX.



#### Advanced Connectivity

Advanced connectivity for exploration and production (E&P) activities can yield higher value for an industry pressured by price and demand plunges. To fully harness the power of ROA, we are incorporating fifth generation (5G) infrastructure and networks into our operations. In 2020, we carried out the following activities that moved us closer towards our 5G ambitions:

Conducted the **PETRONAS 5G Demonstration Project and Test Bed** exercise at Institut Teknologi Petroleum PETRONAS (INSTEP), Kuala Terengganu, affirming **5G's low latency (less than 50 ms) and high upload bandwidth (more than 130 Mbps) capability** for remote operations.

**Collaborated with the Malaysian Communications and Multimedia Commission (MCMC)** to prepare for the rollout of a 5G Campus Network.

**Equipped the Resak platform offshore Kerteh** with 5G capabilities as Malaysia's first platform to be remotely controlled from land.

#### Advanced Materials

At the Angsi Field offshore Terengganu, we piloted the attachment of grafted bentonite to rock pore surfaces at oil wells which has successfully reduced water production and enhanced oil gain.

#### Advanced Bio-Fuel and Hydrogen Production

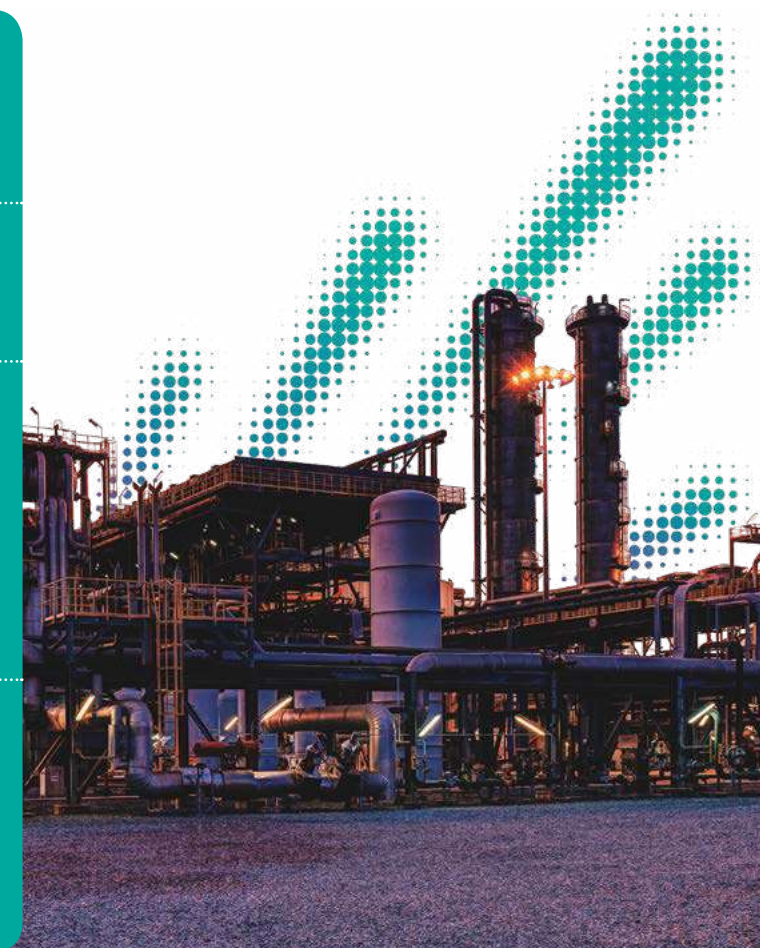
While remote operations will help reduce carbon emissions in our operations, we also see much potential in converting contaminants such as CO<sub>2</sub> and biomass feedstock into high-value products. To date we are exploring the following initiatives:

**By leveraging CO<sub>2</sub> separation technology** such as the one deployed at the Kasawari Integrated Offshore High Contaminant Project, **we aim to convert CO<sub>2</sub> into fuel for land transportation.**

Our ultimate **aim is to produce green hydrogen where we produce plant-based aviation fuel. In the process, water becomes energy and the energy consumed is also emitted as water vapour.**

Today, **PETRONAS' Hydrogen business** is accelerating forward in its efforts to achieve competitive costs in production. We have **built our green hydrogen production testing facility, complete with an advanced electrolyser that we developed to enable efficient and cost-effective green hydrogen production.** The system is designed to **deliver about 50 kg of clean hydrogen** per day. Combined with competitive clean electric, hydrogen will be the new source of fuel in the future.

**Bio-Agenda, a strong sense of appreciation for resources has led to projects on biomass to chemicals, bio-based specialty surfactants, and plant-based aviation fuel from crude algae oil.** Efforts to enrich lives sustainably continue with fuels and lubricants research (novel additive for fuels, ionic liquid and graphene studied for future mobility), as well as thermal management fluids for energy storage, among others.



For more details on Green Hydrogen production and our collaboration with Sarawak Energy Berhad, please refer to page 89 of the G+NE section.



Specialty Chemicals



**APG Sultaine  
(extra mild biodegradable novel specialty surfactant)**

The APG nonionic is further upgraded to amphoteric surfactant. Amination and sulfonation of nonionic APG yield the PETRONAS in-house novel specialty surfactant, APG Sultaine.

**Emollient  
(a sustainable platform for the production of Bio-based polyol esters)**

Polyol esters are versatile chemical building blocks for numerous commercial applications, ranging from lubricants to personal care. PETRONAS develops a unique synthesis method using fatty acids derived from palm oil to produce various grades of polyol esters emollient.

**Bio-MEG : Bio-based Monoethylene Glycol (from biomass waste to feedstock of bioplastics)**

PETRONAS' proprietary one-pot process converts empty fruit bunch (EFB) waste from the palm oil industry into bio-based monoethylene glycol (Bio-MEG).

This patented technology not only marks lower carbon dioxide emission, it also produces a more environmental-friendly consumer products.



PD&T's role has become even more crucial in the face of unprecedented challenges as PETRONAS steps out to pursue new areas of opportunity beyond oil and gas, as well as meet its NZCE 2050 aspiration. As PD&T ventures forth, we will be guided by PETRONAS' Three-Pronged Growth Strategy to build the engines that will drive groupwide growth and maximise the value produced by the Upstream, Downstream, and Gas + New Energy business segments.

Moving forward into a highly disrupted playing field, PD&T will aim to bring some semblance of normality to the equation by pursuing its mantra. This will see us working to unlock opportunities with greater value for PETRONAS in the new normal by tapping technology as a differentiator. We will also look to strengthening the digital landscape and ensure stable and efficient operations throughout the Group by leveraging on digital as an accelerator. Last but not least, PD&T will work to harness data as an asset to deliver value via tech-digital products and solutions. In all this, PD&T will set in place the guardrails and measures to ensure that the Group continues to operate its total business value chain as optimally, and as safely and efficiently as possible.

PETRONAS leverages technology and digitalisation in our strategy to meet the Sustainability Agenda. Pivoting on "Technology as a Differentiator, Digital as an Accelerator and Data as an Asset", we capture and optimise value from source to market in fulfilling our role as the custodian of the country's energy resources, to power the nation and beyond.

We believe only by putting sustainability at the core of everything we do, will we be able to safeguard people, planet and profits for generations to come. Our stewardship of tech-digital transformation is aimed at bringing forth a sustainable future.

By achieving "do more with less" through our tech-digital transformation, we are minimising our carbon footprint and HSE risks to meet the target of capping Greenhouse Gas (GHG) emissions by 49.5 million tCO<sub>2</sub>e by 2024, as well as the phased targets up to NZCE 2050.

Our push to achieve "best-in-class" through tech-digital innovations in all that we undertake amid an accelerated energy transition, is anchored upon the four PETRONAS Sustainability Lenses of Continued Value Creation, Safeguard the Environment, Positive Social Impact and Responsible Governance. This all-round approach enabled by the "Innovate Now" culture that the PETRONAS leadership emphasises, empowers us to not only deliver optimised value to our customers, but also enrich their lives, as well as that of communities, industries and nations.

To date, we have created value through our tech-digital efforts and will continue to unlock opportunities and future-proof the Group's businesses through cost optimisation and efficiency, building new competitive areas, and the push for a sustainable future. We remain committed to supporting the Group in its efforts to re-shape its assets and operations by embedding technology and digital to bring down operational costs. In all that we do, we will maintain a laser-focus ensuring a sustainable future for all of PETRONAS' businesses.



# Moving Forward with **Conscience**

## Creating Sustainable Value

Our progress  
to date on the  
sustainability front.

Five-Year Sustainability Key Performance Data	112
Safeguard the Environment	116
Positive Social Impact	136



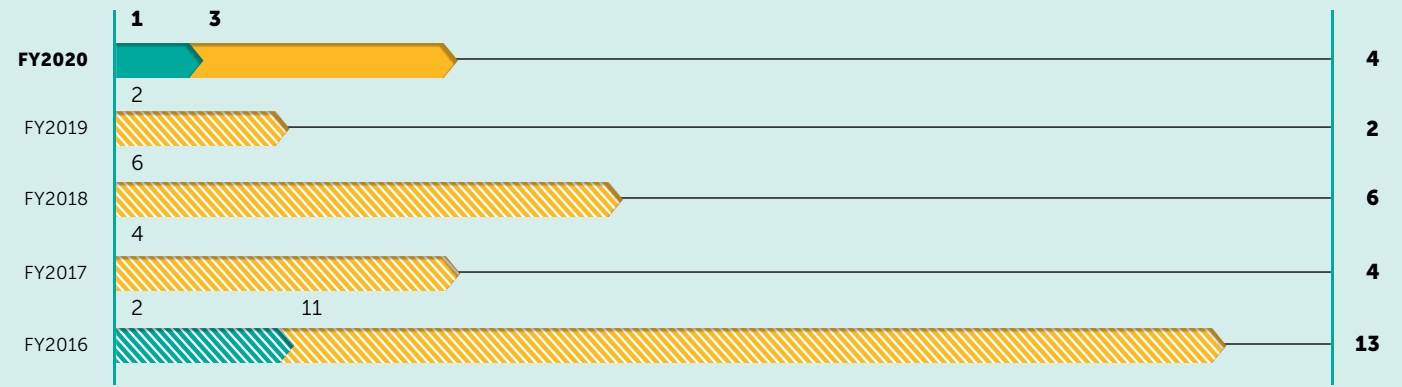


## Five-Year Sustainability Key Performance Data

### Safety

#### Number of Fatalities

● Employees ● Contractors



**Note:**  
The non-financial data in this section does not include data from equity interest fields/projects, such as joint ventures, where we do not have operational control.

Key Performance Indicators	2016	2017	2018	2019	2020
<b>Fatal Accident Rate (FAR)</b> Reportable fatalities per 100 million man-hours	3.53	0.93	1.29	0.56	<b>1.47</b>
<b>Lost Time Injury Frequency (LTIF)</b> Number of cases per 1 million man-hours	0.26	0.17	0.09	0.11	<b>0.10</b>
<b>Total Reportable Case Frequency (TRCF)</b> Number of cases per 1 million man-hours	0.57	0.53	0.38	0.35	<b>0.30</b>
<b>Number of Tier 1 Process Safety Events</b> Number of cases	12	12	9	7	<b>7</b>
<b>Total Recordable Occupational Illness Frequency (TROIF)</b> Illness per million working hours - employees	0.32	0.08	0.22	0.08	<b>0.16</b>

**Note:**  
The updated Number of Tier 1 Process Safety Events for 2018 is due to internal assurance and data verification.

### Environment

#### Total Greenhouse Gas (GHG) Emissions

(millions tCO<sub>2</sub>e)

● Malaysia Operations ● International Operations



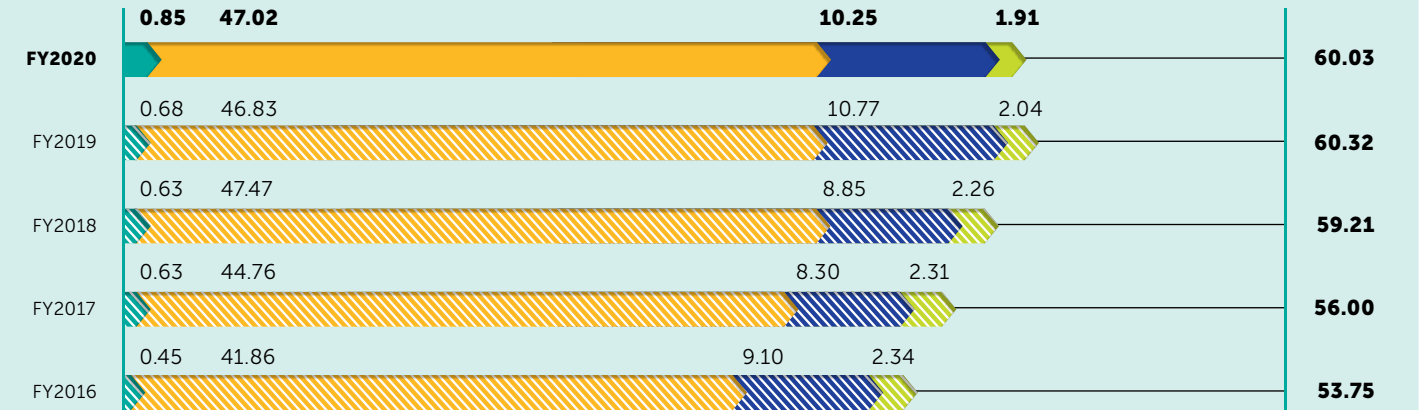
**Notes:**  
1. Updated 2016-2019 data as a result of internal and external verification.  
2. For international operations, data for Vietnam is only available for 2016.  
\* PETRONAS Refinery and Petrochemical Corporation (PRPC) Utilities and Facilities (UF) was operationalised in 2017. The GHG accounting system that has been established was internally verified in 2020 which amounted to 2.59 million tCO<sub>2</sub>e for the year 2020. GHG emissions from PRPC UF will be included in subsequent disclosures.

## Five-Year Sustainability Key Performance Data

#### Total Freshwater Withdrawal

(million cubic metres per year)

● Upstream ● Downstream ● G+NE\* ● MISC and others\*\*



**Notes:**  
\* This newly established business unit (then) was fully operationalised in 2019.  
\*\* Selected non-oil and gas related operations i.e. PETRONAS Leadership Centre (PLC), KLCC Holdings.

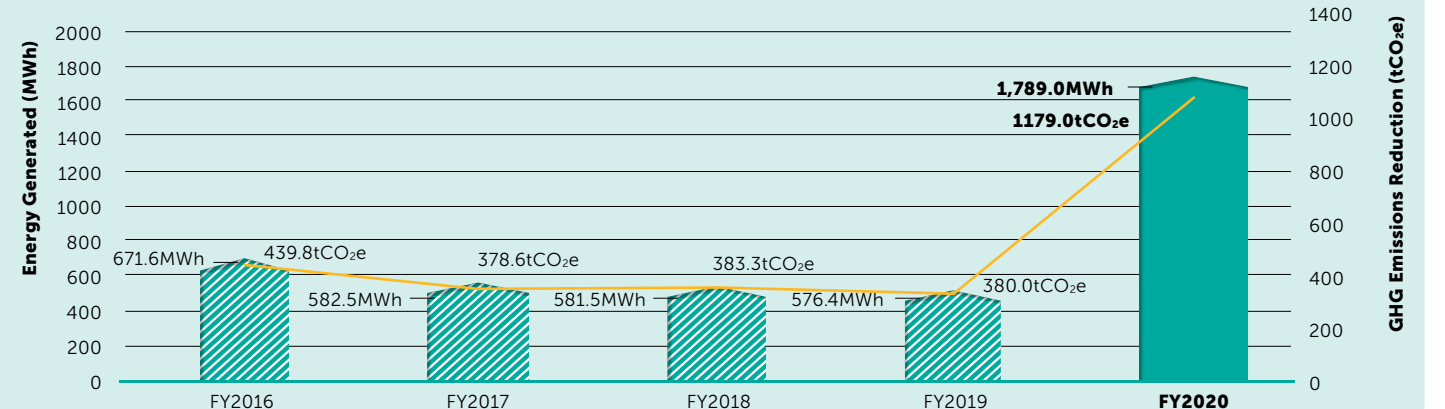
Key Performance Indicators	2016	2017	2018	2019	2020
<b>Discharges to Water</b> (metric tonnes of hydrocarbon)	534	591	715	648	<b>532</b>
<b>Number of Hydrocarbons Spills into the Environment over One Barrel*</b> Number of cases	27	18	7	7	<b>5</b>
<b>Total Sulphur Oxides Emissions</b> (metric tonnes)	72,134	87,917	113,256	110,214	<b>84,225</b>
<b>Total Nitrogen Oxides Emissions</b> (metric tonnes)	168,954	159,498	151,519	148,446	<b>116,427</b>
<b>Total Hazardous Waste Disposed</b> (metric tonnes)	32,355	19,755	34,688	42,121	<b>31,338</b>

**Note:**  
The updated Total Freshwater Withdrawal, Discharges to Water, Total Sulphur Oxides Emissions, Total Nitrogen Oxides Emissions and Total Hazardous Waste Disposed for 2019 are due to internal data validation.  
\* One barrel is equivalent to 159 litres.

#### Solar PV Generation Reducing Scope 2 GHG Emissions

(Malaysia)

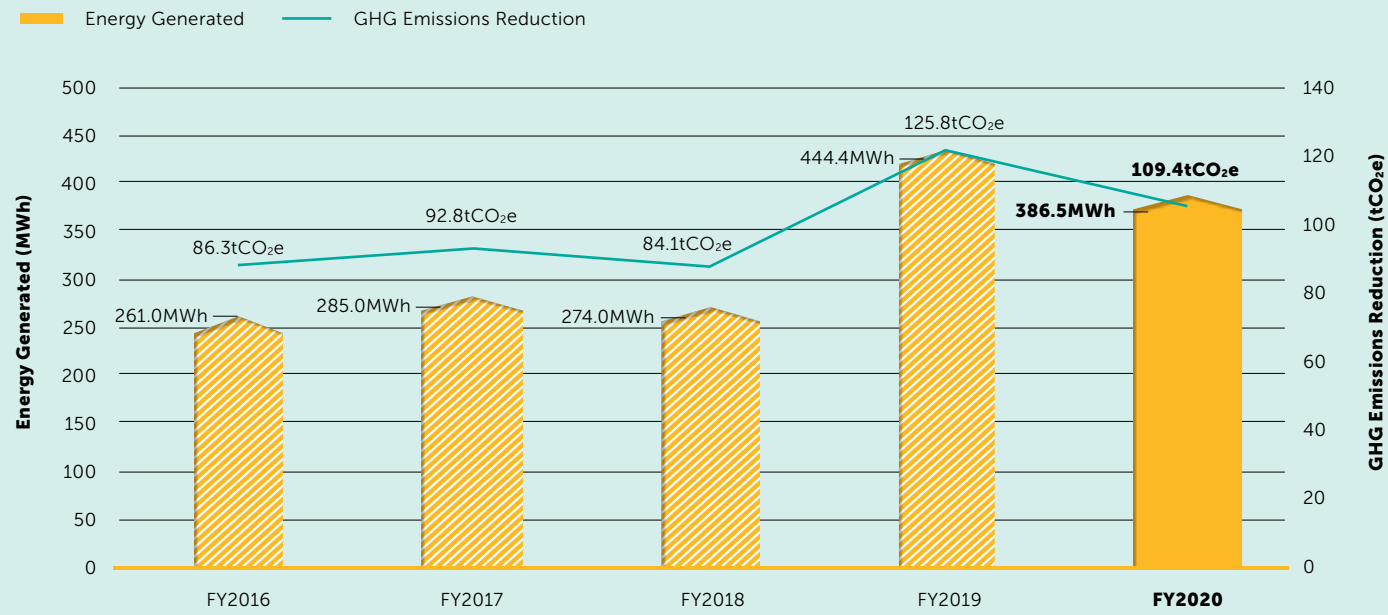
■ Energy Generated ■ GHG Emissions Reduction





Five-Year Sustainability Key Performance Data

Solar PV Generation Reducing Scope 2 GHG Emissions  
(International)



GHG Intensity

Key Performance Indicators	2016	2017	2018	2019	2020
<b>GHG Intensity for Upstream</b> (tCO <sub>2</sub> e/kboe)	63.0	69.0	55.6	51.5	<b>51.0</b>
<b>GHG Intensity for Refineries</b> (tCO <sub>2</sub> e/bbl)	0.018	0.017	0.018	0.018	<b>0.019</b>
<b>GHG Intensity for Petrochemicals</b> (tCO <sub>2</sub> e/tonnes)	0.78	0.88	0.87	0.83	<b>0.80</b>

Notes:

- 2016-2020 data may be subject to changes as a result of ongoing internal and external verification.
- For international operations, data for Vietnam is only available for 2016.

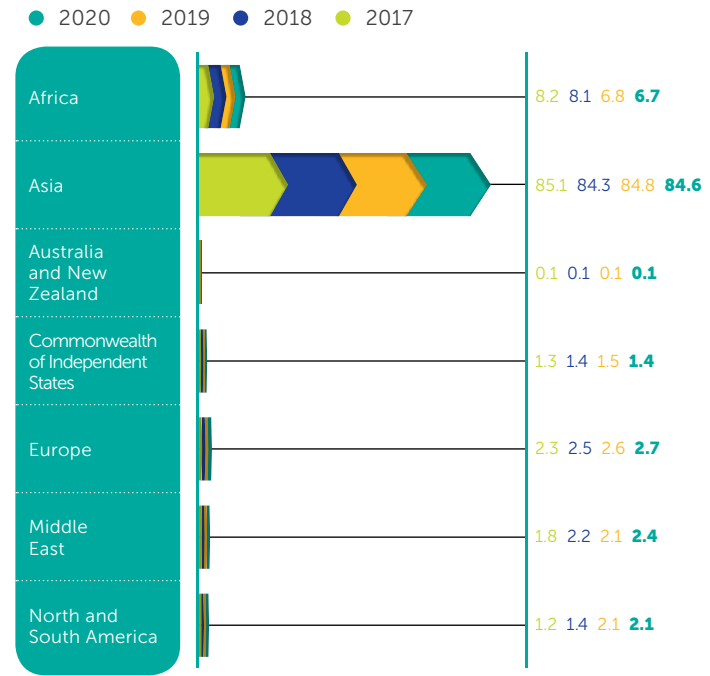
Workforce

Total Number of Employees

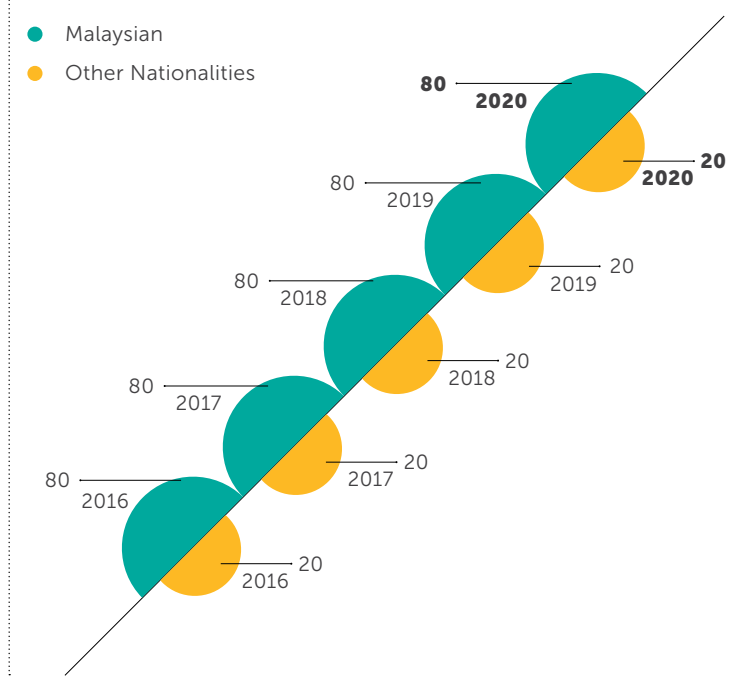


Five-Year Sustainability Key Performance Data

Breakdown of Employees by Region (%)



Breakdown of Employees by Nationality (%)



	2016	2017	2018	2019	2020
<b>Employment Type (%)</b>					
Permanent	83	85	85	88	<b>86</b>
Contract	15	15	15	12	<b>14</b>
<b>Gender Distribution (%)</b>					
Male	72	72	73	73	<b>72</b>
Female	28	28	27	27	<b>28</b>
<b>Number of Groupwide Technical Expertise</b>					
Technical Authorities (TA)	325	499	577	340	<b>501</b>
Technical Professionals (TP)	815	860	941	1,028	<b>1,173</b>
Technical Trade Specialists (TTS)	198	206	225	240	<b>259</b>
<b>Employees above and below the age of 35 (%)</b>					
Above 35	46	46	49	52	<b>53</b>
Below 35	54	54	51	48	<b>47</b>
<b>Total Number of New Hires (Core Businesses in Malaysia)</b>					
Malaysian	2,932	2,409	2,512	3,498	<b>2,160</b>
Other Nationals	2,667	1,982	2,098	2,989	<b>2,003</b>
<b>Women in Technical Positions (%)</b>	12	14	13	14	<b>14</b>
<b>Attrition Rate (%)</b>					
Male	7.3	5.8	6.5	5.5	<b>4.9</b>
Female	7.1	5.4	6.2	3.7	<b>3.6</b>
Female	8.0	6.8	7.3	1.8	<b>1.3</b>
<b>Number of Unionised Employees</b>	8,616	8,796	9,949	8,420	<b>8,476</b>
<b>Number of PETRONAS Scholars Recruited</b>	365	337	262	206	<b>219</b>
Recruited by PETRONAS (%)	50	48	63	67	<b>61</b>
Recruited by Others (%)	50	52	37	33	<b>39</b>
<b>Number of Scholarships Awarded to Malaysians</b>	375	387	329	399	<b>370</b>
International Universities (%)	38	45	49	46	<b>25</b>
Malaysian Universities (%)	62	55	51	54	<b>75</b>
<b>Number of Sponsored Non-Malaysians</b>					
Universiti Teknologi PETRONAS (UTP), Malaysia	147	118	88	78	<b>42</b>



## Safeguard the Environment



**Lens 2**  
**Safeguard the Environment**



**PETRONAS strives to collaboratively reduce environmental impact by transitioning to lower carbon energy solutions and deploying innovative operations and technologies.**



We are committed to upholding PETRONAS' Sustainability Agenda by balancing out our economic ambitions with social and environmental considerations. On the environmental front, we endeavour to safeguard the environment in a sustainable manner by being mindful of our actions and recognising the impact of our operations at every stage of the value creation cycle. Our focus is on mitigating the negative impact that our operations may have on society and the environment. At times, this may mean going beyond compliance with existing environmental legislation.

Our efforts include continuous emissions monitoring for selected equipment, spill prevention, greenhouse gas (GHG) emissions reduction, Best Practicable Environmental Option (BPEO) for decommissioning, and sustainable waste management. While these efforts are implemented in compliance with existing standards and regulations, the Group also undertakes self-regulation

that goes beyond compliance with environmental laws. We achieve this by setting in place and adhering to internal standards, fortified by continuous assurance activities to manage our emissions, wastewater, hazardous waste and use of natural resources.

Apart from that, we also leverage advanced technology to harness precise data to continually improve operational efficiency. While we work to fortify our core operations in a responsible manner, we continue to explore opportunities in the renewable energy space and tap new technologies that will help us move closer towards a lower-carbon energy future. We have also announced our long-term aspiration of achieving net zero carbon emissions by 2050 (NZCE 2050), which aims to accelerate our progress as we move towards a low carbon economy.

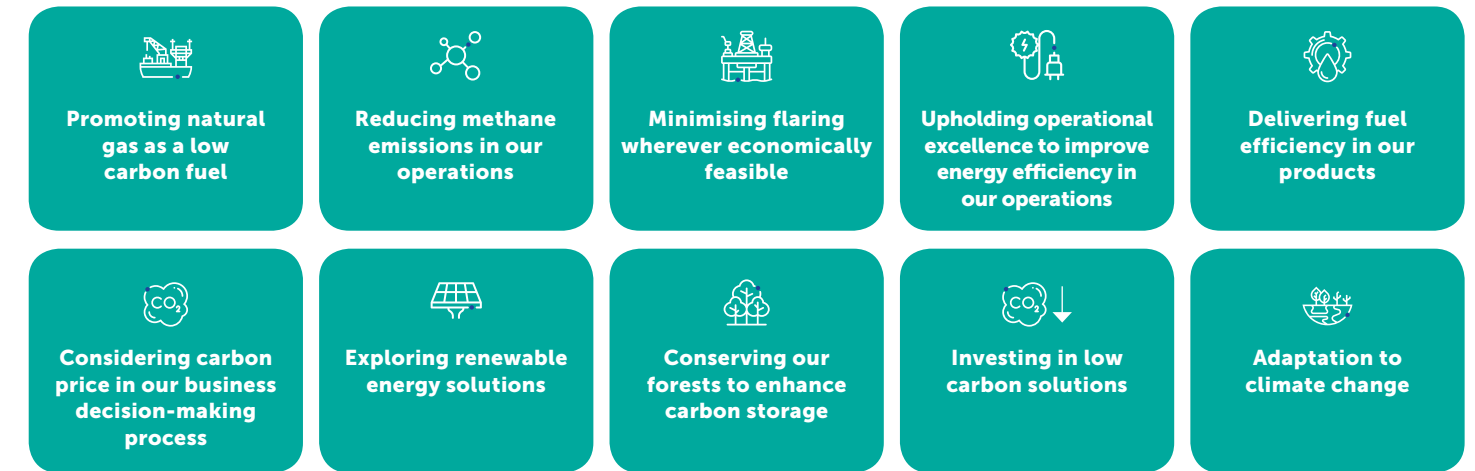
For more details of PETRONAS' NZCE 2050 aspiration, go to the Sustainability Agenda section on pages 11 to 13 of this Report.

**Note:** This photo was taken before the pandemic.

## Safeguard the Environment

### PETRONAS Climate Change Position

As a conscientious player in the global energy sector, PETRONAS recognises its responsibility to balance out the threat of climate change with the mandate to produce affordable and reliable energy in a sustainable manner. As such, PETRONAS facilitates the management of climate change through various interventions, especially the reduction of GHG emissions across all sectors. Over the past few years, the PETRONAS Group has been steadfastly exploring and implementing the following climate change actions:

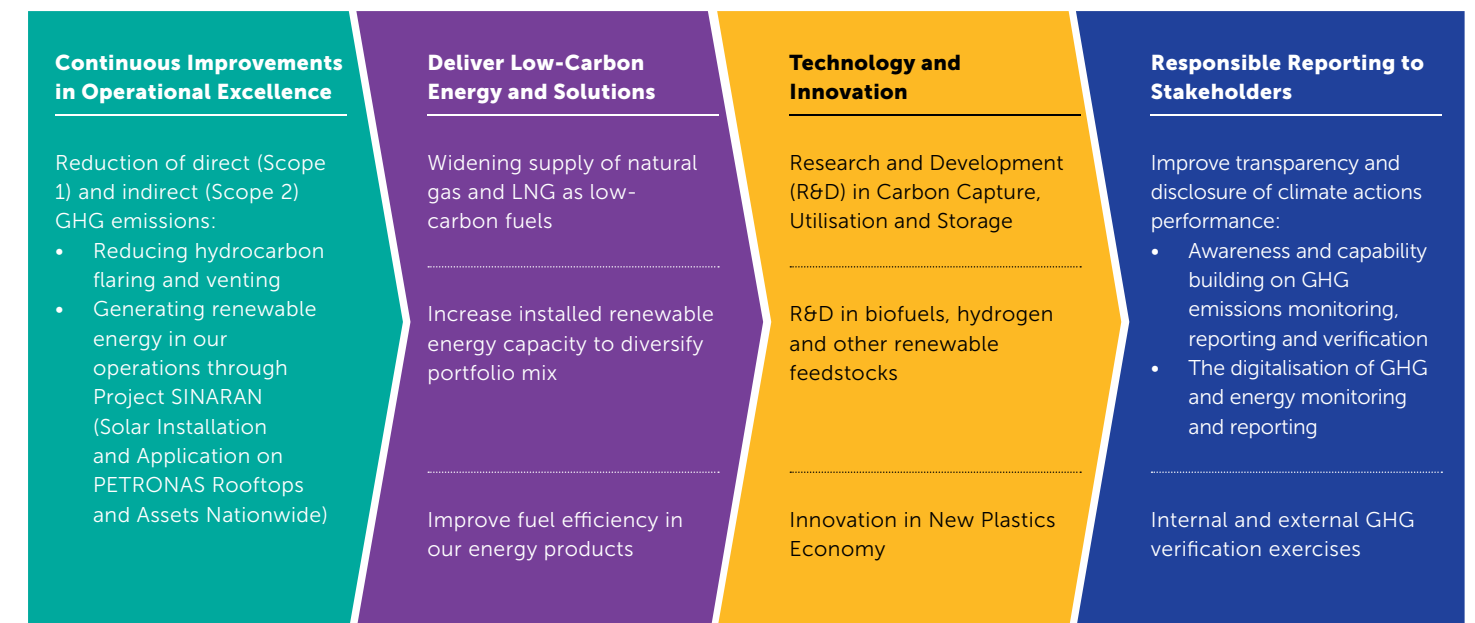


The target value to be generated from our NZCE 2050 efforts will be subjected to progressive changes in PETRONAS' portfolio mix by way of scalable renewables and use of low carbon energy such as natural gas and hydrogen.

### Addressing Climate Change

Over the years, the call for transformational climate actions has grown even more urgent and the pressure for the energy industry to respond accordingly has increased. In response to this, PETRONAS has committed to operating in a responsible manner that helps reduce the impact of climate change. We continue to make good progress by generating low-carbon solutions and renewable energy as means to reduce GHG emissions and to improve operational excellence.

We also aim to ensure that all our efforts are reported in a clear and concise manner that is aligned with our commitment to our stakeholders. A summary of our initiatives to date is outlined below:

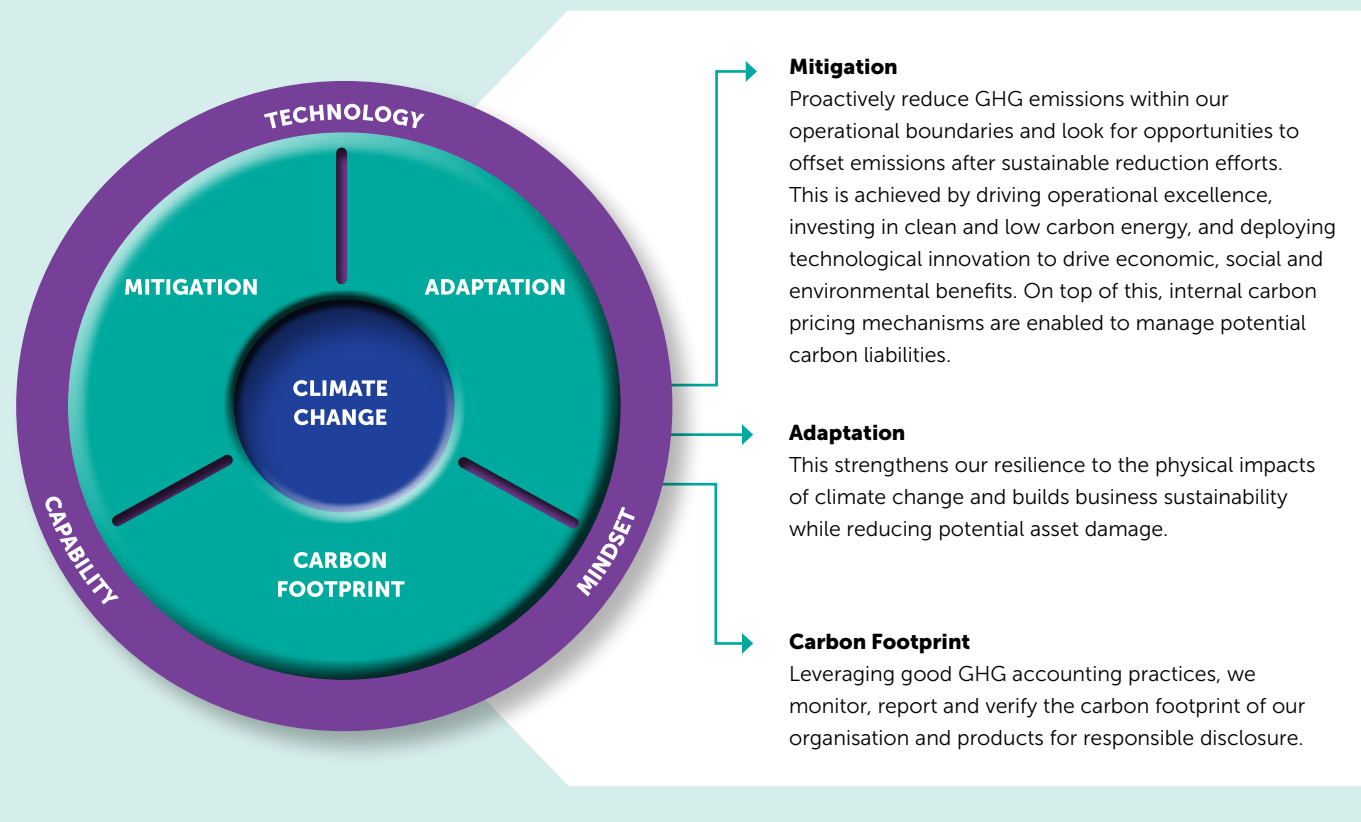




These actions meet the requirements of the PETRONAS Climate Change Framework and PETRONAS Carbon Commitments which were established to urgently address the need to stabilise GHG concentrations in the atmosphere as per the objectives of the United Nations Framework Convention on Climate Change (UNFCCC).

Overarching Framework

The PETRONAS Climate Change Framework identifies the various aspects of the Group's carbon footprint and outlines a mitigation and adaptation strategy that is enabled through the deployment of technological innovation, capability development and mindset change.



The Climate Change Position Framework and PETRONAS Carbon Commitments support Malaysia's Nationally Determined Contribution (NDC) to the Paris Agreement by reducing GHG emissions and adapting to the physical impacts of climate change. Our global commitment also supports the respective NDCs of the countries where we operate.

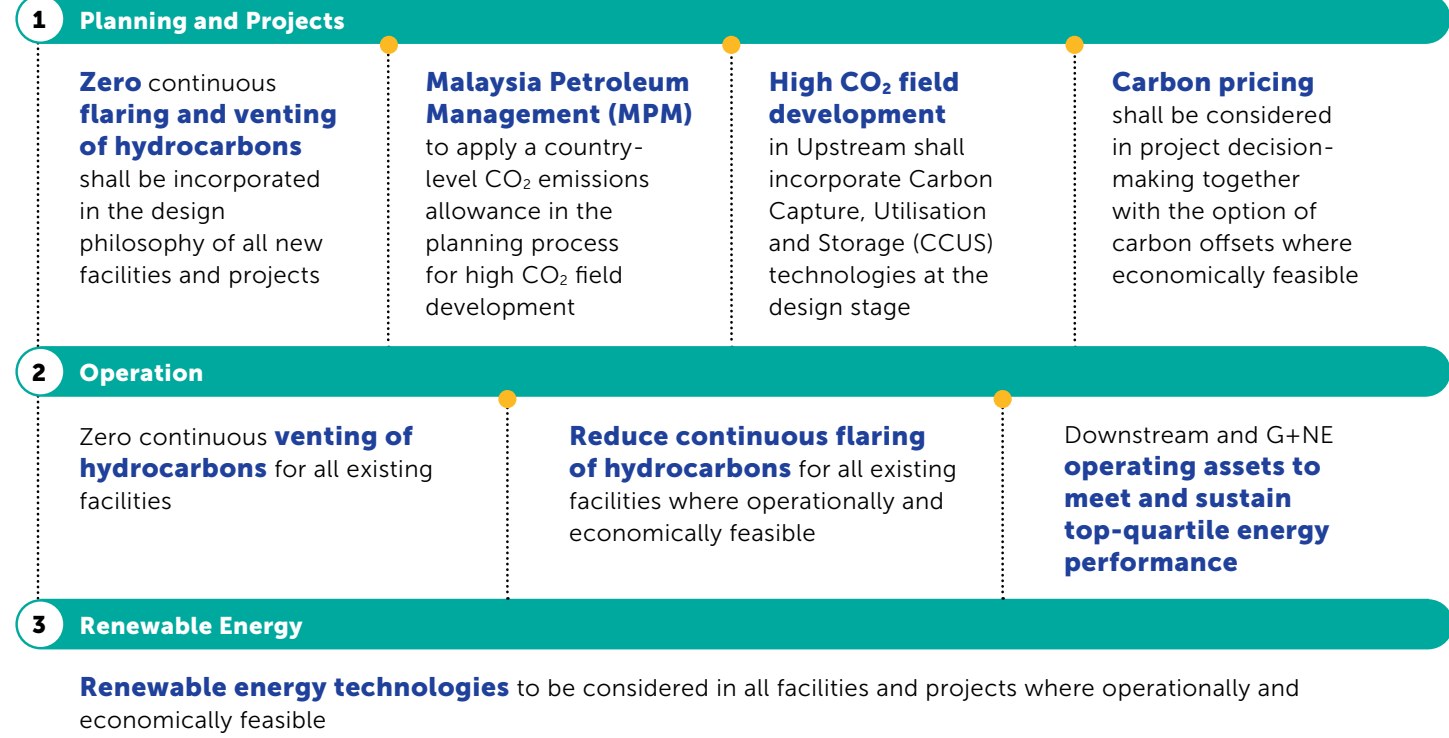
All of these initiatives collectively support PETRONAS' target to achieve its NZCE 2050 aspiration as well as the Group's aim of creating new and inclusive opportunities that contribute towards equitable socio-economic development.

PETRONAS Carbon Commitments

The Group's management of GHG emissions are guided by the PETRONAS Carbon Commitments (PCC). Developed in 2012, the PCC was first founded to drive the Group's reduction of hydrocarbon flaring and venting as well as energy efficiency improvements. Since then, the PCC's management scope has evolved to include CO<sub>2</sub> gas fields management, carbon pricing, carbon offsets and renewable energy. The incorporation of PCC requirements in the Group's systems and operations is overseen by our Group Health, Safety, Security and Environment (GHSSE) as well as the Upstream, Gas + New Energy (G+NE) and Downstream businesses together with Project Delivery and Technology (PD&T). In addition, the Petroleum Arrangement Contractors (PACs) are also guided by the PCC requirements in the effective implementation of the PCC.



PETRONAS Carbon Commitments



The reduction of GHG emissions is not only essential for us to meet our environmental commitments, it is also an integral component of our value creation and business strengthening efforts. As such, we carefully assess all potential risks from carbon liability including emerging legislation related to climate change. This enables the Group to develop suitable technologies in a timely manner. Our identification and response activities are supervised by the PETRONAS Enterprise Risk Management profile that is employed groupwide and across our operations.

Climate Actions

PETRONAS' commitment to delivering clean and low-carbon energy to our customers is reflected in the climate actions that the Group carries out. These initiatives help us to ensure that we mitigate the impact of our operations even as we seek to increase the value of our products.

Promoting Natural Gas as a Low-Carbon Fuel

PETRONAS remains steadfast in its goal to deliver clean and low-carbon energy by replacing high-carbon fossil fuels with natural gas and liquified natural gas (LNG). Exercising responsible practices, the Group leverages advanced technologies to sustainably extract and process natural gas and LNG.

For the past four years, the number of LNG cargoes that have been shipped from PETRONAS' Floating LNG (FLNG) facilities are as follows:





### Minimising Flaring

We remain committed to minimising flaring in our projects through measures such as embedding zero-continuous flaring features within our project designs, and reducing flaring either by improving operational efficiencies or by finding innovative ways of monetising the hydrocarbon gas. We are also continuously making improvements to plant processes to reduce low-pressure flare gas.

In 2020, our businesses achieved the following:

- ➔ Upstream successfully reduced **340,000 tCO<sub>2</sub>e GHG emissions** through a hydrocarbon venting reduction initiative. This reduction was realised through operational excellence where separator tuning and recommissioning of an additional pipeline for gas delivery was completed.
- ➔ In Downstream, the Propane Dehydrogenation (PDH) plant of PETRONAS Chemicals Methyl Tertiary Butyl Ether (MTBE) Sdn Bhd collaborated with PETRONAS Gas Berhad's (PGB) Utilities Gebeng (UG) plant in Kuantan, Pahang **to reduce GHG emissions through the rejuvenation of a Hydrogen-Rich Gas (H<sub>2</sub>-RG), supply to UG**. In turn, UG was able to reduce the cost of fuel used for steam generation by mixing fuel gas with H<sub>2</sub>-RG, which reduced GHG emissions by **46,000 tCO<sub>2</sub>e**.
- ➔ At Malaysian Refining Company Sdn Bhd (MRCBSB), the **installation of a flare recovery unit enabled flared gas to be recovered back into the fuel gas system as refinery fuel gas**. The installation resulted in a decrease in natural gas consumption which led to reduced GHG emissions. **MRCBSB saw cost savings of RM14.9 million and a total annual reduction of 21,747 tCO<sub>2</sub>e**.
- ➔ MRCBSB also implemented another flaring reduction project where recovered excess hydrogen led to a decline in the emission of flaring and waste gasses. MRCBSB garnered a **total of RM2.2 million (2.987 tCO<sub>2</sub>e) in realised savings**.

### Improving Energy Efficiency in Our Operations

In 2020, our Gas Processing Santong (GPS) facility implemented furnace efficiency improvement activities such as situational assessments and air to fuel ratio system improvements. Through these efforts, GPS was able to reduce 100 gigajoules (GJ) of energy consumed per day which amounted to a reduction of 2,004 tCO<sub>2</sub>e per year.

In October 2020, Institut Teknologi Petroleum PETRONAS (INSTEP) and TNB Energy Services Sdn Bhd (TNBES) concluded their collaborative effort on the Smart Energy Efficiency (SEE) project which supports the National Agenda's overall emissions reduction target as well as PETRONAS' Sustainability Agenda.

Following INSTEP's Detailed Energy Efficiency Audit, the institute has incorporated TNBES' solutions to increase energy efficiency through retrofitting light-emitting diode (LED) lighting and high mast lighting in non-process areas. The collaboration has enabled INSTEP to save approximately 407,880 kWh per year in energy consumption, thereby reducing carbon dioxide emissions by 283 tCO<sub>2</sub>e.

### A Journey of Methane Emissions Management



PETRONAS continues to promote natural gas and LNG as a low carbon fuel by the effective management of methane emissions in the natural gas and LNG value chain. By managing hydrocarbon venting, we are able to reduce methane emissions. The year saw the following initiatives being brought into play:

In March 2020, PETRONAS officially became a Signatory Member of the Methane Guiding Principles (MGP) partnership, joining other industry and non-industry organisations in improving and accelerating the performance of methane emissions management throughout the gas value chain. **As a partner, PETRONAS will have access to strategic collaborations, upskilling programmes, and access to technical studies as well as best practices.**

Signatory Members in MGP are required to **fulfil the five MGP principles that focus on priority areas** for action along the natural gas supply chain, from production to the final consumer. To this end, PETRONAS will continue to achieve the following undertakings:

- 1 **Reduce methane emissions**
- 2 **Advance strong performance across gas value chains**
- 3 **Improve the accuracy of methane emissions data**
- 4 **Advocate sound policies and regulations on methane emissions**
- 5 **Increase transparency**

PETRONAS has initiated a **methane emissions quantification baseline study in 2020** (for LNG and gas processing facilities) and will continue with Upstream facilities in 2021.

As the national oil company, PETRONAS continues to **advocate methane emissions management among upstream companies operating** in Malaysia through the establishment of a plan-of-action for both MGP members and non-MGP members.

Methane emissions management has been incorporated as one of the key components to **achieve NZCE 2050**.



Renewable Energy Solutions

Renewable energy solutions reduce GHG emissions by displacing fossil fuel based grid emissions. There are **two possible ways that renewable energy solutions can contribute to our NZCE 2050 aspiration:**

**1 Investments in renewable energy** as a business will **reduce GHG emissions and can potentially be converted into carbon or renewable energy credits**

**2 Renewable energy** installations that displace the need to import electricity into our operations will help **reduce Scope 2 GHG emissions**

Investments in Renewable Energy

PETRONAS has been increasing its momentum in stepping out to renewable energy. PETRONAS installed a 10 MW large-scale solar power plant in Gebeng back in 2014. Following the acquisition of Amplus in 2019, PETRONAS' installed renewable energy capacity grew to 645 MW by the end of 2020. In the same year, PETRONAS' New Energy business generated a combined total of 708 GWh of power from three projects located locally and internationally, thus reducing 0.51 million tCO<sub>2</sub>e. Moving forward, PETRONAS has set a target of achieving an installed renewable energy capacity of 3,000 MW by 2024.

PETRONAS' Cumulative Renewable Energy Installed Capacity and GHG Emissions Reduction

Key Performance Indicators	Unit	2016	2017	2018	2019	2020
<b>Malaysia</b>						
Installed Capacity	MW	10	10	10	10	<b>19</b>
GHG Reduction	tCO <sub>2</sub> e	8,851	8,294	8,682	8,538	<b>9,169</b>
<b>International</b>						
Installed Capacity	MW	0	0	0	0	<b>625</b>
GHG Reduction	tCO <sub>2</sub> e	0	0	0	0	<b>500,832</b>
<b>Total Installed Capacity</b>	<b>MW</b>	<b>10</b>	<b>10</b>	<b>10</b>	<b>10</b>	<b>644</b>
<b>Total GHG Reduction</b>	<b>tCO<sub>2</sub>e</b>	<b>8,851</b>	<b>8,294</b>	<b>8,682</b>	<b>8,538</b>	<b>510,001</b>

Scope 2 GHG Emissions Reduction from Renewables

On top of this, PETRONAS produces renewable energy via four key solar photovoltaic (PV) initiatives which reduce Scope 2 GHG emissions and contribute to our NZCE 2050 aspiration as follows:

**Rooftop Solar PV**  
at KLCC Suria Mall (Kuala Lumpur) by KLCC Holdings (685 kWp, 2012)

**Rooftop Solar PV**  
at PETRONAS Solaris Putra and Serdang (Selangor) twin petrol stations by PDB (180 kWp, 2014)

**Rooftop Solar PV**  
at Arexons (Italy), PETRONAS Lubricants International (440 kWp, 2016)

**Rooftop Solar PV**  
at Pengerang Integrated Complex (Johor) by Downstream business (207 kWp, 2018)

For more details of PETRONAS' investments in renewable energy, please refer to the New Energy section at <https://www.petronas.com/our-business/gas-and-new-energy>.

**Project SINARAN** (Solar Installation and Application on PETRONAS Rooftops and Assets Nationwide) is another PETRONAS initiative that has been in place since 2018. It involves the installation of solar PVs on PETRONAS' assets nationwide. In 2019, solar PV technology was installed at PETRONAS Research Bangi (625 kWp) and five retail stations (136 kWp). In 2020, the SINARAN journey continued with the installation of solar PV technology at an additional three locations (607 kWp). To date, we have installed 1,368 kWp of solar PV systems at nine sites, bringing Project SINARAN's Scope 2 GHG reductions in 2020 to 1,317 tCO<sub>2</sub>e.

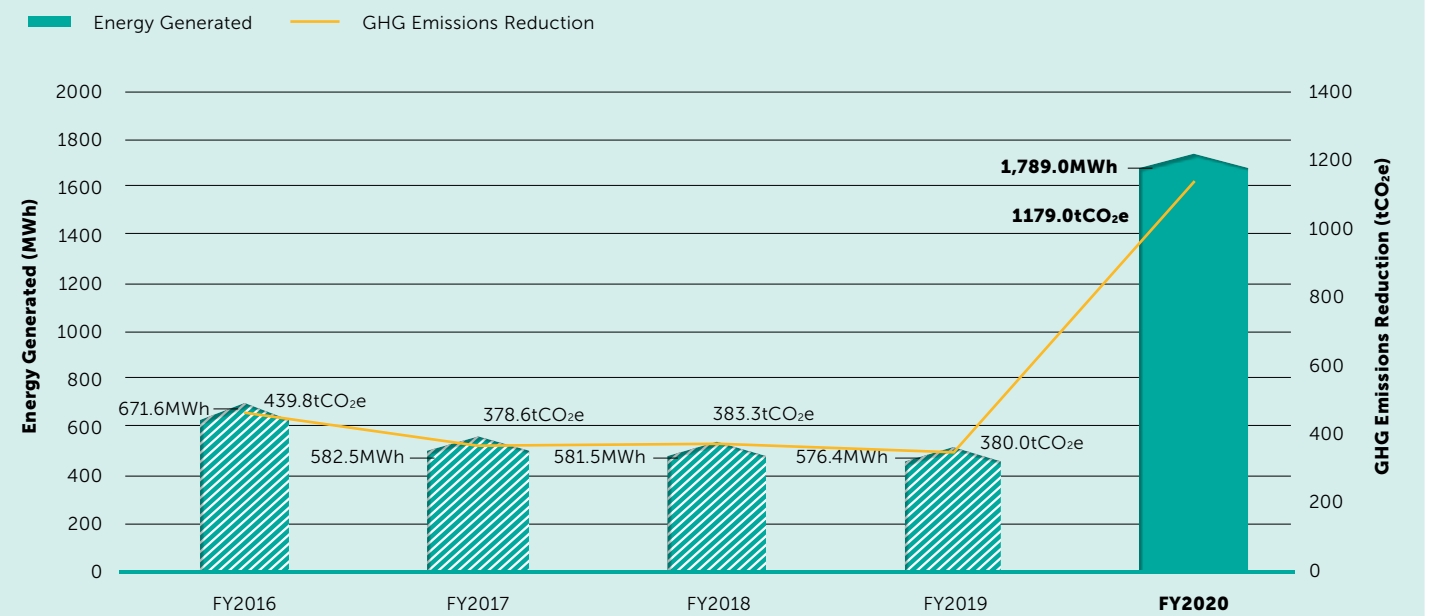
**Rooftop Solar PV**  
at PETRONAS Gas in Seremban (143 kWp, 2020)

**Rooftop Solar PV**  
at PETRONAS Penapisan Terengganu Sdn Bhd (380 kWp, 2020)

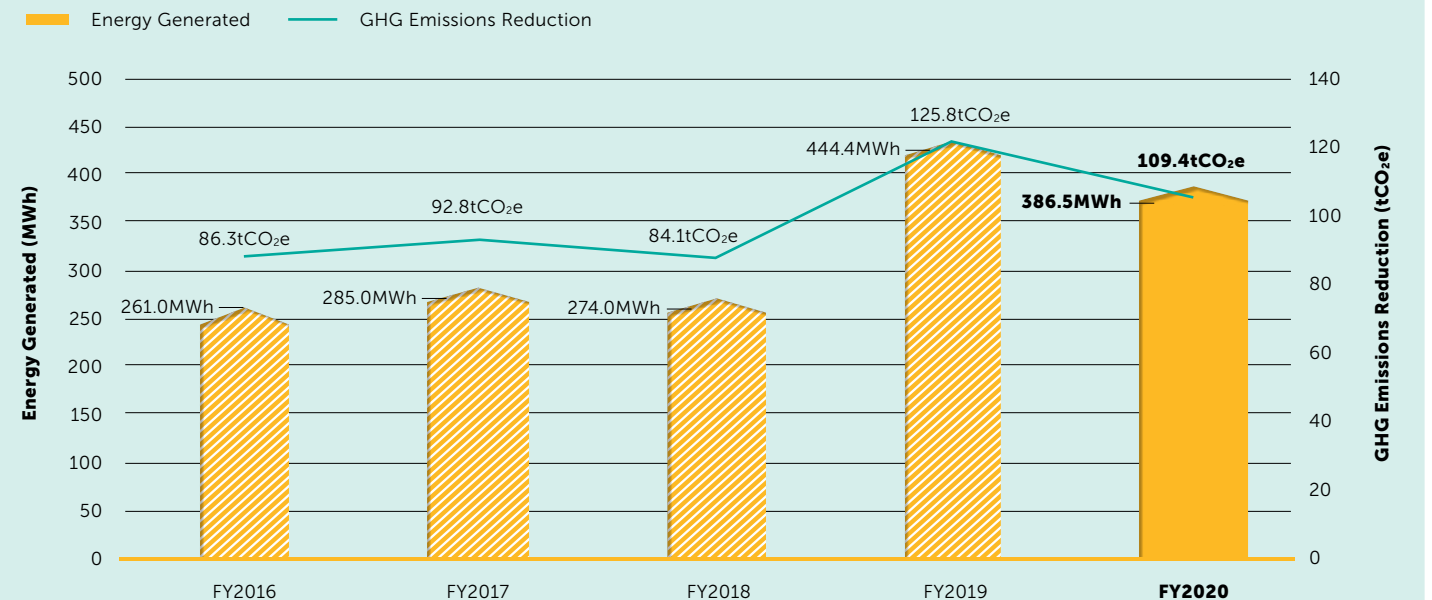
**Rooftop Solar PV**  
at PETRONAS Jalan Kolam Air Lama retail station (84kWp, 2020)

We are continually identifying more viable sites for grid connected solar PV systems to further reduce our Scope 2 emissions.

Solar PV Generation Reducing Scope 2 GHG Emissions (Malaysia)



Solar PV Generation Reducing Scope 2 GHG Emissions (International)





Innovation Actions

PETRONAS Energy Canada Limited (PETRONAS Canada) has significantly reduced the carbon footprint at its well pads through utilising solar panels to offset its power needs. This achievement is significant as the use of solar panels previously had reportedly less efficiency in isolated and remote locations.

Working with a Canadian technology company, PETRONAS Canada has installed and tested a 20 kWp power generation and air compression system at its remote well sites. The company has successfully reduced its emissions to short durations during winter when the generator is needed to supplement power at the site.

With testing complete, PETRONAS Canada will be incorporating this new power system into all its new well pad designs. The use of this system is set to eliminate 1,600 tCO<sub>2</sub>e per pad per year from entering the atmosphere. That number is 99 per cent of all GHG emissions from the traditional well pad which is roughly equal to the emissions produced by 350 gasoline-powered cars.

PETRONAS is intentional in sharing knowledge of its breakthroughs with other producers at forums such as the Natural Gas Innovation Fund.

Food Composting -  
Towards the Goal of Zero  
Food Waste

In an innovative approach to reducing GHG emissions, the INSTEP team collaborated with Mentari Alam EKO (M) Sdn Bhd (MAEKO), our food waste specialist partner, to launch the first Composter House. Implementing food composting technology, the Composter House comprises a composter machine that has the capacity to convert **100 kg food waste into 20 kg bio compost within 24 hours**. This compost can later be used for planting and greening the campus. This initiative also helps us to move towards our goal of zero food waste.

INSTEP can compost around 36.5 tonnes of food waste annually. This serves to eliminate **10,262 kg of CO<sub>2</sub> emissions** which is equivalent to the amount that 466 trees can absorb annually.



Note: This photo was taken before the pandemic.



Delivering Fuel Efficiency in Our Products



We are committed to undertaking continuous improvement of our products in our endeavours to be more fuel efficient. In 2020, we introduced the new PETRONAS Primax 97 fuel with Pro-Race. Formulated with the world's first Advanced Dual Friction Modifier, the fuel boasts 25 per cent less friction than our previous offering, resulting in more responsiveness. The new formula also facilitates better fuel and oil interaction, thus increasing fuel efficiency in terms of mileage and lowering carbon emissions.

In support of the Malaysian government's plan to increase the biodiesel blend rate from 10 per cent to 20 per cent, biodiesel B20 was introduced and made available at PETRONAS petrol stations in Sarawak during the year under review. PETRONAS Dagangan Berhad (PDB) is working closely with the relevant agencies to expand B20 implementation across the country as well as potentially increase the biodiesel blend rate in the future. The adoption of biodiesel by PDB hauliers has cut down PDB's Scope 1 emissions by up to 3,722 tCO<sub>2</sub>e since 2017. As a result of our collective efforts, this has helped reduce as much as 278,850 tCO<sub>2</sub>e from the transportation sector's GHG emissions in 2020 (equivalent to approximately 52 million mangrove trees sequestered per year), thereby positively contributing to the Malaysian government's commitment to the Paris Agreement.

For more details on PETRONAS Primax 97 fuel, go to the Downstream section on page 94.

Conserving Our Forests for Carbon Storage

PETRONAS has been working with the Malaysian government on forest carbon offsets as part of efforts to meet NZCE 2050. In 2020, PETRONAS conducted a study with the Forest Research Institute Malaysia (FRIM) to investigate the baseline of carbon sinks within the country. The FRIM study, which was completed in 2020, has helped us develop a position on forest-based carbon offsets.

For more details of our efforts pertaining to research on carbon sinks, go to the Sentuhan Alam – Environment section on page 189.

Enhancing GHG Monitoring, Reporting and Verification

Effective monitoring of our GHG emissions helps us to uphold stakeholder confidence while providing us with essential information that is vital to our mandate of reducing our carbon footprint to 49.5 million tCO<sub>2</sub>e by 2024. To ensure the integrity of our GHG data, we continue to enhance our GHG monitoring, reporting and authentication processes via various verification procedures.

Our GHG emissions data for each of the years 2017, 2018 and 2019 has been externally verified, to a limited level of assurance, by ERM CVS, an independent third-party assurance provider. The verification, carried out under ISO 14064-3, covered the Scope 1 and Scope 2 GHG emissions from our Upstream, G+NE and Downstream operations in Malaysia which represent on average approximately 96 per cent of the PETRONAS Group's Scope 1 and Scope 2 GHG emissions for these three reporting years.

Full details of the scope, activities, limitations and conclusions of ERM CVS' verification of our GHG emissions data for 2017-2019 are included in their Assurance Statements at this link: <https://www.petronas.com/sites/default/files/sustainability/Independent%20Assurance%20Statement%20-%20GHG%20Emissions.pdf>



Leveraging on Digital Solutions

PETRONAS has initiated efforts to improve the credibility and transparency of GHG emissions data by embarking on a digital transformation journey that aims to enhance productivity and analytics while reducing human error. We have been using our own software called iCON (that incorporates API formulas and ISO 14064 standards to digitise GHG information from metering), to generate online reports and analytics. A pilot project was successfully conducted within G+NE in 2020. This has created value by replacing the tedious GHG data roll-up and reporting process with online data gathering, calculations and reporting. The insights generated through analytics provides opportunities for further reductions in GHG emissions.



Note: This photo was taken before the pandemic.

Climate Vulnerability and Adaptation Assessments

PETRONAS completed desktop climate vulnerability and adaptation assessments for Kerteh and Labuan during the year in review. This initiative is part of our efforts to be more proactive in ensuring our operations are resilient to the physical impacts of climate change. More climate vulnerability and adaptation assessments will be conducted in 2021 to help us assess the extent of any climate vulnerabilities in the areas where we operate.

GHG Emissions Performance

PETRONAS' extensive management of our GHG emissions comprise a combination of benchmark best practices and innovation. We continue to explore new ways in which we can improve our management processes. Our management practices have resulted in a continued downtrend of our GHG emissions since 2013. In 2020, we recorded a reduction of 0.6 million tCO<sub>2</sub>e. Combined with our records since 2013, PETRONAS has achieved a total reduction of 13.4 million tCO<sub>2</sub>e. This bodes well for us as we journey towards capping our overall emissions at 49.5 million tCO<sub>2</sub>e by 2024.

Total Greenhouse Gas Emissions  
(millions tCO<sub>2</sub>e)



Notes:  
1. Updated 2016-2019 data as a result of internal and external verification.  
2. For international operations, data for Vietnam is only available for 2016.  
\* PETRONAS Refinery and Petrochemical Corporation (PRPC) Utilities & Facilities (UF) started its operation in 2017. The GHG accounting system that has been established was internally verified in 2020 which amounted to 2.59 million tCO<sub>2</sub>e for the year 2020. The GHG emissions from PRPC UF will be included in subsequent disclosures.

GHG Intensity

Key Performance Indicators	2016	2017	2018	2019	2020
<b>GHG Intensity for Upstream</b> (tCO <sub>2</sub> e/kboe)	63.0	69.0	55.6	51.5	<b>51.0</b>
<b>GHG Intensity for Refineries</b> (tCO <sub>2</sub> e/bbl)	0.018	0.017	0.018	0.018	<b>0.019</b>
<b>GHG Intensity for Petrochemicals</b> (tCO <sub>2</sub> e/tonne)	0.78	0.88	0.87	0.83	<b>0.80</b>

Notes:  
1. 2016-2020 data may be subject to changes as a result of ongoing internal and external verification.  
2. For international operations, data for Vietnam is only available for 2016.

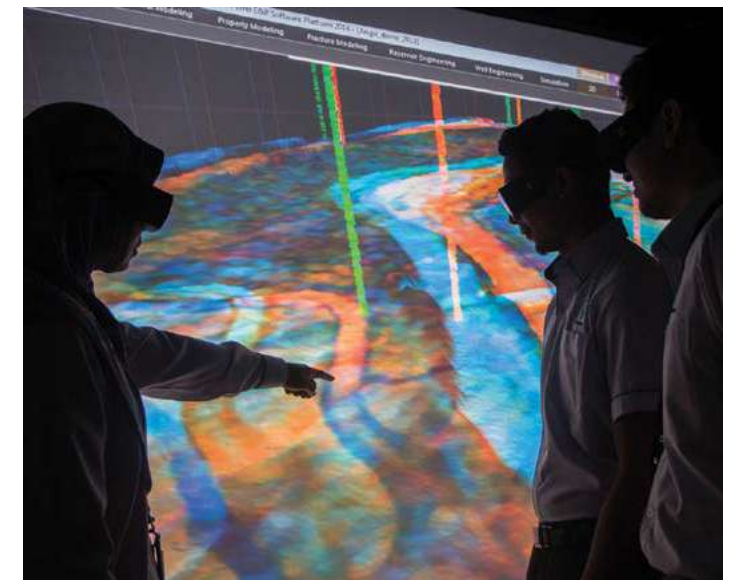
Environmental Management

The incorporation of environmentally friendly and sustainable practices into the Group's business is vital as this helps us uphold our commitment to safeguard the environment and respond to stakeholders' expectations. Our efforts to reduce our environmental footprint are underscored by our environmental management initiatives. These initiatives address every aspect of our business, from the design of our facilities to the management of our operations and execution of internal processes.

In ensuring ethical practices are observed throughout the Group, we have established internal environmental standards and guidelines that PETRONAS' entities under the operational control of the Group are expected to uphold. These requirements are benchmarked against global best practices such as the requirements found in the World Bank guidelines and the International Finance Corporation (IFC) Performance Standards on Environment and Social Sustainability. Vigorous capability development programmes are provided while environmental practitioners are also assessed against pre-determined structured environmental competency programmes.

Digital Transformation

Environmental and social performance data are highly important elements for analysis, reporting and disclosure in line with our Sustainability Agenda. To better manage groupwide Environment and Social Performance data, a solution called the Environment and Social Performance Integrated and Centralised System (or EPICS) was established at Group level under myHSSE in 2020. The tool acts as a centralised system for data collection, verification, automated analysis and reporting for environmental and social performance. It simplifies the process of data gathering, analysis and reporting while reducing human error as we move towards digitalisation. The system has been progressively developed and encompasses built-in performance modules such as the Air Emissions module that includes GHG emissions; the Hazardous Waste and Freshwater module; as well as the Grievance Management module. All these are expected to elevate the effectiveness of our data management endeavours.



Note: This photo was taken before the pandemic.

Waste Management

In 2020, PETRONAS generated approximately 92,040 metric tonnes of hazardous waste, marking a reduction of 20,183 metric tonnes from 112,223 metric tonnes in 2019. The high amount of waste generated in 2019 was contributed by tank cleaning maintenance activities. The slowdown in operational activities at the height of the COVID-19 pandemic also contributed to the lower numbers in 2020. The total amount of waste recycled or recovered during the year in review was 65,173 metric tonnes, which was equivalent to 71 per cent of the total waste generated by the Group.



The New Plastics Economy



The mismanagement of plastic waste continues to be a global issue with plastic litter remaining a threat to ecosystems the world over. To mitigate this, the Malaysian government has developed Malaysia's Roadmap Towards Zero Single-Use Plastics 2018-2030. This roadmap centres on eliminating the improper disposal of plastics and the manufacturing of single-use plastics in the country.

In support of the Malaysian government's plan, PETRONAS Chemicals Group Berhad (PCG) continues to spearhead the New Plastics Economy (NPE) in the country. The NPE creates a circular economy founded on sustainable solutions in which plastic does not end up as waste or pollution. The four key pillars of the NPE are:

- Education**  
To impart knowledge on how we can continue to benefit from the versatility of plastic without damaging the environment by adopting proper waste management practices.
- Infrastructure**  
To develop effective and sustainable waste recovery systems.
- Innovation**  
To apply advanced recycling technologies to convert plastic waste that cannot be recycled using conventional methods.
- Clean-Up**  
To turn education into action through hands-on clean-up activities within communities.



Education

Initiative

Content development for the "Plastic, Sustainability and You" module

Key Highlights/Achievements in 2020

Developed and distributed the "Plastic, Sustainability and You" education module to all schools in Malaysia. This was achieved in collaboration with the Ministry of Education (MOE), Solid Waste Management and Public Cleansing Corporation (SWCORP) and the Malaysian Plastic Manufacturers Association (MPMA) via an initiative that has been ongoing since 2019.

- The module was translated into **four languages** for the Primary School Curriculum and **two languages** for the Secondary School Curriculum.
- **Number of schools** impacted: **7,773 (Primary)** and **2,329 (Secondary)**.
- **Number of school children** involved: **2,730,057 (Primary)** and **1,993,905 (Secondary)**.

Initiative

"Plastic, Sustainability and You" Education Programme

Key Highlights/Achievements in 2020

Conducted six sessions of our "Plastic, Sustainability and You" webinar, reaching out to over **1,300 teachers** nationwide. Over **95 per cent of participants** expressed their satisfaction with the content and smooth running of the six-day programme.



Infrastructure

Initiative

Collaboration on the recovery of plastic waste

Key Highlights/Achievements in 2020

PCG initiated various collaboration initiatives internally and externally to improve the recovery of recyclable materials through an internal 3R (Reduce, Reuse, Recycle) programme. These collaborations included PCG's Operating Units as well as PETRONAS Business Units including PGB.

- A **total of 46,283.75 kg of recyclable waste** was collected under the PCG and East Coast Recycling Programme.



Innovation

Initiative

Project PACE: Plastic Waste to Crude Naphtha

Key Highlights/Achievements in 2020

- **Completed Feasibility Study.**
- **Final Investment Decision (FID)** is expected to be concluded in the second quarter of 2021.



Clean-Up

Initiative

"PCG Be Green" Programme

Key Highlights/Achievements in 2020

**Implemented the "PCG Be Green" programme** at four locations to build community awareness on proper waste and plastic management through cleaning up activities. Leveraging on digital platforms, the campaign reached **2,880 community members while approximately 2,000 kg of recyclable waste was recovered.**





Water Management

Water at PETRONAS is primarily used for cooling and steam generation within our operations. To ensure the smooth and continuous flow of operations, we have developed robust internal standards and policies, as well as initiatives, to optimise our freshwater consumption.

- Continuing our water balance development and verification work from 2019, we established best-achieved freshwater use intensity for the **top 13 freshwater users** in 2020. Doing so ensures continuous monitoring and optimisation of freshwater use.
- With respect to our Downstream and G+NE businesses, we have identified four domestic and two international locations of focus with full consideration to future water stress. Our research and decision-making process were guided by the **World Resources Institute (WRI) Aqueduct Water Risk Atlas**.
- We conducted a thorough water management assessment in 2020 for our Engen Refinery in Durban, South Africa. The assessment resulted in the development of a strategic water reduction roadmap to optimise freshwater use and to explore options to reduce dependency. Moving forward, we **aim to continue the work for other locations identified as future water stress areas**.



Delivering Water for Life to Iraq's Communities

PETRONAS Dagangan Berhad (PDB) first initiated the Water for Life programme in Malaysia in 2013 as part of its efforts to ensure that communities, especially those living in the interior areas, could receive a consistent supply of clean water. In 2015, the Water for Life programme was expanded to Iraq. Today, PETRONAS subsidiary, PETRONAS Carigali Iraq Holding B.V. (PCIHBV), is collaborating with the Host Authority Thi Qar Oil Company (TOC) and partner, JAPEX, to roll out the programme to tens of thousands of inhabitants within the Garraf Contract Area (GCA). The following initiatives have been implemented to date:

- Built Reverse Osmosis (RO) water stations facilities
- Provided toilets and water tanks to schools
- Installed water filters in schools
- Undertook clean water distribution
- Undertook planning for upcoming projects for RO water stations

As an International Oil Company (IOC) operating in Iraq, there are expectations for PCIHBV as a conscientious corporate citizen to undertake sustainable development for the nation in a meaningful manner. Even as the Water for Life programme successfully met the basic needs of people, provided equal access to all, and helped to improve the quality of life for communities in the GCA, PCIHBV was able to fulfil its obligations to the people of Iraq as well as strengthen its reputation. The success of the programme has strengthened PCIHBV's reputation as a trustworthy entity to communities which is essential for the sustainability of this IOC's operations in Iraq.

This initiative, which has garnered accolades and the full support of the Iraqi government and local communities, bears testament to PETRONAS' Statement of Purpose as a progressive energy and solutions partner enriching lives for a sustainable future.



Providing Precious Water for Life in Republic of South Sudan

Water is a scarce resource in the landlocked Republic of South Sudan, the world's youngest country. With limited income to spare for water purchases and the nearest river far from homes, many citizens rely heavily on hand-dug wells or surface water for their daily supply. Water sourced this way is easily contaminated and unsafe.

When the COVID-19 pandemic hit, the need for safe water became even more vital than ever. Responding to this, PETRONAS South Sudan completed Phase 4 of its Water for Life initiatives at Nyakuron West, Juba on World Water Day on 23 March 2021. This phase, which involved the completion of two water wells located at a community centre and at homes near the community, is today benefitting up to 12,000 people in the community.

PETRONAS South Sudan in collaboration with Republic of South Sudan's Ministry of Petroleum and Nile Hope, a local NGO, have built a total of 15 water wells in various locations in Juba since 2018. All 15 water wells are

constructed with solar-powered submersible pumps that can produce 405,000 litres of quality and safe water per day. This system requires minimal maintenance and capitalises on renewable energy which makes it a highly sustainable system, especially for rural areas.

As a result of PETRONAS' Water for Life programme in Juba, over 87,000 South Sudanese today have access to clean water. Now members of the community, mainly women, girls and children, no longer need to walk up to 3 km to fetch water for their daily consumption. They can now easily fetch up to 600 litres of clean water a day nearer to their homes, thus saving time and effort. School children also no longer have to walk for miles to fetch water for preparing school meals. PETRONAS' Water for Life programme has not only improved health, sanitation and hygiene, it has kept South Sudanese women and children safe as well as elevated the quality of life for Republic of South Sudan's communities.



### Freshwater Withdrawal

In 2020, our total freshwater withdrawal was 60.0 million cubic metres as compared to 60.3 million cubic metres recorded in 2019. The figures represent the total freshwater withdrawn by both our local and international operations.

### Wastewater Discharge

PETRONAS ensures that all wastewater from our onshore and offshore operations are treated prior to being released into the environment. In 2020, the oil in water content decreased to 532 metric tonnes from 648 metric tonnes in 2019 due to reduced operational activities.

The term “produced water” describes water that is produced as a by-product during the extraction of any hydrocarbons. PETRONAS was part of the International Association of Oil & Gas Producers (IOGP) task force that developed the Risk Based Assessment of Offshore Produced Water Discharges guidance document. In this regard, within Malaysia, we continued the produced water risk-based assessments for PETRONAS Carigali Sdn Bhd’s onshore terminals and two offshore platforms. Supplier environmental assessments were initiated in order to enhance the level of disclosure of the identity of oilfield chemicals and their respective environmental performance. This initiative is part of the Raw Material Information Request (RAWMIR) process, which intends to improve prioritisation of production chemicals based on their impact on the marine environment and to ultimately refine produced water ecological risk-based assessments.

For more details of PETRONAS’ Raw Material Management practices, go to the Product Stewardship section on page 176.



### PETRONAS Canada Produced Water Initiative

PETRONAS Energy Canada Limited (PETRONAS Canada) has undertaken an initiative to reduce dependency on freshwater for oil and gas activities in both the North Montney Joint Venture (NMJV) and PETRONAS-Sasol Montney Partnership (PSMP) ventures through collaboration with peer producers on produced water sharing. During the hydraulic fracturing process, the water that we inject into the well flows back to the surface with the natural gas. In the first quarter of 2020, PETRONAS Canada shared produced water with Tourmaline Oil Corp. out of the PSMP. Similarly, PETRONAS Canada received produced water from Saguaro Resources Corp. in the Beg East area, supporting

the Bubbles b-24-B well pad completion and allowing this pad to be completed with 100 per cent produced water. (Well completion is the process of making a drilled well ready for production).

In 2020, PETRONAS Canada recycled 82.3 per cent of all water used for completion activities. We have made it a priority to reuse produced water from one hydraulic fracturing operation to the next and only draw on freshwater sources if there is a shortfall in available produced water. The reduced dependency on freshwater ultimately frees up the precious resource for use by the ecosystem.

### Air Emissions

Air emissions from our facilities are actively monitored and all risks are evaluated and addressed accordingly as part of our integrated air emissions management approach. In enhancing data visibility, we developed an online monitoring platform that allows us to accelerate our response rate.

In 2020, the Group’s sulphur oxides emissions stood at 84,225 metric tonnes compared with 110,214 metric tonnes in 2019. The decrease in emissions value was attributable to the usage of cleaner fuel (low-sulphur compliant fuel) in our fleets and lower operational activities.

Total nitrogen oxides emissions for 2020 decreased to 116,427 metric tonnes from 148,446 metric tonnes in 2019, mainly due to operational improvements and a reduction in operational activities due to the COVID-19 pandemic.

### Environmental Health

#### Protecting Community Health through Risk-based Assessments

Recognising that sustainability goes hand in hand with healthy communities, PETRONAS has embarked on a voluntary evidence-based management of environmental health which stretches beyond regulatory compliance, focusing on chemical exposures in air emissions and groundwater.

- ➔ Since 2018, we have been **conducting baseline Human Health Risk Assessments (HHRA)** at selected domestic operations to evaluate community exposure to ambient air chemicals.
- ➔ In 2020, the effort was extended **to include assessments in domestic and international operations**.
- ➔ In 2020, we **developed a strategic environmental health roadmap** which is guided by a priority plan for HHRA execution for the next five years.

### Oil Spills and Response Preparedness

PETRONAS successfully completed and handed over the National Oiled Wildlife Response Plan (NORWP) to the Department of Environment (DOE) in November 2020. The NORWP is a supplementary document to the Malaysian National Oil Spill Contingency Plan (NOSCP).

According to the Global Oiled Wildlife Response System, the NORWP is the first oiled wildlife response plan in Southeast Asia. Through this initiative, we aim to create awareness on Oiled Wildlife Response preparedness across the industry and government agencies.

The NORWP was first utilised during a major oil spill incident in Tanjung Tuan, Port Dickson in Negeri Sembilan where PETRONAS assisted the DOE and Marine Department during the clean-up. The extensive beach clean-up saw PETRONAS providing technical advice and the Shoreline Clean-up and Assessment Technique to 16 supporting government agencies, including the Malaysian Armed Forces and Malaysian Maritime Enforcement Agency (MMEA). During the year in review, we accomplished the following:

- Enhanced our **Global Oil Spill Response (OSR)** preparedness via various capability development sessions **including upskilling webinars** and a certified Masterclass programme.
- Successfully **trained 75 personnel via the Masterclass sessions** to become OSR Subject Matter Experts (SMEs) across our local and international operations.
- Over **900 participants attended the webinar sessions**.
- We continue to work **towards safeguarding our facilities against spills via our preventive maintenance and routine monitoring measures**. In 2020, five hydrocarbon spills were recorded with a total estimated volume of 16.0 cubic metres (2019: 24.9 cubic metres).



**Decommissioning**

PETRONAS is committed to ensuring that the abandonment and/or disposal of all our Petroleum Facilities places a firm emphasis on the safety and protection of people, environment, assets and reputation in the course of Petroleum Operations. In performing these functions, we utilise PETRONAS' established processes and guidelines as per the structured Decommissioning Option Assessments (DOA) to determine the best decommissioning and abandonment approach. In enabling decommissioning and abandonment activities to be carried out transparently, we leverage processes and guidelines that are on par with international and industry best practices and standards.

In safely executing a sustainable decommissioning and abandonment agenda with minimal impact on the environment, we continuously build excellent synergies with relevant stakeholders and industries to explore sound solutions. The year in review saw PETRONAS continuing to work closely with the Department of Fisheries (DOF) Malaysia to evaluate the feasibility of converting retired oil and gas structures into artificial reefs so as to maximise the value of these decommissioned structures. In tandem with this, we also actively pursued collaboration with research and academic institutions in the form of joint studies, community practices, and sharing sessions, with the aim of refining and enhancing the techno-commercial viability of reefing in Malaysia. Some examples of focused research included undertaking offshore site-specific evaluations, reefing engineering, socio-economic impact analysis and post-decommissioning monitoring. To date, our Rigs-to-Reefs initiative has demonstrated proven improvements to the marine ecology and fish aggregation, while offering protection from illegal trawling activities.

In 2020, PETRONAS achieved the following on the decommissioning front:

PETRONAS completed **five decommissioning projects**, including 15 wells being plugged and abandoned (consisting of both 'dry trees' and 'subsea wells').

PETRONAS successfully **secured a preliminary agreement for a 10-year Sarawak Master Reefing Plan** with the DOF, Sarawak.

PETRONAS organised a series of monthly engagements in bridging academia with industry players through the **"Industry Meets Academia" programme**. The engagements sought to enhance collaboration in addressing decommissioning pain points through the pursuit of innovative decommissioning solutions and technologies.

PETRONAS successfully conducted **13 Lessons Learnt workshops with decommissioning service providers and Production Arrangement Contractors (PACs)**. From these workshops, 116 recommendations were captured to further improve the future execution of decommissioning projects.

PETRONAS continued to be active in the **International Association of Oil & Gas Producers (IOGP) Decommissioning Committee** and was heavily involved in finalising two briefs, namely "Offshore Oil and Gas Pipeline Decommissioning" and "Ecology of Steel Piled Jackets and Subsea Infrastructure".

**Biodiversity and Ecosystem Services**

Biodiversity is defined as the variability among living organisms from all sources including terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part. This includes diversity within species, between species and of ecosystems (Convention on Biological Diversity (CBD) 1992). Ecosystems services are the essential services that support human needs such as food, water, shelter, clothing, medicines and fuel (International Finance Corporation (IFC) 2012).

There is now a greater demand for the business community to play a bigger role in Biodiversity and Ecosystem Services (BES) management and conservation. Within the oil and gas industry, this has been translated into a more transparent impact assessment and reporting of the industry's contribution to biodiversity and ecosystems conservation based on standards set by bodies such as the Global Reporting Initiative (GRI) and World Economic Forum (WEF).



In response to this, PETRONAS has subscribed to the Integrated Biodiversity Assessment Tool (IBAT), a one-stop global repository providing datasets on biodiversity. Towards this end, we are protecting the biodiversity and ecosystems surrounding our projects and operations by identifying BES risks using tools such as Environmental Impact Assessments (EIAs) and BES risk assessment (BESRA). PETRONAS completed BES Risk Profiling for all our onshore and offshore facilities in Malaysia in 2020. A total of 28 onshore and 74 offshore facilities were assessed using the IBAT and categorised according to their risk level. The risks identified were then managed by applying a mitigation hierarchy and minimising risk impact by putting physical, operational or abatement controls in place. Restoration and rehabilitation activities were also implemented, with offset being the last option to manage residual impact.

PETRONAS will also continue to conduct programmes for biodiversity protection and conservation to maintain ecosystems essential for present and future generations. In stepping up our efforts, we collaborated with other industries in Malaysia through the Interim Working Group (IWG) for the establishment of the Malaysian Platform for Business and Biodiversity (MPBB). These collaborations saw PETRONAS sharing knowledge on BES management at a forum and hosting the inaugural IWG meeting at the PETRONAS Twin Towers on 19 February 2020. The IWG will also provide PETRONAS with an opportunity to engage with the Ministry of Water, Land and Natural Resources for the purpose of collaborating on BES management in Malaysia. In addition to that, PETRONAS will continue to engage with the various stakeholders in the government, non-government as well as communities to collaborate on halting biodiversity loss.



**Our Efforts to Protect and Preserve Mexico's Endangered Turtles**

PETRONAS' international subsidiary, PC Carigali Mexico Operations (PCCMO), is pioneering the Group's turtle conservation efforts in Mexico. Aligned with Yayasan PETRONAS' focus areas and guiding principles, this initiative underscores PCCMO's support for efforts to conserve Mexico's wildlife, especially in the areas where it operates. This initiative is also aligned with the Federal Attorney for Environmental Protection's (PROFEPA) strategy to protect sea turtles.

The Hawksbill Sea Turtle Conservation Project at the Punta Xen Centre in Champoton, Campeche is important for Mexico as sea turtles are considered keystone species – meaning they are an important part of the environment and influence other species around them. Furthermore, Mexico is home to six of the seven endangered sea turtle species.

PCCMO's efforts comprise mainly of their funding of Grupo Ecologista Quelonios (GEQ), a non-profit organisation dedicated to the protection and preservation of endangered Hawksbill sea turtles. In 2020, PCCMO upgraded the centre's facilities in time for the turtles' arrival. The improvement

of facilities allowed the staff to be more efficient in their work, which was reflected in the increase of the turtle population. As of September 2020, a total of 167,288 turtle hatchlings had been released – a 16 per cent increase over 2019's numbers. Additionally, the rehabilitated centre is now a more visitor-friendly environment for researchers, students and tourists. The larger turtle population is set to benefit the entire ecosystem within the area. This effort has also positively impacted the community of Campeche with more employment opportunities being made available.

PCCMO intends to contribute towards helping the centre to become self-sustainable, thus ensuring that the Hawksbill sea turtles are looked after for the long term. In the second phase of the project, PCCMO plans to collaborate with a local university to undertake a scientific study of the local ecosystem development and to track the positive impacts on both the sea turtle community and the environment. Through its efforts, PCCMO aims to set a precedent for other turtle conservation centres as well as PETRONAS' international and local CSR activities.



Positive Social Impact



Lens 3  
Positive Social Impact



In support of SDGs:

To enrich lives for a sustainable future, PETRONAS is endeavouring to build enduring and positive relationships with our employees, partners and the communities in which we operate by keeping each and everyone safe and adding value to their well-being through a variety of effective, tangible measures.



Ensuring an Effective and Sustainable HSE Framework

In line with our efforts to effectively **steward People, Planet and Profits**, one of our topmost priorities is to take responsibility for the well-being of the employees and contractors under our care. To ensure our people are at their best level of health and are working under the safest possible conditions, we uncompromisingly enforce stringent **Health, Safety, Security and Environmental (HSSE)** policies across our highly complex business.

The PETRONAS' Health, Safety and Environment (HSE) Policy is testament of our Management's commitment to strengthen PETRONAS' position as a reliable, responsible and caring employer. As we endeavour to build safe working environments and quality work processes,

we also expect all employees and representatives of PETRONAS to conduct themselves in a safe and responsible manner in accordance with our HSE Policy.

In tandem with this, a HSE Management System is in place to govern all HSE aspects of our business. The HSE Management System in turn has been established within the context of the **Plan-Do-Check-Act (PDCA)** continual improvement loop and aligned to the **International Organization for Standardization's (ISO) 14001:2015/ ISO 45001:2018** criteria. All these measures align with PETRONAS' commitment to upholding seven of the 17 United Nations Sustainable Development Goals (UNSDGs) and the four Sustainability Lenses.

Note: All photos were taken before the pandemic.

Positive Social Impact



Shaping a Generative HSSE Culture

The concept of caring for the safety and well-being of people is deeply rooted within PETRONAS' HSSE strategy and management activities and is underscored by the Group's Generative HSSE Culture which aims to reproduce transparency and mindfulness. This Generative HSSE Culture sees us prioritising and implementing very high safety standards, as well as making an effort to exceed them by going beyond compliance. In setting the bar high by way of process safety for our organisation and people, we are rallying our people to embrace HSSE as individuals as much as it is a collective responsibility. By ensuring our workforce and Management are as informed and transparent as possible, everyone knows what is really going on and this prepares us for the unexpected in our business. In the event something does go amiss despite all the precautions undertaken, we use this occurrence as a lesson to improve and prevent it from recurring in the future. Every 'error' is used as a key learning and issues are addressed in a manner in which we cultivate an ecosystem that promotes sustainable progress.

In inculcating PETRONAS' Generative HSSE Culture, these behaviours have become the mantra for all within the PETRONAS Group:

While our leaders are to serve as role models, **everyone at PETRONAS is to take ownership of HSSE matters** to create true value for the Group.

All of us are to be **mindful about what we do** and **how our actions can impact others**.

We are all to **look out for one another and keep potential risks and errors** at the top of our minds.

We are all to **create a safe space** to intervene when any of us sees unsafe conditions or behaviours.



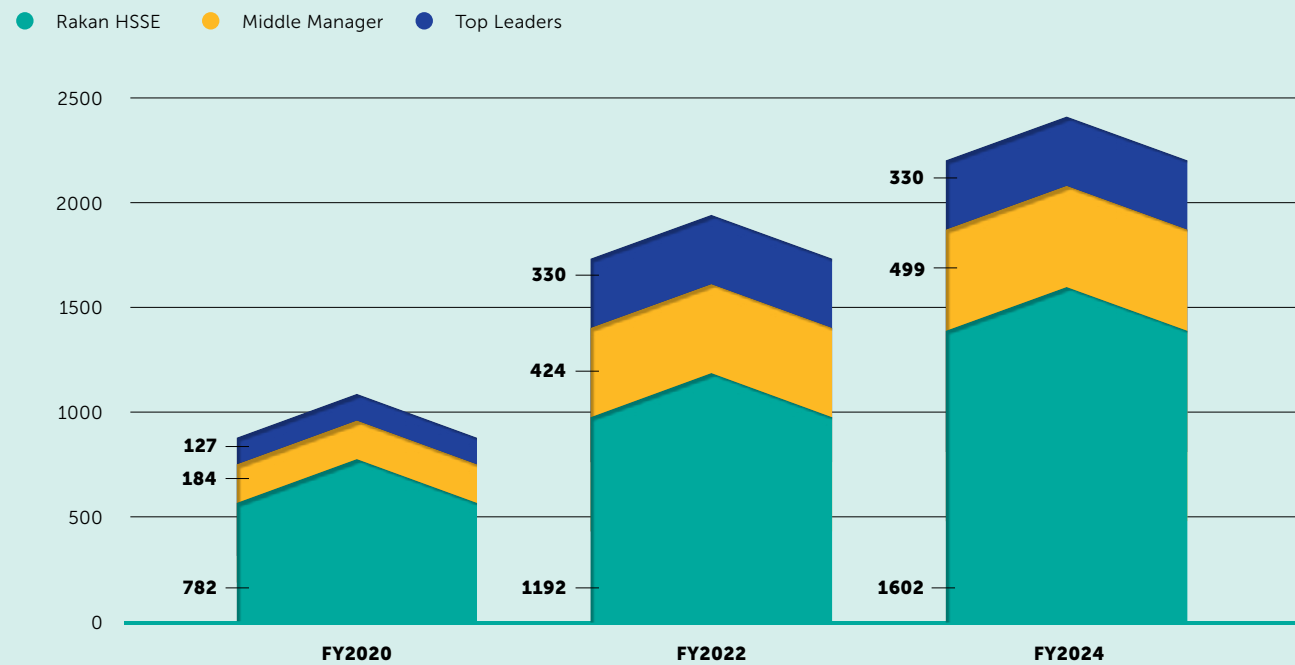
Note: All photos were taken before the pandemic.



**Leading the Way to Shape the Generative HSSE Culture**

Our leaders have immense potential to accelerate the formation of the desired Generative HSSE culture across PETRONAS' businesses and operations. To support our leaders' readiness to drive a prevailing HSSE culture, we have brought the HSSE Leadership Programme into play. Our aim is to enrol a total of 2,431 leaders covering HSSE practitioners, middle managers and top leaders into the programme by 2024. In 2020, we made good strides forward with some 55 per cent of PETRONAS' leaders enrolled and upskilled. With more than half of our leaders equipped and immersed in the programme, we are on track to have the desired HSSE ecosystem prevail throughout our operations by the target date.

**Targets for Upskilling HSSE Leadership Programme**



**Reporting Unsafe Acts for Greater Mindfulness**

Trust is a crucial element for us if we are to effectively shape the Generative HSSE Culture at PETRONAS. We inculcate trust among team members by asserting the fact that bringing up concerns and issues regarding unsafe acts and conditions is a form of care towards one another. Everyone is to look after each another to ensure everyone is safe. The Unsafe Act and Unsafe Condition (UAUC) initiative is one of our key safety behaviour programmes whereby employees are encouraged to proactively identify safety risks and hazards, then report these so that intervention can be carried out. Unsafe conditions are rectified immediately to ensure a safe work environment is maintained. The UAUC reports made are seen as an opportunity for learning and are valued by everyone. Due recognition by leaders affirms this positive behaviour.

The digitalisation of UAUC reports since 2018 has made it convenient for employees across PETRONAS to submit their reports through web-based and mobile applications. This led to a 77 per cent increase in the quality of UAUC reported in 2020 in comparison to just 8 per cent reported in 2019. Real-time data analytics is also contributing towards the development of various forms of predictive analysis models to prevent potential incidents, potential Zero Tolerance (ZeTo) Rules violations and near repeats in the future.

For the year in review, amidst the restricted movement challenges brought on by the COVID-19 pandemic, we remained agile and adapted to the new norm by migrating our Generative HSSE Culture Leadership Programmes from conventional face-to-face training platforms to Virtual Instructor-Led Training (VILT).

Moving forward, we will continue to shape a Generative HSSE Culture and develop our leaders at all levels so that they deliver the desired experiences and ensure forward accountability across our organisation. We will also continue to accelerate this by leveraging on digital applications such as myHSSE.

**Digital HSSE at PETRONAS**

The myHSSE digital platform serves as our one-stop platform for all PETRONAS' HSSE digital solutions and their related system training resources. By adopting a single information platform that houses all 16 of our HSSE digital solutions—each of which addresses different business pain points—we are according users easier access and fit for purpose usage. Moreover, we are also enabling users to harness the power of HSSE data to derive insights on HSSE performance, trends, emerging risks and other important elements so that we can make proactive interventions. As we move towards our goal of realising predictive and even prescriptive HSSE analytics, we aspire for the Group's HSSE endeavours to rise several notches higher.

<p><b>SHIELD</b> <b>Stewardship, Health, Information and Environment Linked Database</b> A unified platform to manage the PETRONAS HSE database. It contains modules on Occupational Health (OH), Industrial Hygiene (IH) and Product Safety (PS).</p>	<p><b>IPSS</b> <b>Integrated Process Safety Solution</b> An integrated solution to optimise Process Safety work processes, provide governance oversight to minimise human error and ensure compliant driving, while providing valuable insights into risk management.</p>	<p><b>EPICS</b> <b>Environment and Social Performance Integrated and Centralised System</b> An integrated system that provides holistic environmental and social performance data management for compliance and sustainability reporting.</p>
<p><b>LegalEasy</b> <b>LegalEasy</b> A solution to create a specific entity's legal register and to conduct compliance audits against the legal register or selected legislation, based on a set of audit questions.</p>	<p><b>SDS</b> <b>PETRONAS Safety Data Sheet</b> A search portal that provides valuable information on PETRONAS' products in terms of product composition, labelling for containers and transport, safe handling and storage, incident management and compliance with regulations.</p>	<p><b>MARS</b> <b>Monitoring and Reporting System</b> An integrated and centralised system to report, record and monitor the HSSE performance indicators for PETRONAS groupwide.</p>
<p><b>FMS</b> <b>Fatigue Management System</b> A centralised system to track and monitor the Hours of Service Limit (HSL) for PETRONAS' employees and contractors.</p>	<p><b>E-Learning</b> <b>HSSE E-Learning</b> A centralised HSSE learning modules on a single digital platform.</p>	<p><b>myHealth</b> <b>myHealth</b> One stop center for Approved Medical Examiner (AME) and medical practitioners to manage medical records submission.</p>
<p><b>ICMS</b> <b>Integrated Contractor Management System</b> A system to screen contractors and prevent any blacklisted personnel from entering PETRONAS' premises.</p>	<p><b>UAUC</b> <b>Unsafe Act, Unsafe Condition</b> A centralised platform to report, track and provide analytics of Unsafe Act, Unsafe Condition and Safe Observation for PETRONAS groupwide.</p>	<p><b>AM</b> <b>Action Management</b> A centralised platform to record and track HSSE-related action items for PETRONAS groupwide.</p>
<p><b>E-RGO</b> <b>Ergonomics Management System</b> An ergonomic risk management tool to minimise the risk of musculoskeletal disorders.</p>	<p><b>IM</b> <b>Incident Management</b> A system to report, record and track actions on HSSE incidents and grievances for PETRONAS groupwide.</p>	<p>You will find specific instances of how some of PETRONAS' HSSE digital solutions are being utilised throughout this Integrated Report. Just look for the myHSSE icon.</p>
<p><b>HIRA</b> <b>HSSE Integrated Risk Assessment</b> An integrated system to manage and perform HSSE-related risk assessments.</p>	<p><b>CMIS</b> <b>Crisis Management Information System</b> A solution to minimise human actions by providing an assisted approach in managing a crisis through the use of technology and the system.</p>	



**We Intervene Because We Value Lives**

One of the signature programmes within the fold of PETRONAS' Generative HSSE Culture is the "Jom Patuh dan Tegur" or "Let's Comply and Intervene" initiative. It centres on creating a safe space for one's peers to intervene whenever they identify an unsafe act or behaviour. Here at PETRONAS, we endeavour to live a culture of care not only for ourselves but for everyone around us. This culture sees colleagues reminding one another to be safe at all times and constantly being on the lookout for one another's well-being simply because we value lives.

**Jom Patuh dan Tegur**

(Let's Comply and Intervene)



**Display your security pass prominently.**

Be sure to have your security pass visible at all times when at PETRONAS premises.



**Don't use your smartphone while walking.**

Need to use your smartphone? Stop and step aside please.



**Wear your face mask.**

Face masks are required to enter PETRONAS facilities and must be kept on when interacting with others within a 1 metre distance.



**Maintain physical distance.**

Maintain a physical distance of at least 1 metre from others at all times, and keep your mask on.



**Sanitise your hands frequently.**

Frequent hand sanitising is one of the best ways to keep COVID-19 at bay.

In 2020, we established a live dashboard that gave our employees based at the Twin Towers a real-time glance on how well employees were complying with the COVID-19 SOPs in place. The dashboard which leverages self-checks, Artificial Intelligence (AI) and video analytics with deep learning continues to be put to effective use today.

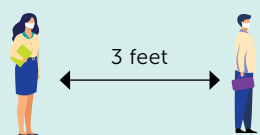
**LIVE**

**Data from CCTV at lobby area of Tower 1 and Tower 2**



**Physical Distancing**

Keep a 3-foot or 1-metre distance between you and other people.



**84%**

Physical Distancing Compliance

**16%**

Physical Distancing Non-Compliance

**Data shown here is updated real-time based on video analytics Deep Learning Model**



**97%**

Compliance on the use of mobile devices while walking



**3%**

Non-compliance on the use of mobile devices while walking

# We Stand Down in Solidarity Because We Value Lives

Our people operate in a high-risk environment and are constantly exposed to potential occupational hazards. As such, we are extra vigilant while on duty particularly at high-risk areas. Nevertheless, mishaps do happen at times and this is indeed something very difficult for all of us to accept. Despite our best efforts, news of casualties is something we can never truly prepare for.

In the event of a fatality, we hold the Safety Stand Down. This is a sombre time set aside for all of us in diverse locations across PETRONAS to come together to show our grief, pay our last respects and honour those who have lost their lives in the line of duty. We also dedicate this time to reflect on the incident and the root causes from a shared space of concern and regret, as well as pledge to do better to ensure such an event does not recur.

On 31 August 2020, one life was lost while another person was injured at the PETRONAS LNG Complex in Sarawak. Upon the incident occurring at the Acid Gas Removal Unit drain containment which was then under maintenance, both contractors were immediately sent to the hospital. However, sadly one of them succumbed to his injury. We are also deeply saddened to report another two fatalities that took place on 27 October 2020 in an incident involving a vessel, MV Dayang Topaz, which made contact with the platform structures at the Baram field, 14 nautical miles off Miri. There were 187 personnel on board at the time of the incident. The impact caused 125 personnel to jump overboard. The affected personnel were eventually rescued by the emergency responders and evacuated to Miri. However, two fatalities were reported. Sadly, MISC Berhad too recorded a fatal accident on 2 November 2020 as a result of an unfortunate mooring accident.

Safety Stand Downs are also held for our joint venture entities. On 15 March 2020, there was an explosion at the Diesel Hydro Treater Unit at the Pengerang Refinery and Petrochemicals Complex which resulted in six fatalities. The refinery complex is operated by Pengerang Refining Company Sdn Bhd, which is a joint venture entity with 50 per cent effective share of PETRONAS Holding Company. As a PETRONAS associated company, the lessons learned were also shared amongst other PETRONAS operations.

The entire PETRONAS family is deeply saddened by these incidents. We have extended our heartfelt condolences and the necessary support to the bereaved families to help them cope with their great loss. In all these incidents, thorough investigations to identify the root causes were carried out with the relevant authorities and reported to the management. All recommendations made have since been instituted to ensure such incidents will not be repeated.

One life lost is one too many and we will continue to work hard in upholding the safety and well-being of our people.

**One of the ways for us to learn our lesson from any major incident is by having a safety stand down. This is a moment for all components of the Group to come together to reflect on the incident and take responsibility for preventing any future recurrence.**



**Pandemic Preparedness Across PETRONAS**

When the COVID-19 pandemic and the ensuing movement restrictions hit us in early 2020, PETRONAS responded swiftly by making the health and safety of our people our topmost priority. The PETRONAS Pandemic Preparedness and Response Team (PPRT) was set up with its roots going deep into our daily operations around the world. Working across the Group, they coordinated activities as well as rolled out and ensured adherence to stringent SOPs. The timely and proactive measures that the PPRT implemented to manage and curb the transmission of the virus across all our operations, went a long way in keeping our people safe and operations running.

Nowadays trust is a concern. But that's not the case with the **COVID-19 One-Stop Centre.** Trusted and reliable.

The PPRT issues timely directives through one source of truth for our employees. In the 12<sup>th</sup> week into the Movement Control Order (MCO) in Malaysia, the internal portal received over **110,000 visits** from over **24,700 unique visitors.**

The PPRT also supported the Group's operational and business continuity efforts via technical advice to the Corporate Command Centre (C3). Established in March 2020, the C3 provides unified commands and generates strategic and tactical decisions across the businesses within the Group.

We also went on to set up cross-functional COVID-19 response teams that dealt with and tracked cases across the entire Group and attended to them immediately. We reviewed our global operations and mobilised our staff and families back to home countries when that was the better option.

The Group also deployed digital tools to monitor our essential services and operations requirements, imposed minimal manning on site, and moved towards working from home. Despite the limitations, we were able to maintain our operational efficiency. As traditional ways of doing business were disrupted, we adapted quickly to the new norm via virtual meetings with key customers, stakeholders and government officials.

The PETRONAS PPRT is tasked with managing and curbing transmission of the virus across all of the Group's operations. The following were some of their key achievements in 2020. Other practices are ongoing.

**Carry out Weekly Country Risk Assessments** with ISOS and Country Chairs

- Current trending of cases
- Border lockdown status
- Medical accessibility
- Travel security

**Remobilised staff and dependents to 13 host countries.**

**Evacuated 1,039 staff, dependents and sponsored students from 33 countries.**

**Transfer affected staff** from our offshore facilities to designated hospitals or quarantine centres.

**Set-up Government Quarantine Centres** at PETRONAS facilities

- PETRONAS Learning Centre, Bangi
- PETRONAS in Kota Kinabalu, Sabah for offshore crew

**Collaboration with the Ministry of Health (MOH),** government agencies and embassies to develop

- SOPs for Malaysia's oil and gas industry
- A contact tracing guidebook

COVID-19 Health and Safety Measures			
Proactive testing	Contact tracing and quarantine measures	Signpost and controls for redeployment and repatriation	Risk-assessments for events and international travels
Projection modelling to predict future COVID-19 situations	SOPs for the management of foreign workers and internal clusters	COVID-19 One-Stop Portal clusters	Mental health support



COVID-19 Responses within Our Operations

- ➔ Among the key SOPs that the Upstream business fully implemented domestically was an **occupancy limit** at any one time **at our offices, plants and offshore facilities**; while the other part of the workforce worked from home to ensure business continuity.
- ➔ Some Upstream operation crews (specifically offshore personnel and those at selected terminals) had to undergo stringent COVID-19 testing as well as adhere to a minimum of **seven to 10-day quarantine** until their test results were released.
- ➔ As a precautionary measure to ensure the health, safety, and well-being of our employees, PETRONAS **safely brought home employees and their family members from our operations abroad**. The respective PETRONAS' operations continued, while implementing the appropriate working arrangements and optimum manning levels, including working from home to ensure the continuation of operations while minimising close contact among employees.
- ➔ **COVID-19 infections** at a few of our offshore locations required us to change the teams at our rigs as part of the efforts in managing and containing the spread of the virus.
- ➔ Some crew members were **quarantined for 14 days, remained offshore for 28 days and had another 14 days of quarantine** again upon returning. In total, some spent a **total of 60 days** away from their families. Many of them also went out of their way to ensure that the needs and welfare of others were taken care of before their own. Although the lockdown produced isolation which could lead to potential mental health issues, our people went above and beyond the call of duty by playing their parts.
- ➔ We **introduced relief, rental waivers and deferrals for our retail operations** so that Small and Medium Enterprises (SMEs) were able to remain in business. By looking out for our partners across the value chain, this went a long way in helping to keep them afloat. It also ensured PETRONAS was in a strong position to move forward quickly when the market picked up.
- ➔ To **mitigate the risk of personnel** dealing with LNG shipping operations contracting the virus, the novel **Contactless LNG Offloading methodology was introduced**.
- ➔ As an **essential activity** even during the lockdowns and movement restrictions, **Project Delivery and Technology (PD&T) pivoted to source for alternative supplies** from non-affected countries and optimised the Group's inventories to keep the overall value chain running without interruptions.

Among the digital tools that we leveraged in 2020 were the following:

**The Secure Personnel Online Tracking (SPOT) system.**

a personnel localisation and tracking system which enables contact tracing to be done at sites and on ships.

**The Artificial Intelligence Security Camera (AISC)**

which is an autonomous monitoring and tracking tool that can be used for HSSE non-compliance surveillance at PETRONAS projects.

**MyBOT**

to manage staff whereabouts and well-being while integrating HSSE and Human Resource processes onto one single platform.



For more details of how we safeguarded the well-being our people amidst the pandemic, go to the Corporate Social Responsibility section on pages 179 to 181 of this report.



# Upholding Effective Occupational Health Practices

**Ensuring Optimal Health and Well-Being**

Given that employee well-being is one of PETRONAS' key priorities, we have adopted a holistic approach to occupational health that encompasses everything from inculcating healthy lifestyle programmes to upholding stringent regulatory health requirements inclusive of effective health management and emergency response plans.



To ensure our employees lead healthy lifestyles, we brought the groupwide MESTIfit4health programme into play. Targeting five focus areas, the programme encourages employees to achieve optimum health by adopting healthy habits.

<b>M</b>	<b>MOVE RIGHT!</b> Addresses physical inactivity
<b>E</b>	<b>EAT RIGHT!</b> Promotes healthy eating and a balanced diet
<b>S</b>	<b>SLEEP RIGHT!</b> Addresses issues of fatigue by promoting good sleep habits
<b>T</b>	<b>THINK RIGHT!</b> Promotes good mental health and resilience
<b>I</b>	<b>INDIVIDUAL RIGHT!</b> Promotes responsible behaviour from the perspective of managing individual health risk towards oneself and others

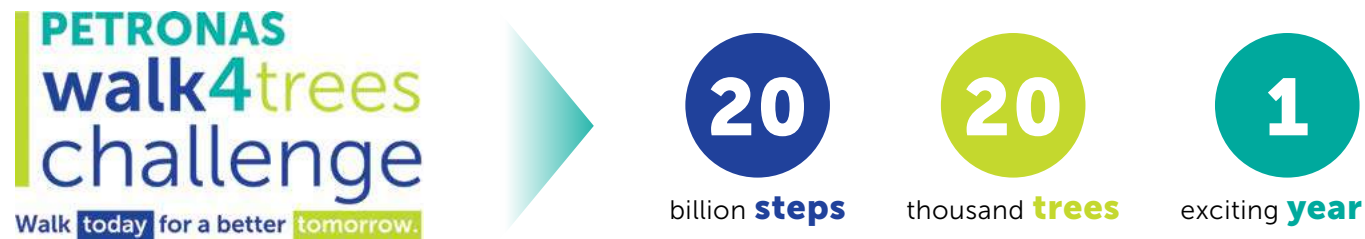


**Note:** All photos were taken before the pandemic.





Note: This photo was taken before the pandemic.



**The walk4trees challenge – A Good Reason to Keep on Walking**

The walk4trees challenge is a collaboration between PETRONAS Group Health, Safety, Security and Environment (GHSSE); Yayasan PETRONAS; Global Environment Centre (GEC) and BookDoc that aims to promote healthy lifestyles among PETRONAS staff, while they in turn pledge to do their bit to care for the environment. The programme entails planting one tree sapling for every 1 million steps that participants achieve. The initial challenge was to collectively record 20 billion steps by June 2021 and plant 20,000 tree saplings to match this achievement. Some 20,000 PETRONAS employees registered to take part upon the programme's launch in early 2020 and the target seemed achievable – until the pandemic hit. Due to the lockdowns

and Movement Control Order (MCO), the average number of daily steps by the 20,000 participants quickly dwindled and only 11 billion steps or 55 per cent of the target was logged in as of December 2020. To supplement the number of steps, the challenge has been opened to the public through the walk4trees virtual run and the virtual Orchid Run under the patronage of PETRONITA, the Association of Wives of PETRONAS' Employees and Women Employees.

In support of the programme, GEC will train selected local communities and accord them the opportunity, education and support to set up nurseries that will help improve their livelihood. The programme will also help strengthen carbon storage activities, mitigate coastal erosion and increase the yield of fisheries in mangroves.

For more details of Yayasan PETRONAS' involvement in the walk4trees initiative refer, go to the Corporate Social Responsibility section on page 189 of this report.

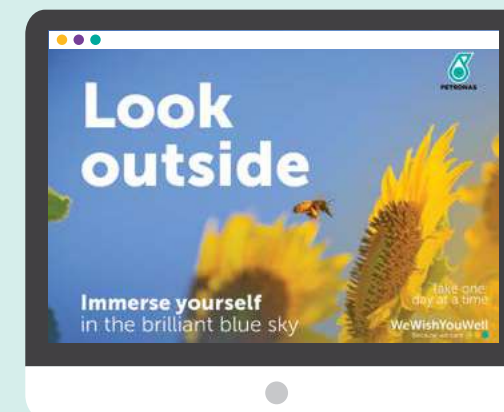
**Upholding Mental Health and Well-Being at a Critical Time**

Recognising that the pandemic had altered lifestyles and could lead to shock, isolation and the inability to cope with life's pressures – all of which could take a toll on one's mental health, PETRONAS quickly got down to implementing a support system to help employees deal with what they were going through. In 2020, we rolled out diverse, flexible mechanisms to ensure the mental health and well-being of our people were well looked after. These included:

- ➔ **24/7 virtual counselling** support to employees, their family members and sponsored students.
- ➔ The issuance of the **Mental First Aid Tool-kit (Mind-a-Care)**, as part of efforts to de-stigmatise mental health issues.
- ➔ The rollout of the **Eating Right e-Module** which advocates the benefits of maintaining a healthy and balanced diet as an important factor for attaining a quality life. We also developed an e-Module called **"A Guide to Healthy Eating"** to increase employees' awareness of the benefits of a healthy diet.
- ➔ The **"Sembang Petang" or "Evening Chat"** virtual platform serves as a safe space for employees to voice their concerns about their mental health and well-being as well as provide feedback on what they are going through.

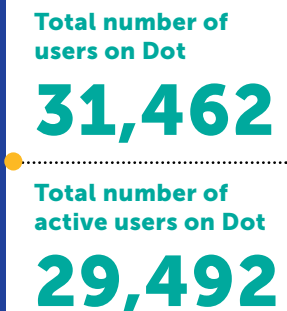
Over the course of the pandemic, we also issued a series of communications on PETRONAS' internal platforms and social media channels to motivate employees and ensure they were always engaged. Comprising words of comfort, well-wishes and little nuggets of advice on a daily basis, these did much to put across the human connection as well as remind our families that they were not alone and that they needed to stay fit physically, mentally and emotionally during the trying times.

The **#WeWishYouWell** campaign involves PETRONAS' stakeholders from within the organisation sending out well wishes to external stakeholders wherever they may be to allay their fears amidst the pandemic. It is also helping garner support and loyalty for the PETRONAS brand.



**The campaign garnered over 207 million online impressions in 12 weeks**

The **PETRONAS Dot App**, a social platform for employees, saw the number of daily active users doubling between March and April 2020 at the height of the pandemic when the MCO was implemented in Malaysia. These numbers prove that employees found it an effective outlet to stay connected with each other during this unprecedented time.





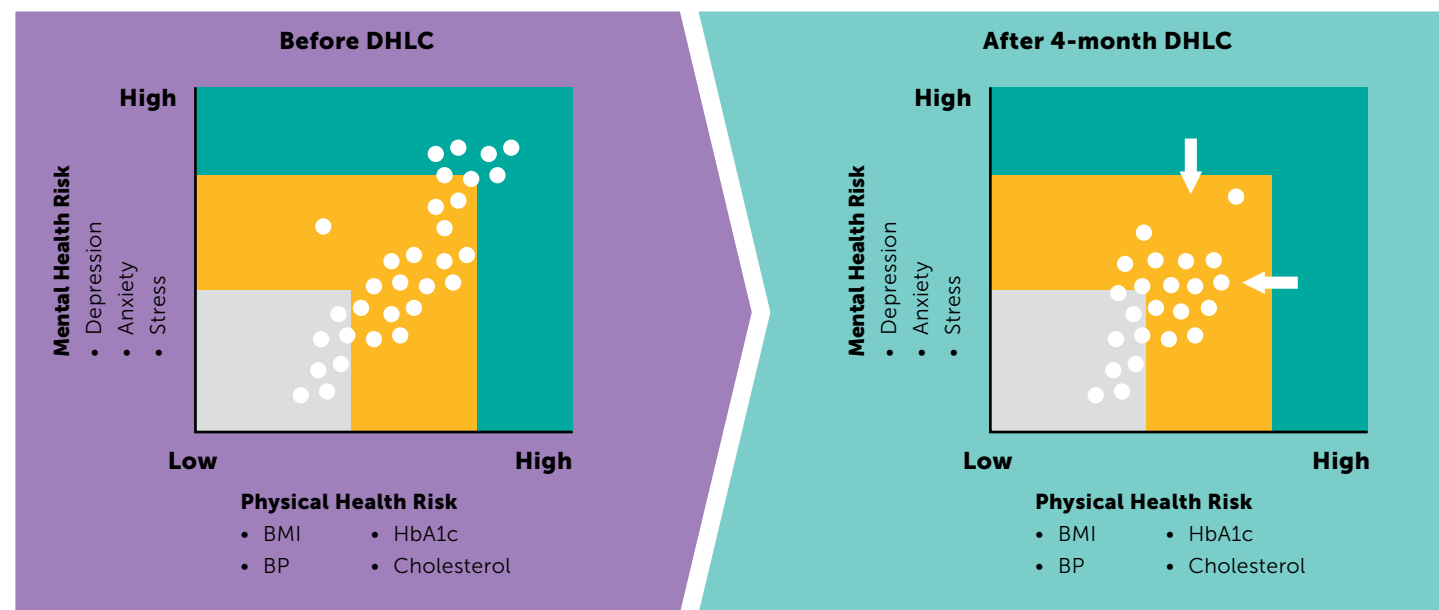
**Enabling Employees to Take Ownership of their Personal Well-being**

PETRONAS desires that its employees take ownership of their own physical and mental well-being and we are providing them the necessary tools to do this.

**Overall Improvements to Physical and Mental Health Risk After the Fourth Month of the DHLC**

The Digital Healthy Lifestyle Coaching (DHLC) platform is a digital integrated wellness coaching solution that aims to address the root causes of physical and mental health risks. Following the maiden launch of the DHLC platform in 2018, we rolled out the second phase in September 2019. A total of 483 participants took part in the assessments during the intensive and maintenance periods of the programme. They successfully completed their assessments in February and October 2020 respectively, four months and a year from the time the assessments began. As per the diagramme below, this initiative showed significant improvements in the physical and mental health outcomes of the participants.

**Overall Improvements to Physical and Mental Health Risk After the Fourth Month of the DHLC**



**Enabling Quicker, More Efficient Health Assessments**

In July 2020, PETRONAS' myHealth portal went live, enabling employees to self-manage their end-to-end health assessment process. The portal is helping drive a culture of health ownership among the Group's employees by providing descriptive and predictive insights that enable the prescription of appropriate health and wellness programmes to employees based on their health risks and needs. myHealth also accords employees a personalised health risk dashboard while an auto-notification function reminds employees of the due dates for their health assessments. All in all, the myHealth portal has led to an 85 per cent improvement in efficiency and reduced the average health assessment processing time from three weeks to three days.

**Our Wellness and Mental Health Strategy Moving Forward**

This year, the Group's Wellness and Mental Well-being Strategy and Programme will be delivered to employees through two main streams, namely:

**1 The Coaching and Counselling stream**

This will take the form of a 24/7 holistic digital counselling app that will address an employee's personal stressors holistically as well as provide him or her access to multi-disciplinary coaches who will cover topics as diverse as spiritual, mental, physical, financial, social and occupational wellness.

**2 The Wellness Learning Solutions stream**



**Mitigating the Risk of Food Poisoning**

PETRONAS continues to work on reducing the number of annual cases of avoidable occupational illnesses such as food poisoning. Since 2018, our GHSSE division has collaborated with the Ministry of Health (MOH) and its resources to obtain the BeSS (*Bersih, Selamat dan Sihat* or Clean, Safe, and Healthy) food hygiene certification for the Group's 64 in-house caterers. The BeSS certification verifies that an operator of a food premise has provided food in a safe and healthy manner, in compliance with the health authorities' standards of hygiene. In 2020, we reached our target of obtaining MOH Approved Hygiene Standards (54 BeSS and 10 Grade A) for all our internal caterers. Since 2018, there have not been any food poisoning incidents related to our in-house caterers. However, in February 2020, there were two separate food poisoning incidents at two of our Operating Units. These incidents, which affected 42 employees, were traced back to external caterers. By the end of 2020, we had achieved the following milestones:



**Strengthening Fatigue Management Efforts**

Individuals who experience fatigue often see a decline in their performance and productivity and are at a higher risk of being exposed to occupational incidents. To mitigate fatigue-related occupational incidents, the Group has established a compliance system called the Fatigue Management System (FMS) that has been in place since 2018. Following user feedback and site observations at 53 of our assets, the reliability and effectiveness of the system has been strengthened. To date, FMS has effectively delivered the following results:



Note: This photo was taken before the pandemic.

Monitors **working hours, days and rest periods** based on work groups.

Provided coverage for **59 of 70 identified assets** with no fatigue-related incidents reported.

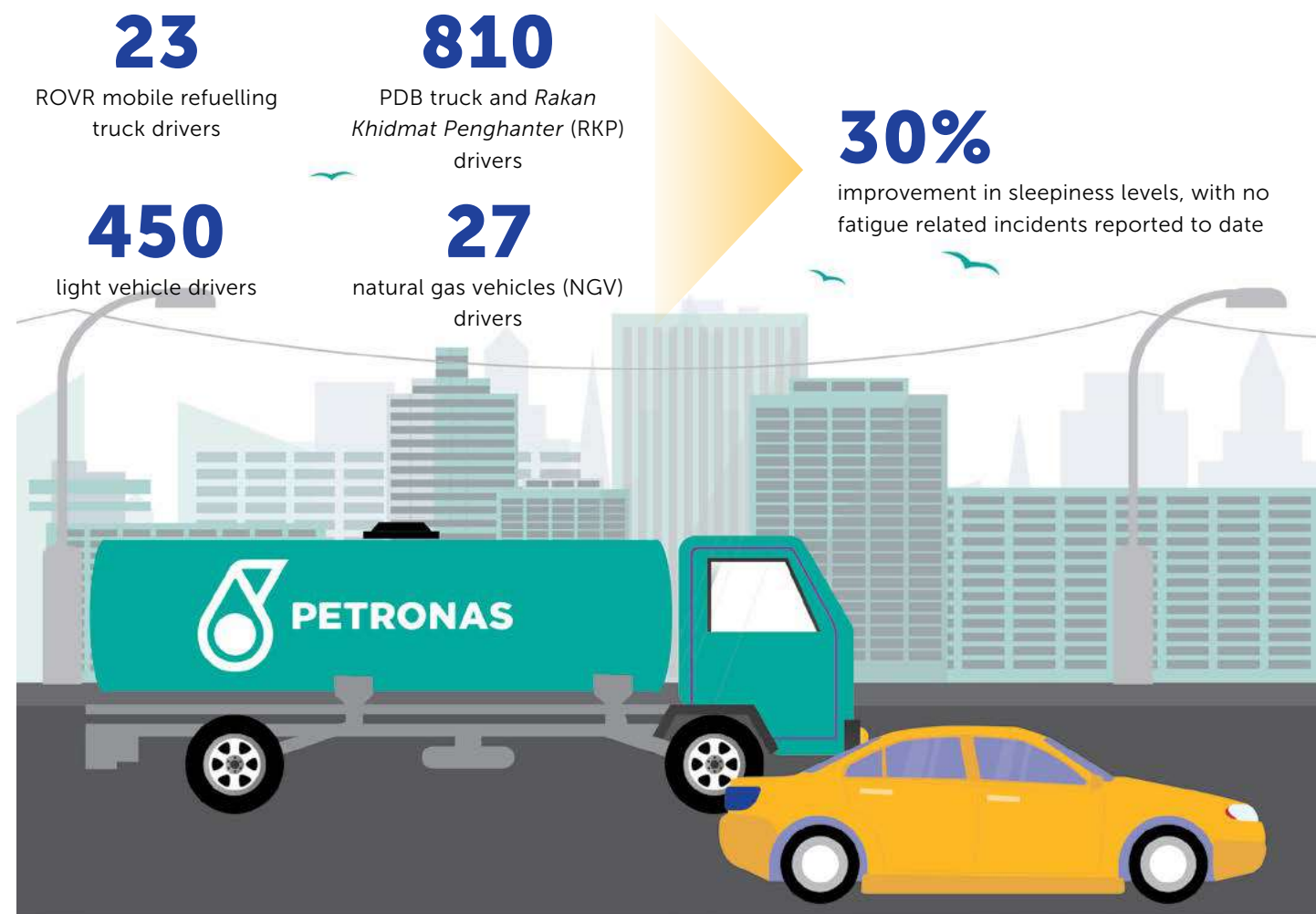
Prevented **22,000 potential fatigue-related incidents** through non-compliance monitoring on fatigue management.



The Group's fatigue management efforts are also championed by MESTIfit4Health's Fatigue Remedy and Sleep Hygiene (FReSH) Programme under its Sleep Right module. The intervention programme was developed to complement fatigue management by managing sleep quality.

**Fatigue Remedy and Sleep Hygiene (FReSH) Programme**

The FReSH Programme develops awareness of sleep biology and provides several solutions and interventions to address sleep-related issues. This includes eight weekly toolbox talks covering several modules. To date, several groups within PETRONAS have benefitted from FReSH:



**FReSH Programme Survey Conducted Among Rakan Khidmat Penghantar (RKP) Drivers**

Over **20% improvement** in the RKP drivers' **quality of sleep**.

Over **16% improvement** in **time management for sleep**.

Over **20% increase** in the **amount of RKP drivers getting > 7 hours of sleep** every day.

Over **20% improvement** in the **quality of power naps taken by RKP drivers**.

The FReSH programme today forms part of the compulsory training and serves as a reference for the Road Transport Operating Guidelines for RKP, NGV, ROVR and light vehicle drivers. This year, the FReSH programme will be targeting Sabah-Sarawak Gas Pipeline (SSGP) drivers and Downstream plant operators.



**Prioritising Industrial Hygiene**

One of our topmost priorities is to ensure the health of our employees and contractors within and beyond the workplace. We go beyond regulatory compliance and implement global best practices to deliver sustainable value and ensure a dedicated, productive and high-performing workforce. These include continuous efforts to address all workplace health hazards and respective risks such as chemical hazards, physical hazards (i.e., noise, radiation, thermal and vibrations), as well as biological, ergonomic and psycho-social hazards.

**Industrial Hygiene Interventions**

For 2020, we made good progress in the following areas:



**Noise Improvement Control and Engineering (NICE)**

We implemented control measures to reduce over-exposure to noise at source or Occupational Noise Induced Hearing Loss (ONIHL) cases once these had been identified. Noise reduction measures (via engineering control) are ongoing at Sabah Assets (SBA) and PETRONAS Chemicals Fertiliser Kedah (PCFK) Sdn Bhd. We anticipate to achieve noise reduction readings of approximately 2.7–28.7 dBA from our SBA study and 1.2–31.2 dBA from our PCFK study.



**Buy-Quiet Programme**

Situational assessments were conducted on six projects to assess the implementation of Hearing Conservation Buy Quiet standards within the various phases of each project. This is to ensure emphasis is placed on the purchase and installation of quieter equipment or machinery as a preventative measure to reduce workers' long-term exposure to noise at site.



**Ergo Management Programme**

Due to the shift in working arrangements from office to home during the pandemic, a Work-From-Home (WFH) self-assessment checklist was released that included work area set-up improvements and home hacks. Based on early feedback, educational infographics were developed and webinars conducted to further enhance employees' knowledge of WFH ergonomics.

**Eyes Guard Application**

The Eyes Guard application, a computer ergo stretch break reminder app, was released. The app was piloted at identified departments/facilities to instil a habit of taking micro-breaks when reminders popped-up. With the increase of computer/laptop usage, this app reminds users to take stretch breaks every 20 minutes and a brief walk/movement break every hour.



**Nano-material Risk Assessment (NaRA)**

We established an inventory of nano-engineered materials and conducted the first risk assessment at Universiti Teknologi PETRONAS. The assessment method uses nanomaterial physical characteristics such as water solubility and friability, among others, to determine risks to health.

**e-Chemicals System**

A digital system to track all supplies of hazardous chemicals at site using a QR Code was implemented. This system helps alleviate recurring pain points related to the periodic review and updating of chemical registers, as well as non-compliant safety data sheets and labelling. An upscaled system will be integrated with the chemical purchasing process whereby it will screen banned chemicals and chemicals of very high concern (CVHC) in tandem with assessing their risk as part of the Management of Change process.

**Note:** All photos were taken before the pandemic.



**Bolstering Our Industrial Hygiene Capability**

On top of the 17 existing Industrial Hygiene Technical Professionals and in anticipation of the Department of Occupational Safety and Health Malaysia's (DOSH) Ergo Risk Assessment Guidelines becoming an Industry Code of Practice (ICOP), the following personnel within the Group have been internally trained as competent persons, qualifying them to conduct ergo risk assessments within PETRONAS.



In 2020, we also recorded the following results in comparison to the previous year:

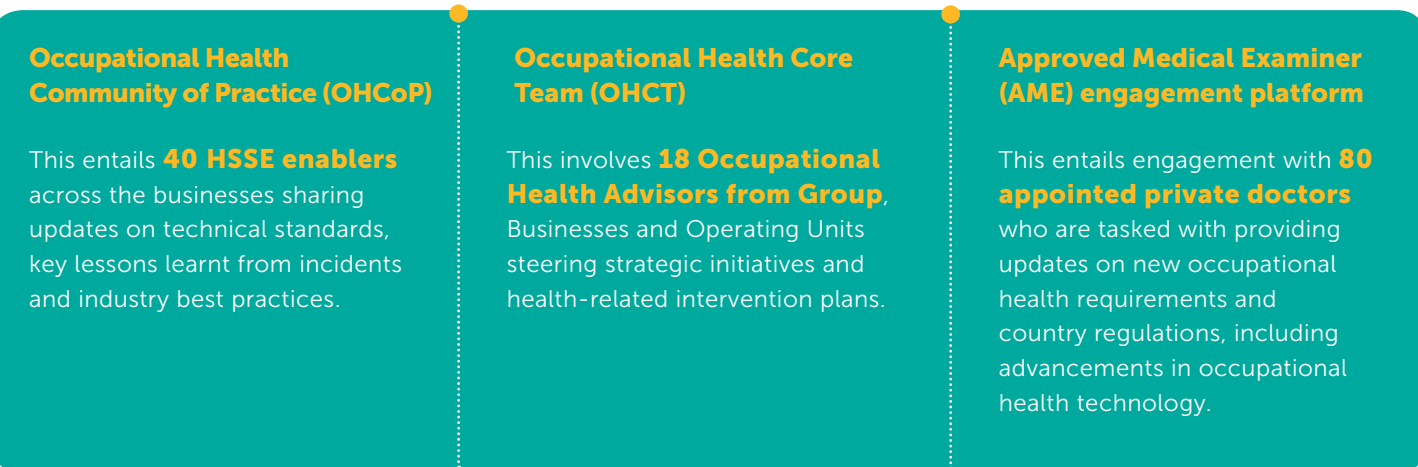


The overall Health Performance Indicator for Total Recordable Occupational Illness Frequency (TROIF) for the past five years is outlined below:

Key Performance Indicators	2016	2017	2018	2019	2020
<b>Total Recordable Occupational Illness Frequency (TROIF)</b>	0.32	0.08	0.22	0.08	<b>0.16</b>
Illness per million working hours – employees					

**Ensuring Sustainable Occupational Health Capability Building Platforms**

To enhance the effectiveness of the Group's occupational health and wellness programme delivery, three permanent capability building platforms were established in 2020.



In 2020, these platforms focused primarily on strengthening the management of COVID-19 pandemic and mental health interventions, as well as the prevention of occupational illnesses.

**Going Beyond Compliance in Process Safety**

**Ensuring a Robust Process Safety Framework**

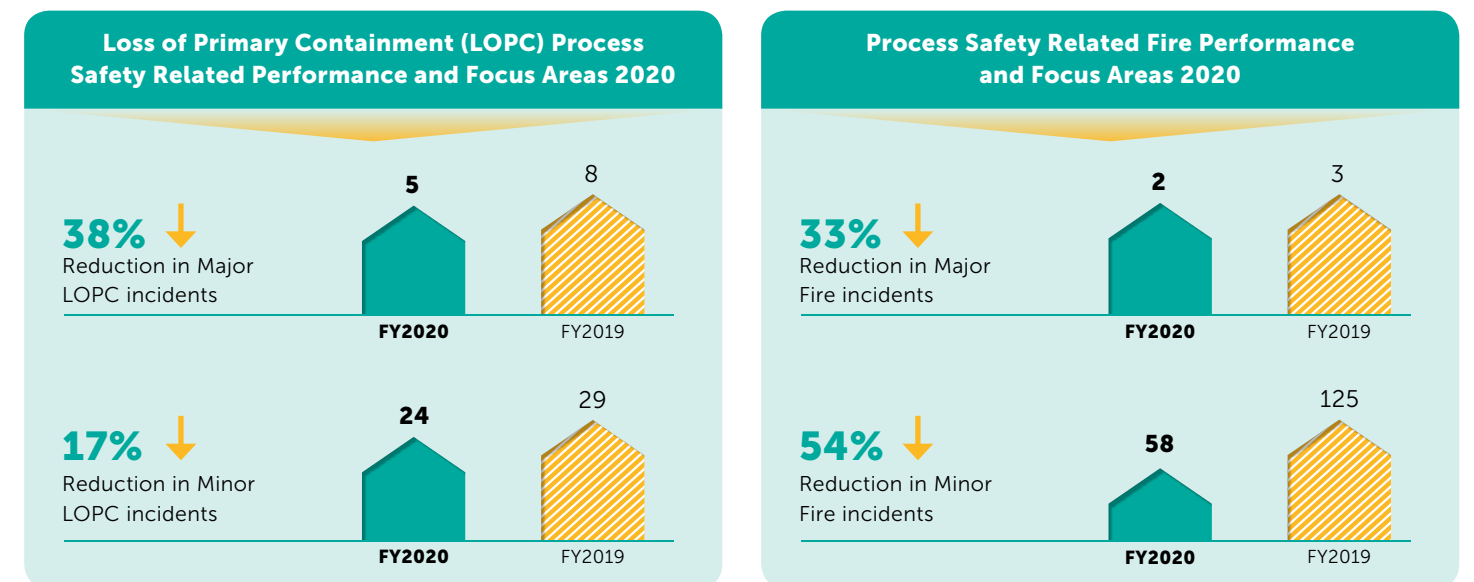
As we focus our efforts on shaping PETRONAS' Generative HSSE Culture, we are working hard to link fundamental human behaviour with compliance so that every individual within the Group embraces HSSE, particularly process safety, as a mandate and a responsibility.

Being a member company of the Centre for Chemical Process Safety, PETRONAS incorporates industry best practices in our implementation of process safety initiatives. The Group has achieved significant progress in its process safety performance since the establishment of the programmes and frameworks which enable the early prevention and mitigation of our process safety events including Loss of Primary Containment (LOPC) and fire incidents.

The Process Safety Loss of Primary Containment Reduction (PSLR) Framework and the Fire Prevention and Mitigation Framework (FPMF) were established in 2017 and 2018 respectively. Since then, we have seen the number of Tier 1 Process Safety Events (PSEs) decrease from 12 to seven cases, or a 42 per cent reduction, over the 2016-2020 period.

Our proactive efforts in Process Safety fundamentally revolve around risk management. To ensure the Group maintains a structured approach when managing hazards and risks, PETRONAS subscribes to the Hazard Effect Management Process (HEMP) and the As Low As is Reasonably Practicable (ALARP) principle. The HEMP is a risk management process which ensures that hazards and risks to the workforce, equipment, properties, and environment are properly controlled. In instances where controls fail, the HEMP helps to manage the impacts of these incidents. Meanwhile, the ALARP sets the level at which risk should be controlled. Digital technology serves as a key enabler to facilitate the implementation of this risk management process and to improve its effectiveness. In this regard, PETRONAS has embarked on the Integrated Process Safety Solution (IPSS) with the successful launch of the Hazard Identification and Risk Assessment (HIRA) and EMOC (Engineering Management of Change) digital modules for both our international and domestic businesses in 2020. This is part of our efforts to further improve our Process Safety performance in line with our zero Process Safety Event aspiration.

In 2020, we achieved the following process safety milestones:



Key Performance Indicators	2016	2017	2018	2019	2020
<b>Number of Tier 1 Process Safety Events</b>	12	12	9	7	<b>7</b>
Number of cases					

**Note:**  
The updated Number of Tier 1 Process Safety Events for 2018 is due to internal assurance and data verification.



### A Solid Crisis and Incident Management System

As a global operative in the oil and gas industry, PETRONAS is well aware of the various hazards and incidents that our line of business has to contend with. In mitigating the disruptive nature of these events, the Group has established a strong management system that addresses crisis and incident risk at every level.

The Crisis and Incident Management System (CIMS) forms part of the Group's HSE Management System (HSE MS) and Mandatory Control Framework (MCF). While it is founded on solid governing procedures, this framework is also designed to evolve and improve with every incident that occurs. As part of our upscaling measures, the Group runs thorough incident investigations and uses the findings from these investigations to enhance the framework. These findings enable us to identify the best interventions and prepare the appropriate contingency plans that will help us to minimise the negative impact of any untoward incident.

When it comes to response procedures, we have developed a groupwide three-tiered response system that outlines the various roles and responsibilities relating to emergency site management, operating unit management, as well as management of the corporate office and the authorities. In ensuring that crisis-preparedness is kept at an optimal level, our facilities and assets are required to conduct emergency drills and response exercises on a scheduled basis. On a management level, we assess our emergency-readiness through regular reviews. Furthermore, we utilise digital tools and systems to help us track and maintain our contingency efforts.

### CEFS – Single-source Managed Solutions for Emergency and Fire Response Services

**CEFS** is an entity that has been set up to provide single-source managed solutions for emergency and fire response services. The **first two CEFS** establishments, namely CEFS Response Kerteh and CEFS Pengerang Integrated Complex (PIC) Pengerang, are located at the Kerteh Integrated Complex in Kerteh, Terengganu and the PIC in Pengerang, Johor respectively.

**CEFS Bintulu**, the **third CEFS** establishment, is located in Bintulu, Sarawak. It offers similar services to its members in the **Tanjung Kidurong Industrial Area (TKIA)**. CEFS Bintulu is now in its final phase of operation readiness before it kick-starts full operations in the fourth quarter of 2021.

The establishment of CEFS Bintulu will provide a **systematic and integrated emergency response capability to all members when managing major potential incidents** such as tank fires and other types of fire, chemical spills, explosions as well as their cross-boundary impact.

CEFS Bintulu will continue to provide **basic services together with value-added services** such as manpower outsourcing, equipment rental and emergency training services at cost.

*Note: This photo was taken before the pandemic.*

### Complementing Safety Efforts via Virtual Emergency Response Drills

To help PETRONAS' Emergency Teams make timely decisions, nine emergency response drills called Hybrid Emergency Response Exercises for domestic and international operations were implemented virtually in 2020. These drills complemented the PETRONAS Contingency Planning Standard guidelines for conducting drills and exercises. They entailed:

- ➔ **Live and simultaneous data capture.**
- ➔ **Integration with the Crisis and Incident Management System (CIMS)** which offers more crisis management tools such as Spill Impact Mitigation Assessment (SIMA), Shoreline Clean-up Assessment Technique (SCAT) and a Foam Calculator.
- ➔ For incident management, GHSE has also developed and introduced an **HSSE Incident Management (HSSE IM) system** that serves as a centralised system to record, report and track actions on HSE and Security incidents for PETRONAS groupwide. The system went live on 1 January 2019 and is currently on track for full groupwide implementation by 2022. This HSSE IM system is also integrated with a **Monitoring and Reporting System (MARS)** capability which allows users to monitor HSSE incidents from centralised dashboards and reports.

### Bolstering Our Emergency and Crisis Management Capabilities

In 2020, PETRONAS collaborated with the PETRONAS Leadership Centre (PLC) to enhance the capability of our Country Chair and Leaders across the Group via the PETRONAS Country Ambassador Professional Training and International Networking (CAPTAIN) series. The CAPTAIN series is designed to encourage the exchange of knowledge and sharing of best practices among peers, experts and leaders of the Group. Using a real evacuation as a case study, the series strengthens participants' skills and accords them a deeper understanding of crisis and media management.

The Group also accelerated personnel competency by facilitating various upskilling programmes for our Emergency and Crisis Leadership Teams, as well as Country Contingency Teams. The following are some of the year's initiatives:

- ➔ **Train the Trainer (TTT) programme**  
**76 personnel** from the businesses were appointed as in-house PETRONAS **Emergency and Crisis Management (ECM) Trainers**, thereby increasing the pool of Emergency and Crisis Management Trainers.
- ➔ **Gen-R Series (Respond, React and Reliable) programme**  
**8 Gen-R sessions** were conducted, increasing Emergency and Crisis management awareness for **1,000 Non-Emergency Response practitioners**.
- ➔ **Confined Space Rescue Certification Programme**  
Strengthened the **Emergency Response Team's capability** to perform rescues in confined spaces via drills at the Institut Teknologi Petroleum PETRONAS (INSTEP) facility. Received site certification by **BOMBA for fulfilling Department of Occupational Safety and Health Malaysia (DOSH)'s Industrial Code of Practice (ICOP)** for Safe Working in a Confined Space, 2010. This programme has now become a new course offered by INSTEP.

Throughout 2020, some 5,000 participants benefited from various Emergency and Crisis management training sessions which included specialised fire safety and oil spill response training.



*Note: This photo was taken before the pandemic.*



Natural Disaster Contingency Management

The Flood Operation Coordination Committee (FOCC) is tasked with securing the collaboration and commitment of the Group's various business entities in the East Coast to ensure that our operations are well prepared for the monsoon season. In 2020, the FOCC conducted "Ex Tengkujuh III", an annual emergency response exercise (ERE) and training session as well as organised briefing and engagement sessions with relevant stakeholders including government authorities.



As part of the Group's disaster preparedness efforts, we have published the "Natural Disaster Contingency Plan" that provides guidance on managing natural disasters such as floods, tsunamis, earthquakes and tropical storms.

PETRONAS' flood management initiative continued in 2020 under the leadership of GHSSE and our East Coast Regional Office. During the year in review, ERE and training sessions were conducted in order to ensure our readiness in managing floods. This involved the FOCC, led by the PETRONAS Regional Office and 23 Flood Operation Committees (FOC) established at the respective Operating Units. To support the FOCC, the Group appointed 40 employees as FOC members.

Security

The Group is constantly enhancing its security measures to ensure the safety and well-being of our people, operations, information and property. Our efforts are supported by the relevant laws and regulations pertaining to security matters as well as PETRONAS' Security Policy and Security Management System (SeMS).

**Be it through continuous assessments or innovative improvements, our aim is to uphold resilient and effective security controls to safeguard the sustainability of our businesses. In 2020, we focused our efforts on strengthening our processes and predictive capabilities through a series of assessments and follow-up measures.**



Security Governance and Assurance

The year under review saw our Security Division under GHSSE completing the assessment and implementation of the enhanced SeMS 2.0, whereby the team thoroughly reviewed and tightened sections such as assurance as well as security research and analysis. Other improvements included clarifying the role of the businesses in implementing the provisions within the SeMS.

As a follow-up to this exercise, the workings of the revised SeMS were communicated to all businesses. The Security Division also conducted targeted engagements on topics such as personnel and workplace security management. These sessions, conducted virtually, resulted in the enhanced integration of security elements as part of the larger business decision-making process.

On the Malaysian front, the Security Division was able to fully complete the first and second-line assurance for identified assets in the country. We aim to replicate this success across the Group with ongoing improvements to streamline areas such as security incidents reporting and security management practices. Furthermore, the identified assets, both locally and internationally, have been further evaluated to ensure full compliance with PETRONAS' Mandatory Minimum Security Standards (M2S2). Although the onset of the COVID-19 pandemic and corresponding movement restrictions impacted our ability to undertake physical gap closure assessments, we pursued alternative solutions via close collaboration with our internal stakeholders resulting in successful gap closures.

Proactive Security Risk Management

PETRONAS adopts a proactive approach to risk management to ensure that all potential threats and risks are adequately mitigated. In 2020, our Security Division worked on the following:

Strengthened our capabilities

in the areas of predictive security analysis. This included identifying, monitoring and evaluating PETRONAS' vulnerability against external security threats to ensure foreseeable business risks were addressed in a timely manner and that the necessary controls were in place.

Provided instantaneous consultation and assistance on various security-related matters. The team leveraged internal subject matter experts, including forecasting analysts, to facilitate effective proactive risk management. It also coordinated periodic engagements with internal stakeholders to facilitate the sharing of actionable insights to ensure optimum security preparedness.



Note: This photo was taken before the pandemic.

As our teams went about their duties, particularly during the various phases of the Movement Control Order (MCO) in Malaysia, they were accorded 24/7 security support via the Security Operations Control Centre (SOCC).

PETRONAS is currently working towards converging physical and digital security solutions to leverage digital analytics for enhanced security management. This is to enable real-time evaluation of security vulnerabilities that can affect PETRONAS' global interests.



Ongoing Security Digitalisation Efforts

→ **Integrated Contractor Management System (ICMS)**

**Overview**

A system to screen contractors and prevent any blacklisted personnel from entering PETRONAS' premises.

**Value Add**

Single source of updated information for all PETRONAS businesses in Malaysia.

**Highlights in 2020**

Initiated Offshore/Onshore Safety Integrated System (OSIS) to expand ICMS module to offshore operations.

→ **Intelligent Security Operation Centre (ISOC)**

**Overview**

A security system that utilises Intelligent Data Collection, Management and Analysis to provide strong security protection and intervention.

**Value Add**

- Centralises security information management.
- Improves integration across existing security systems.
- A platform that provides 24/7 end-to-end security support.

**Highlights in 2020**

- Developed prototype for an integrated digital security management platform.
- Provided 24/7 security support during the various COVID-19 movement restriction phases.

Security Compliance Culture

When it comes to security, PETRONAS subscribes to the concept that "security is everyone's responsibility". We continue to inculcate the values of accountability and responsible practices in our security awareness campaign to encourage individuals to collectively play their part in observing security mindfulness across the Group.

In the year under review, our Security Division actively accelerated awareness and education on various security topics using various platforms to elevate staff's understanding of security behaviour. These platforms encompassed posters, articles, videos and staff awareness sessions throughout the year focusing on topics such as Security amidst COVID-19, Festive Security and SeMS. The team also organised special briefing sessions for PETRONAS scholars travelling abroad to pursue tertiary education.

We carried out the "What Security Means to Me" campaign which emphasised the importance of security in upholding a safe and conducive workplace. This groupwide campaign featured top management personnel reinforcing the importance of proactive security measures from the individual and business perspectives. Part of the campaign included the implementation of the Security Community of Practice where topics such as the importance of managing security risks proactively amidst evolving externalities; real experiences on how and why security matters on the ground; and the realities of security threats and risks, were discussed.



GHSSSE also organised a pilot Security Walkabout session to reinforce the right security behaviours and to ensure provisions within the Minimum Mandatory Security Standard (M2S2) were being observed at the workplace. Findings from the walkabout were shared with the management for corrective purposes. Going forward, we plan to conduct the Security Walkabout at the PETRONAS Twin Towers in Kuala Lumpur and at other identified operational assets within Malaysia.

Security Stakeholder Engagement

Stakeholder engagement plays a vital role in business sustainability as it offers us valuable perspectives and insights as to how we can continue to strengthen our business. Furthermore, it provides us with collaborative opportunities which serve to enhance the scope of our operations.



**Working Together to Keep Our People, Facilities and Seas Safe**

In 2020, PETRONAS continued to engage with various local and international security stakeholders. In Malaysia, this entailed working alongside various external enforcement and government agencies. These collaborative efforts have done much to elevate the safety and security of PETRONAS' facilities, particularly our offshore oil and gas facilities in Malaysian waters.

Among the Security Division's key accomplishments in 2020 was the safe and successful Sail Away of the PFLNG DUA from South Korea to Malaysia. It involved a 14-day journey traversing diverse waters between five littoral states, undertaking thorough internal risk assessments, as well as striking up strategic alliances and engaging with relevant government agencies. Under the watchful eye of a dedicated security escort in the form of the KD Lekiu, the PFLNG DUA arrived safely at the Rotan Field - Sabah Waters in March 2020.

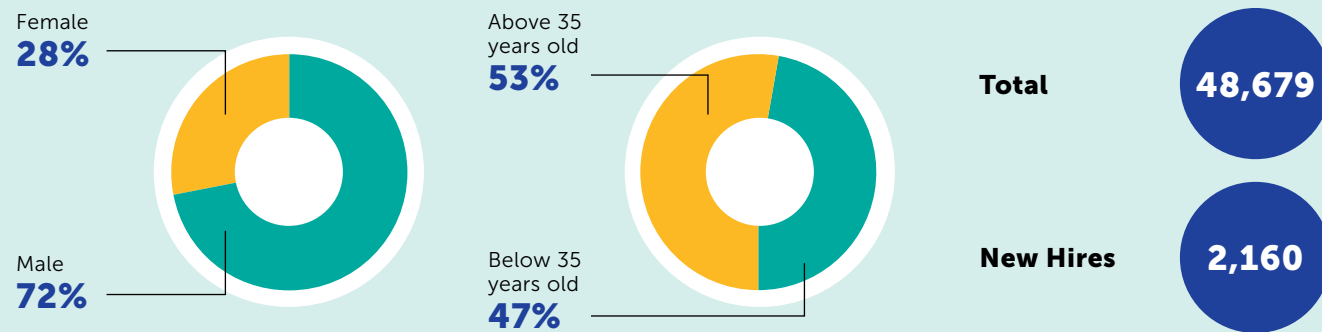
The year also saw us undertaking periodic engagements on security matters on an as-needed basis with relevant agencies abroad. Similarly, we carried out consultations with internal stakeholders across our businesses to ensure security controls were adequately in place as per the SeMS and M2S2. During identified periods of elevated security, we also sought timely advice to ensure additional measures were instituted to correspond with the identified risks.



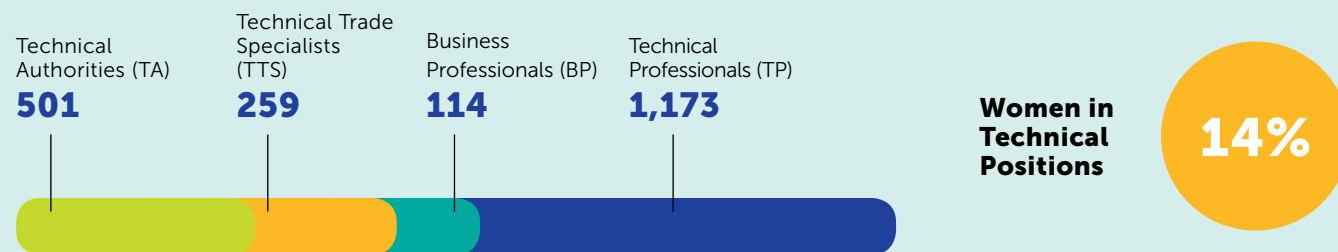
## Talent and Education

PETRONAS' greatest assets are its people. They are the reason for our growth and progress. We have made it our purpose to ensure that our people have an enriching experience with us, while contributing to the sustainable growth of our organisation and the communities we operate in.

### Total Employees



### Total Technical Expertise



Note: This photo was taken before the pandemic.

To attract and retain the best talents, we place great emphasis on the well-being of everyone on our workforce, competitive remuneration, a diverse and inclusive work environment where everyone is given equal opportunity to contribute and be recognised, the nurturing of individual potential and reward-based performance. These, among other factors, contribute towards PETRONAS' position as an employer of choice.

As of 31 December 2020, our total manpower stood at 48,679 employees with 85 per cent employed across our Asia operations.

### HR Awards and Accolades

PETRONAS continues to receive recognition on the Malaysian and international fronts, for its commitment to upholding excellence in human capital development. The following awards underscore our commitment in this area:

- No 1** for **Leading Graduate Employer** in the **Energy/Oil and Gas/Utilities sector** for the third consecutive year since 2018 in the Malaysia's 100 Survey
- 1st Runner-Up** for **Graduate Employer of the Year Award** at the Malaysia's 100 (M100) Leading Graduate Employers Awards event
- Top 10** Voted as being **among the Top 10 Best Graduate Employers in Malaysia** in the Graduates' Choice Award polls
- Top 5** Voted as being **Number 1 among the Top 5 Best Oil and Gas Graduate Employers in Malaysia**, in the Graduates' Choice Award poll
- Most Attractive Employer** Ranked as the **Most Attractive Employer in Malaysia** by Ranstad, one of the world's largest staffing firms

PETRONAS' signature leadership development programmes for middle management, Tactical Excellence and Managerial Excellence, won the following awards from the Brandon Hall Group:

- Gold** for **Best Advance in Instructor-led Training (ILT) Management and Delivery (Managerial Excellence)**
- Gold** for **Best Advance in Measuring the Impact of Leadership Development (Tactical Excellence)**
- Silver** for **Best Advance in Gaming or Simulation Technology (Managerial Excellence)**
- Silver** for **Best Advance in Social Learning Technology (Managerial Excellence)**
- Silver** for **Excellence in Learning Impact in PETRONAS**

### Managing Employee Well-being and Sustaining Productivity

The year 2020 was truly an unprecedented year for the world impacting all aspects of life. As the world went into lockdown, PETRONAS responded swiftly by establishing the Corporate Command Centre (C3) committee and PETRONAS Pandemic Preparedness and Response Team (PPRT). Both committees steered the PETRONAS Group and provided direction in managing working arrangements.

While the safety and well-being of our employees was our utmost priority at all times, we also put in every effort to maintain employee motivation and productivity while minimising the disruptions to business operations. Among the immediate actions we took included:

Implementation of special working arrangements effective 18 March 2020 with split teams:

- **Onsite work for key operational activities that required manning**
- **Work-from-Home/alternate work location arrangements for the rest of the organisation**

For more details on PETRONAS' COVID-19 responses, go to the Pandemic Preparedness Across PETRONAS section on page 142.

→ During the Movement Control Order (MCO) period in Malaysia, approximately **83% of employees worked remotely**. This was carried out seamlessly with employees receiving regular updates on guidelines and advice to help them adjust to the new working arrangements.

→ Concurrently, a team under the Digital Group also ensured the availability of digital collaboration tools such as Microsoft Teams and our **virtual private network (VPN), as well as provided support in the form of an online technical helpdesk**, while ensuring that our digital platforms were secured from cyber threats.

→ **Two employee surveys were carried out to gauge the implementation of remote work arrangements** and the results indicated that employees found these working arrangements 'satisfactory'. The remote work arrangements did not have any adverse impact on PETRONAS' operations and the organisation is considering making the working arrangements a permanent post-pandemic option.



**Retooling the Human Capital Equation – Preparing Our Workforce for the Future**

The world as we know it, is evolving at a tremendous pace and the possibilities are infinite. To prepare us for the future, we have taken deliberate steps to **Reshape Our Portfolio** into one that is of high value and upholds a superior performance. To prepare our people for this future with a reshaped portfolio, efforts are underway to **Retool and Create a more Agile Ecosystem** with employees being a key component of the ecosystem to steer long-term growth and sustainability.

Today, PETRONAS is **Retooling the Human Capital Equation** through **three key pillars**:

<p><b>1 Talent Engine</b></p> <p>Talent is managed with an end-to-end approach which is, from hire-to-retire. This involves talent planning and acquisition, talent mobilisation, the realisation and nurturing of a high-performing culture, measuring performance, and rewarding the talents for their contributions.</p>	<p><b>2 Innovation Engine</b></p> <p>This entails building a sustainable culture of innovation across PETRONAS, where every employee is empowered with the right tools, support and structure; they need to think big, experiment with breakthrough ideas, and push this into production; while keeping the customer top-of-mind.</p>	<p><b>3 Agile Leadership</b></p> <p>This centres on creating leaders who embody and role-model Agile principles and practices by empowering teams to plan and deliver work, setting up the right cross-functional teams for the right priorities, and guiding teams to the desired outcomes.</p>
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*Note: This photo was taken before the pandemic.*

In setting up the right culture to spearhead the organisation’s growth strategies, PETRONAS has reviewed its Cultural Beliefs and launched a new refreshed set of Cultural Beliefs, which mandate our employees to uphold the following maxims:

<p><b>Customer Focused</b> I deliver solutions from the customer lens</p>	<p><b>Innovate Now</b> I challenge norms and push boundaries</p>	<p><b>Be Enterprising</b> I seek opportunities and make them happen</p>	<p><b>Speak Up</b> I express my views openly</p>	<p><b>Courage to Act</b> I take action to progress with pace</p>
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The new PETRONAS Cultural Beliefs were launched by PETRONAS’ President and Group Chief Executive Officer, in tandem with the new internal Moving Forward Together aspiration. This was followed by eight cascading sessions to ensure alignment across the Group.



**Learning and Development**

At PETRONAS, we take a holistic approach when it comes to enabling and empowering our talents to develop and nurture their full potential. We recognise that a strong pipeline of capable leaders and competent workforce will ensure and reinforce the sustainable growth of the Group. As such, we are actively involved in building the capabilities of our talent pool to become a highly skilled, innovative and agile workforce by enabling them to self-drive their own career growth in the organisation while delivering on business objectives. In 2020, more than RM170 million was invested in learning and development.

In building our leaders, we design and implement transitional leadership development solutions to equip our leaders with the critical leadership competencies. One of our signature initiatives is the Top Leaders Dialogue (TLD), a platform that aims to enhance the enterprise perspective of PETRONAS’ top 150 leaders through engagement, alignment, and collaboration on business direction. In TLD, our leaders are also given the opportunity to engage and learn from well-known leadership thought leaders.

To ensure the Group’s human capital development is managed more efficiently, we had started to leverage on digital technologies and tools. The pandemic accelerated many of these efforts to ensure that talent development could continue.

**In 2020, we successfully launched and deployed the Superior Managed Assessment (SMA) across the Group. The SMA forms part of RESCISCO, an enhanced Technical Capability Development Framework and Programme that enables employees and their superiors to conduct competency conversations virtually anytime, anywhere.**

Employees can track, review and analyse their gaps using the competency dashboard and analytics. With this information, employees can prepare their Personal Development Plans and self-drive their development. More than half of PETRONAS’ technical workforce have carried out their assessments using SMA.

Meanwhile, on the learning front, both of PETRONAS’ technical training and leadership centres have added digital learning solutions as part of their offerings to ensure an uninterrupted learning experience for our employees.

At PETRONAS Leadership Centre (PLC) a total of 20 training programmes comprising in-role, competency-based and leadership programmes were converted to digital or blended learning experience. Employees were able to leverage the Group’s well-established e-learning platform that comes complete with an extensive library of e-learning modules covering a wide range of topics.

During the pandemic, we created new catalogues under our digital learning platform aptly named “Learning During Crisis Edition” and “Managing Transition”, which featured more than 100 topics on crisis-related contents.

Meanwhile at our technical training arm, Institut Teknologi Petroleum PETRONAS (INSTEP), we rolled out our first Virtual Instructor-Led Training (VILT) within a month after the Movement Control Order (MCO) was announced in Malaysia. By the end of the year, a total of 201 VILT modules had been developed and 571 VILT sessions conducted.

In 2020, we achieved the following results by switching to digital learning platforms:



We recorded the highest number of active users on our e-learning platform totalling 6,950 in March 2020. Employees leveraged the organisation’s e-learning facilities to equip themselves with the necessary skills to help them adapt to the new working norms.

As PETRONAS’ business portfolio evolves, a meaningful part of our business will come from activities beyond our traditional strengths in oil and gas, this mean that we will need to build new types of capabilities, adopt new ways of working and establish the right environment for our talent to create value and innovate.

Our talent development efforts moving forward will focus on introducing new skills and tools to shape the organisation’s capabilities to deliver breakthrough ideas that meet customer’s needs. We will continue to enhance our digital learning platform to incorporate Artificial Intelligence (AI) technology that will help employees identify areas for development and match this with suitable learning plans. We are also developing a platform that will match employees’ competencies and aspirations with business needs and career opportunities. This will enable our workforce to manage their personal development and drive their careers in a more effective and efficient manner.



**Generating Value and Innovation from a Diverse and Inclusive Workforce**

For PETRONAS to successfully progress, generate value and innovate, we are committed to providing a Diverse and Inclusive (D&I) workplace environment that encourages and celebrates diverse perspectives and thinking. By embracing D&I, we are unlocking the potential and leveraging on the strengths of our talent. The Group's D&I Statement encapsulates the aspiration behind this.

**PETRONAS Diversity & Inclusion Statement**

**D&I is about all of us progressing in this world together. We know through experience that diverse ideas, views and backgrounds create a more progressive and creative work environment that deliver better outcomes; hence PETRONAS believes in unity through diversity, whereby we respect and value each other for our differences, yet come together as one.**

**PETRONAS' D&I Focus Areas of Culture, Multinationals, Gender and Age**

**Differences in perspectives are respected and valued**



Creating an environment where people feel safe and confident to speak up and put differing views across, to foster creativity and innovation.

**Representation by diverse nationalities in leadership roles**



Building and having qualified local nationals to fill the majority of decision-making positions in every country we operate in and having readily available local talents to take up leadership roles globally.

**Women in senior leadership roles**



Providing opportunities for representation by women in senior leadership positions. PETRONAS aims to establish a pervasive culture where women can thrive and progress with the Group, as we build a strong talent pool of qualified women.

**Space for idea generation from young talent is enabled**



Creating an innovative organisation where young talents feel involved, respected and connected, as well as inspired to contribute new ideas while encouraged to constantly explore new ways of doing things.

To help us deliver PETRONAS' D&I agenda, we implemented the following in 2020:

**1 Established the PETRONAS D&I Council**

Chaired by the EVP and CEO for Upstream and D&I Champion, Adif Zulkifli, the **D&I Council** comprises members and representatives from across our organisation.

The council held its **first meeting in July 2020 and met every two months to lead and guide the D&I Agenda**, to achieve the aspirations of PETRONAS' D&I Statement.

**2 Raised unconscious bias awareness among PETRONAS' leadership**

In collaboration with the PETRONAS Leading Women Network (PLWN), we initiated several sessions to raise awareness on unconscious bias among the PETRONAS Executive Leadership Team (ELT), followed by **eight virtual sessions** with other leaders across the Group.

The sessions were designed to raise awareness on the common barriers that hinder inclusivity by taking the leaders through an immersive experience as well as working with them to **identify and address unconscious bias in the workplace**. To make unconscious bias training accessible to all employees, it is infused into other leadership programmes. Online learning modules were also made available to encourage self-learning anytime.



**3 Organised D&I workshops and brainstorm sessions**

We implemented a series of **D&I workshops to introduce the PETRONAS D&I Statement** to employees and discuss on the future state of a diverse and inclusive workplace.

**D&I discussions and measures were elevated to the PETRONAS ELT and Board levels.**

**4 Incorporated measurements to gauge results**

We established a section in the **PETRONAS Organisational Culture Survey (POCS) 2020** to gauge baseline insights and interventions.



**The PETRONAS Leading Women Network**

In 2020, PLWN made significant progress in championing an inclusive workplace through both its male and female champions.

**PLWN made significant progress in 2020 with support from its female and male champions, achieving many milestones despite the pandemic.**

**Partnered with HR to provide equal opportunities**

- Efforts were made to increase the number of female successors for top leadership positions.
- Continued the Mentoring Programme for women leaders.

**Increased male participation to support gender agenda**

- Bronze sponsor at the Women's Global Leadership Conference (WGLC) in Houston, with three speakers including a male champion. PETRONAS recorded the highest number of global attendees participating at the WGLC, with Malaysia the second highest after the USA.
- Attracted 30 per cent male participation at PLWN events.

**Created a work environment that supports female staff**

- Achieved 1 Link Up, 4 Reach Out, 3 External Network programmes - collaboration with Society of Petroleum Engineers (SPE), Sarawak Energy Women Leading Network (SEWLN) and Baker Hughes Women's Network Malaysia.
- Assisted in the establishment of PLWN Canada, Brazil and Indonesia.
- Rolled out new HR policies to support women's career progression: Return to Work Policy, Extension of Unpaid Leave Spousal Assistance, and Establishment of PETRONITA Crèche in collaboration with PETRONITA.
- Increased the number of female assignees for international talent mobility by 23 per cent in the last five years (2015–2020).
- Hosted month-long International Women's Day, championed by several male advocates.

**Championed unconscious bias awareness**

- 8 Unconscious Bias Theatre Exchanges conducted among leadership team.
- Articles and publications amplified through various digital platforms.
- Issued tip cards during performance appraisals.



### Human Capital Investment

PETRONAS continues to make meaningful investments in its human capital as seen by these numbers to date:



#### PETRONAS Education Sponsorship Programme (PESP) 2020

PETRONAS remains committed to developing future talents for the organisation and industry. Since 1975, PETRONAS has awarded education sponsorships under the PESP amounting to over RM3.3 billion to more than 37,000 deserving Malaysian students of high academic calibre and with good leadership qualities. We focus on nurturing the right talents who will ultimately contribute to the growth of the Group and Malaysia.

The pandemic did not stop PETRONAS from awarding deserving young students the opportunity to pursue their tertiary education. The PETRONAS YoungStar Day 2020 annual assessment and selection process was conducted virtually. Students underwent an online assessment and group interviews were conducted virtually while upholding the same rigour and quality of face-to-face assessments. The virtual platform enabled PETRONAS to reach students across the country in both rural and urban areas. We collaborated closely with the state education departments to ensure that less fortunate students had internet access to sit for the virtual assessments.

A total of 1,394 candidates participated in this year's selection process. Some 370 students were awarded the PETRONAS Education Sponsorship to pursue their tertiary education in various disciplines. PETRONAS currently has active sponsored students under the PESP in the USA, Canada, the United Kingdom, Australia, New Zealand, China and Japan.

#### Discover PETRONAS@Schools (DPS)

The DPS programme continues to build awareness among secondary school students about the sponsorship opportunities that we offer and the benefits of the energy industry in general. In 2020, due to the COVID-19 pandemic and Movement Control Order (MCO), the Digital DPS was launched and conducted virtually, reaching out to 1,924 students. Since 2014, the DPS has benefited a total of 17,714 secondary school students from over 300 high-performing schools across Malaysia.

#### Graduate Employability Enhancement Scheme (GEES)

The GEES programme is a soft-skills and on-job-training inspired by the government's Professional Training and Education for Growing Entrepreneurs (PROTÉGÉ) initiative. It aims to support the Malaysian government's efforts to enhance the employability of young Malaysian graduates and fast-forward the nation's human capital development. In 2020, a total of 140 graduates were accepted to undergo the 12-month training programme at PETRONAS with added exposure to the areas of entrepreneurship, environment sustainability and social impact. A total of 1,180 graduates benefited from this programme between 2011 and 2020, with 71 per cent of apprentices gaining employment.



#### Vocational Institution Sponsorship and Training Assistance (VISTA)



Note: All photos were taken before the pandemic.

The PETRONAS VISTA Programme was established in 1992 to assist vocational institutions across Malaysia in developing their technical and vocational capabilities according to the standards and requirement of the oil and gas industry. Under this programme, PETRONAS contributes by way of infrastructure, training equipment, consumables, trainers and programme readiness based on the requirements of each institution.

Through VISTA, PETRONAS collaborated with selected institutions and agencies under Federal Government as well as state governments for courses related to the oil and gas industry such as 6G welding, gas pipe fitting, chargemen, scaffolding, building maintenance, as well as oil and gas related engineering programmes. To date, VISTA has benefited 28 institutions, including 11 active institutions in 2020.



## Social Performance

PETRONAS is conscious of the impacts that may arise from our business and operations. Our Social Performance Framework governs how we manage these impacts in these five areas: Environment, Health, Safety, Security, Socio-economic and Cultural.



The issue of Human Rights is a vital component of our Social Performance Framework and is applicable in these areas of our business:

### Labour and Working Conditions

- Forced or trafficked labour in contractors' and subcontractors' workforce
- Child/minor labour
- Condition of employment and work
- Discrimination in hiring and contractual terms
- Freedom of association and collective bargaining
- Workers' health and safety
- Workers' camp conditions

### Supply Chain

- Contractor/supplier performance related to labour and working conditions, community well-being and security



### Community Well-being

- Community health and safety
- Access to natural resources for health, cultural needs and livelihood
- Land acquisition and involuntary resettlement with/without economic displacement
- Indigenous peoples
- In-migration

### Responsible Security

- Use of force and conduct of third-party security
- Human rights training for staff and third-party security

### PETRONAS' Human Rights Commitment

PETRONAS is committed to respecting internationally-recognised human rights in all areas of its operations, complying with its Code of Conduct and Business Ethics (CoBE), and all relevant legal requirements.

The commitment applies to all employees of the Group of Companies, contractors, subcontractors and any third parties within PETRONAS' premises or performing work and/or business for or on behalf of PETRONAS, in line with the PETRONAS Contractors' Code of Conduct on Human Rights.

While we ensure compliance with human rights principles and laws, we also embed industry best practices into key businesses processes through PETRONAS' Social Performance standards and guidelines aligned with the United Nation Guiding Principles on Business and Human Rights and mapped against stakeholder expectations.

We also drive an outcome-based approach through Just Transition in support of the Sustainability Agenda and net zero carbon emissions by 2050 (NZCE 2050) aspiration. It aims to generate positive social impact in our operations through the creation of new and inclusive opportunities that are founded on human rights.

For further details, go to the Sustainability Agenda section on pages 10 to 13 of this report.



To ensure we minimise risks to the communities surrounding our operations, we have issued Technical Standards and Guidelines on specific areas pertaining to human rights:



Note: This photo was taken before the pandemic.



Positive Social Impact

In 2020, we undertook several social performance measures that reinforced our social licence to operate and added value through a risk-based management approach for our overall business.

Social Risk Assessments

We conducted eight social risks assessments within our projects and operations. The results identified that the most pertinent risks to our workforce included labour and working conditions, as well as nuisance issues such as noise pollution caused by project construction and land issues. All findings were addressed and the risks and issues mitigated.

Third-Party Gap Analysis

To assess the completeness and alignment of our social risk management processes against the United Nations Guiding Principles on Business and Human Rights (UNGPR), a third-party assessment was conducted in 2020 to identify any gaps and the necessary mitigation measures. These were among the findings:

Positive Observations

Effective mainstreaming and governing of human rights in relevant functions, systems and processes, with a competent team of practitioners.

Supplier and contractor assessments and engagements on human rights; and the establishment of a grievance mechanism covering contractors and communities.

Areas for Improvement

Enhancing the PETRONAS Human Rights Commitment to meet the requirements of the UNGP and stakeholder expectations.

Strengthening engagement with stakeholders during the social risk assessments phase.

PETRONAS has been actively addressing these findings, which contribute towards the realisation of our Sustainability Agenda and Just Transition outcomes.

Capability Building

To date, over 70 per cent of our employees have attended and passed the human rights management e-learning module. Similarly, 66 per cent of participants who enrolled in our e-module on grievance mechanisms have also passed. We continue with our efforts to nurture a capable workforce which is essential for sustainable business growth.

In 2020 we conducted:

67 training sessions for practitioners, employees and contractors.

12 virtual training sessions on the grievance mechanism and reporting module for 400 employees who serve as Community Liaison Officers, Grievance Focal and Health, Safety, Security and Environment (HSSE) practitioners.

10 Contractors Code of Conduct on Human Rights (CoCHR) refresher sessions to ensure our procurement team and contract holders were kept abreast of human rights developments.

Three training sessions with our Auxiliary Police which saw the participation of over 300 personnel.

Two Social Performance Masterclasses to enhance awareness and knowledge on topics such as "Social Sustainability in Investments" and "Cultural Mapping".

Positive Social Impact

Grievance Management

The management of grievances is an integral aspect of our social performance efforts. In managing grievances across our business effectively, we launched an integrated online tool that allows us to monitor grievance cases. In 2020, we received 102 grievance complaints, most of which related to the areas of labour and working conditions. Each complaint was attended to and at the same time we made the necessary improvements to our grievance mechanism as well as the way we engage with our contractors and the surrounding communities.



Exemplary Grievance Management

PETRONAS Energy Canada Limited (PETRONAS Canada) is recognised as a leader in the management of grievances via its efforts to uphold exemplary human rights governance best practices. PETRONAS Canada operates within the North Montney basin in northeast British Columbia, in a region that comprises both cities and rural areas. With a dominant land position in that resource-rich area, the company is one of the largest natural gas resource owners in Canada.

Being a community-centric company, PETRONAS Canada is aware of the impact that its activities can have on the 22,000-strong population in the region that it operates in. As such, it has set in place specially designated teams to communicate regularly with its diverse stakeholders that include the indigenous First Nations people of that region. The Stakeholder Relations and Indigenous Relations teams share pertinent information about the company's development plans with residents, landowners, business owners and government officials. These engagements serve as a platform for a two-way communication in which

members of the community may share their concerns with PETRONAS Canada. The team also works directly with other key stakeholders and vendors.

PETRONAS Canada's efforts are directed by their guiding principles which entail how all its employees and operatives are to behave and interact with those in the community. These guidelines ensure that measures for mutual respect are upheld and that PETRONAS Canada maintains its social licence to operate.

By combining their stakeholder management system with PETRONAS' grievance management system, PETRONAS Canada's effective management of grievances has seen the company respond to and follow up on 100 per cent of its grievances cases since 2015. In 2020, PETRONAS Canada shared their best practices in managing community grievances at the PETRONAS Upstream Community Liaison Officer/Grievance Focal Upskilling Learning Series 2020 event.

Note: All photos were taken before the pandemic.





## Labour and Supply Chain



In 2020, we acted swiftly in response to supply chain disruptions from the year's twin shocks by implementing measures such as diversifying supply sources from various geographical locations. Moving forward, the real challenge would be on how we respond to the fundamental shifts in producing energy, given the acceleration of the energy transition, heightened stakeholder expectations and the Group's aspiration to achieve NZCE 2050.

To ensure our businesses continue to operate in an optimal, beneficial and sustainable manner, it is crucial that PETRONAS' supply chain be managed effectively. Today, we are focusing our efforts on strengthening the entire ecosystem of our supply chain via the digital transformation of our procurement processes, forging a resilient ecosystem for the local industry and ensuring the Group's commitment towards human rights is upheld. As we work on de-risking the supply chain, we are also moving in tandem with efforts to capture new value through the vast opportunities that are expected to emerge from all of the fundamental shifts.

### Leveraging on Digitalisation to Streamline and Strengthen the Procurement Process

With businesses having to transform themselves to remain agile and relevant to their markets, supply chains too have evolved and become more prolific and complex. To ensure the needs of the Group's businesses are supported in an effective and efficient manner, we have implemented a streamlined procurement digital platform. On top of this, we are creating added value for our businesses by giving them the capability to wield powerful insights from analytics to bolster their efforts.

Digitalisation has been key to these efforts, giving us the ability and agility to adapt and pivot as required, as well as to rapidly implement innovative change amidst the disruptions brought on by the external environment. The digitalisation of the procurement processes has also increased transparency and improved decision-making as well as governance and controls particularly in purchasing and investments.

In 2020, we implemented the following procurement measures which delivered tangible results:

We **transformed the tendering process** from the conventional paper-based process to an end-to-end paperless integrated online tendering platform. With its simplified retail-like user interface, the new platform has improved the tendering experience. Staff continue to work from home while overseeing and managing tender exercises. Petroleum Arrangement Contractors, partners and vendors, **have benefited from tapping the integrated platform** alongside other complementary digital procurement solutions.

We deployed the PETRONAS Licensing Management System (PLMS) in April 2020, which has helped to streamline the processes as well as enabled parallel submission and automated data population from the SSM database. With this improvement, **the registration and licensing experience has improved significantly**.

We **leveraged digital and analytics to improve our inventory planning and ensure the right inventory levels**. In addition, we **embarked on the digitalisation of our logistics operations**, including the sharing of vessels among our oil and gas assets.

With digitalisation, we have **generated savings and value creation** for PETRONAS, which in turn **allows us to sustain our long-term competitive positioning**.

### Shaping a Resilient Ecosystem for Local Oil and Gas Players

PETRONAS' humble beginnings started in 1974 when 15 staff with no oil and gas industry experience came together to kickstart the domestic business. The Company grew exponentially by leaps and bounds over the years and is today a fully integrated oil and gas multinational corporation with over 48,000 employees. In 2020, PETRONAS was deemed the most valuable Asean brand in the Brand Finance Global 500.

Having gone through the ups and downs of the oil and gas business for some time now, we understand the struggles, hopes and dreams of homegrown companies aspiring to build their strengths and credentials to become globally competitive players. PETRONAS remains committed to helping develop homegrown success stories as this is crucial for the future of Malaysia's oil and gas landscape. To this end, we introduced the PETRONAS Vendor Development Programme (VDP) in 1993.

PETRONAS focuses on nurturing the Oil and Gas Service Equipment (OGSE) and Small and Medium Enterprises (SMEs) vendors as well as helping them to take the leap into more complex and higher risk areas of business such as technology development, manufacturing, as well as enhanced oil recovery and deepwater exploration operations. We believe that by providing vendors a conducive environment, this will spur SMEs and OGSEs to generate value, multiply their acumen and develop sustainably.



Positive Social Impact

To support vendors that were hit badly by the pandemic, we continued to provide assistance in 2020 through these initiatives:

- Established innovative partnerships with nine financial institutions to facilitate access to financing under the **Vendor Financing Programme**. A total of **RM1.14 billion in financing was disbursed and 214 applications approved** for main contractors and sub-contractors.
- Introduced the **Contractors' Special Assistance Programme** in March 2020 to support the local OGSE sector as well as to minimise the impact of the pandemic and low oil price environment on local contractors. Despite the challenging market, we honoured all vendor contracts awarded in 2020.
- Collaborated with **five investment banks and corporate finance advisors** to facilitate vendors pursuing initial public offerings (IPOs) under the Road to Bursa initiative. The programme encourages the listing of potential OGSE vendors on the local bourse to improve vendors' resilience and sustainability. PETRONAS has to date conducted IPO briefings and one-on-one coaching sessions with **vendors** who we identified to potentially meet the IPO requirements. We will continue to identify vendors with high potential to be listed on Bursa Malaysia.
- Published the **PETRONAS Activity Outlook 2021–2023** on 31 December 2020 to share the Company's insights into industry trends, demand outlook and the upcoming activities of PETRONAS' Upstream, Gas + New Energy and Downstream businesses.

As we venture forth amidst an unpredictable oil and gas landscape, we remain cautiously optimistic and are encouraging our partners to be conscious in managing costs, implement activity levelling to sustain offshore activities and pursue innovative solutions. To enhance their competitiveness, speed, accuracy, agility and ultimately resiliency, industry players need to embrace innovation, technology and digitalisation which will definitely bring bigger benefits over a longer horizon. The industry also needs to forge stronger partnerships that would ultimately enrich lives for a sustainable future.

Tapping a Robust Supply Chain for Pandemic Preparedness

The Group, on behalf of the Ministry of Health (MOH), was able to procure and deliver medical equipment through a robust supply chain mechanism, in less than seven days to support COVID-19 patients dependent on ventilators in Malaysia.

For more details on PETRONAS' COVID-19 response, refer to the Safeguarding the Well-being of People Amidst Crisis on pages 179 to 181.

We also lent support to local hotels converted into quarantine hotels by housing our employees undergoing quarantine there; ensured essential contractors were able to continue working for PETRONAS via collaboration with Group Security and the Malaysian National Security Council (or Majlis Keselamatan Negara Malaysia); as well as drew up and issued guidelines on the tendering process during the Movement Control Order (MCO).



Positive Social Impact

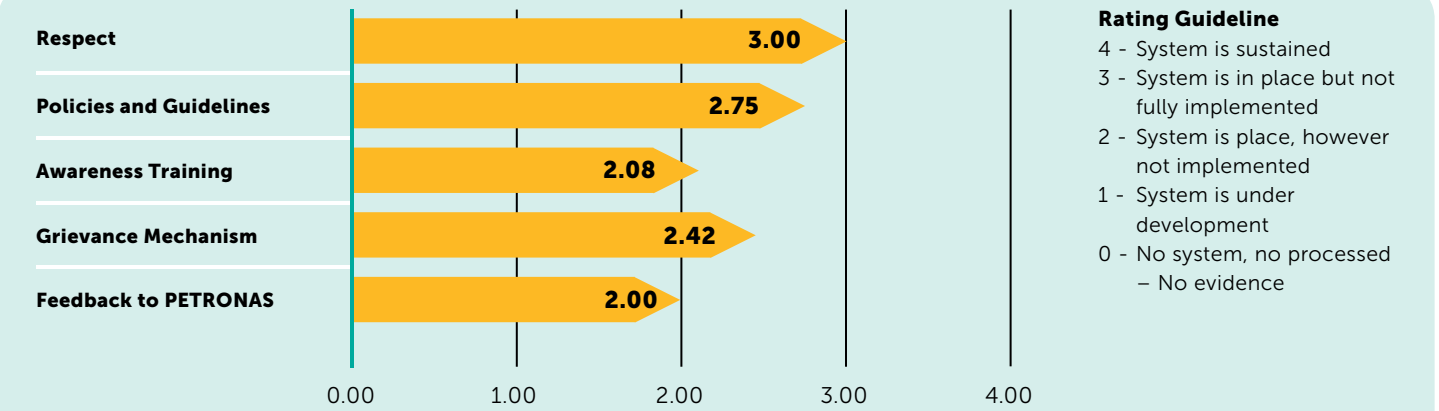
Human Rights in the Supply Chain

PETRONAS' obligation to uphold human rights within our supply chain is guided by the United Nations Sustainable Development Goal 8 which advocates "decent work and economic growth." In support of our goal to create positive social impact, we have adopted a top-down approach in our dealings with our contractors and suppliers. This approach stems from our recognition of our contractors and suppliers as pivotal starting points of influence, which we leverage on to cascade good human rights practices and opportunities for growth, down to their respective workforces.

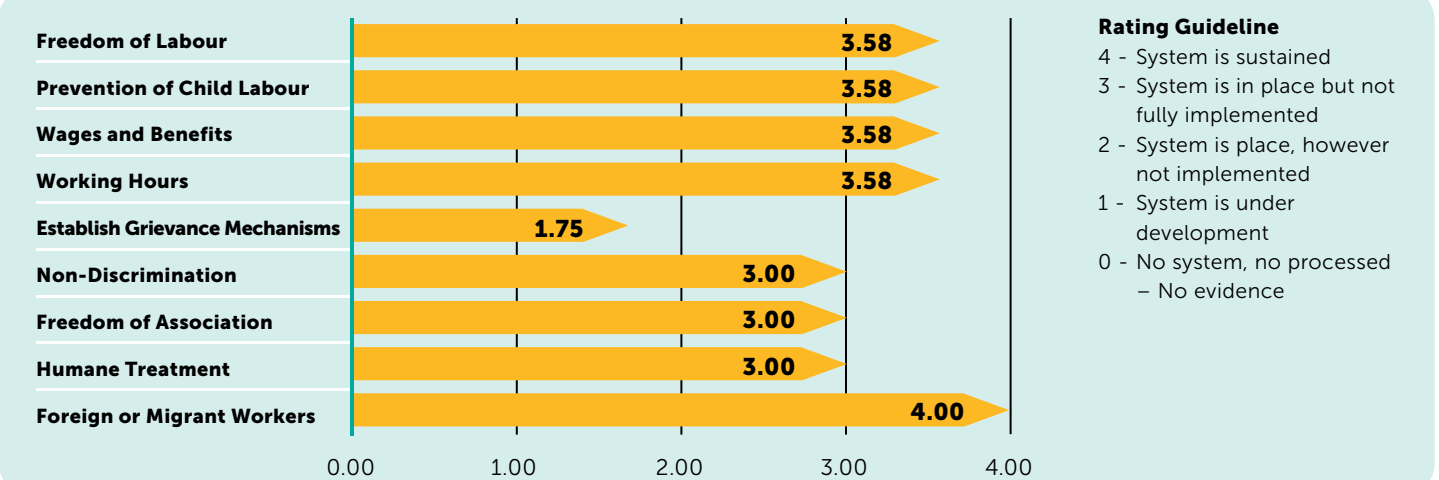
In 2017, we launched our Contractors Code of Conduct on Human Rights (CoCHR), which addresses issues such as labour and working conditions as well as outlines the ethical practices that we expect each contractor to subscribe to. This requirement has been embedded into our procurement processes in Malaysia, where respect for human rights has become a contractual obligation for all goods and services providers who pass through our procurement process.

To help us gauge the rate of compliance with the CoCHR among our contractors, we conducted a digital voluntary self-assessment in 2019. We ran the second iteration of the self-assessment in 2020 which saw 34 per cent of new contractors respond to the survey (an additional 75 per cent of respondents over 2019's number). We also conducted 22 onsite and remote assessments. The survey findings are summarised in the following diagramme:

Human Rights Requirements



Human Rights Principles



Based on the survey results, while most contractors in Malaysia comply with their legal obligations, there are still gaps in their respective approaches when it comes to effectively addressing matters related to human rights. These include a lack of communication and training on human rights among their employees and contractors as well as inadequate grievance mechanisms in their supply chain. The assessments did not indicate forced or child labour in the assessed contractors' labour pool. In narrowing these gaps, we reached out to the contractors to address the issues on hand and uphold the importance of respecting human rights. Since then, 16 contractors that were previously assessed have reported improvements made in their policy enhancement, grievance mechanisms and training sessions.



### Human Rights & COVID-19: Quick Guide For Contractors

In response to the impact of COVID-19 on businesses, we heightened our focus on ensuring respect for human rights within the supply chain during the crisis. Recognising that adverse economic conditions impacting contractors could potentially impinge on their workers, we addressed these negative outcomes in our contractor assessments and engagements. We also distributed a publication titled *Human Rights and COVID-19 Quick Guide* for contractors to meet CoCHR requirements. This guide was based on the United Nations Development Programme (UNDP)'s *Human Rights Due Diligence* and *COVID-19: Rapid Self-Assessment* for Business self-assessment tool, to help businesses consider and manage the human rights impacts on their operations.

We will continue to engage with the contractors with the aim of raising awareness on human rights matters.

### Product Stewardship

"Life Cycle Thinking" is an integral part of PETRONAS' NZCE 2050 aspiration. This helps us to appraise our environmental footprint across the value chain and to identify opportunities to create products and solutions that are geared towards a more sustainable production and consumption. In this regard, PETRONAS has several initiatives to strengthen our product safety and sustainability portfolio including Raw Material Management, Life Cycle Assessment and Product Safety Assessment.



### Raw Material Management

Managing the raw material supply chain is an important element in improving product sustainability in the context of life cycle thinking and reducing the impact of Health, Safety and Environmental (HSE) risk. We initiated the Raw Material Information Request (RAWMIR) programme at the end of 2019 at Engen, and in 2020 it was further expanded to include PETRONAS Chemicals Group Berhad (PCG)'s operating units. Through RAWMIR, we have obtained critical data pertaining to raw material in terms of composition, physical-chemical, toxicology, ecotoxicology, regulatory and supplier/manufacturer perspectives. In 2020, a total of 792 RAWMIR documents were sent out to vendors and this elicited an 86 per cent response rate. The RAWMIR initiative, which has been extended to the oilfield chemicals segment in the Upstream business and other Downstream operating units, is slated to be completed by the end of 2022.

### Embedding Product Stewardship in New Product Development

PETRONAS continues to strengthen the management of product HSE risks across their lifecycles, starting from the earliest stages of Research and Development (R&D). In this respect, product stewardship requirements were embedded into the R&D phase for new product development to mitigate HSE and regulatory risks, which supports the design of sustainable products. The scope of the product stewardship requirements includes assessing products for compliance with the relevant regulations and application sector-specific requirements to ensure their safe use. In addition, sustainability requirements such as product life cycle assessment and selection of safer raw materials are included. The appropriate toxicity, eco-toxicity and environmental fate studies are performed in a timely manner to validate product safety and sustainability claims.

### Centralised Safety Data Sheet (SDS) Database

Product Safety Data Sheets (SDSs) are the primary means of communicating information on product hazards and risk management measures to stakeholders. The development of product SDSs are guided by the fundamentals of the Strategic Approach to International Chemicals Management (SAICM) on sound chemicals and waste management. The SAICM calls for particular attention be paid to the collection and systems for the transparent sharing of relevant data and information among all relevant stakeholders using a life cycle approach such as the implementation of the Globally Harmonised System of Classification and Labelling of Chemicals.

PETRONAS product SDSs have been made publicly available on PETRONAS SDS portal (<https://sds.petronas.com.my>) since 2014. This aligns with PETRONAS digitalisation agenda by leveraging on an in-house authoring of product SDSs using the Stewardship, Health, Information and Environment Linked Database (SHIELD). A stringent internal technical review process ensures that the information presented in our SDSs comply with all regulatory requirements.

### Product Toxicity and Environmental Fate Assessments

Understanding how chemicals affect human as well as flora and fauna - and how they behave in the environment, is important for effective chemical management. We commissioned 29 tests to contract research organisations to address customer requests, fill the data gaps, step out with new uses for existing products and establish preliminary toxicology properties for new product development. These tests ensure the safety of our products for the intended consumer, ensure we meet global regulatory compliance criteria, as well as indicate new market and product opportunities.



### Life Cycle Assessments (LCAs)

The LCAs are used to determine the environmental impacts occurring across the entire value chain of a product. At PETRONAS, LCAs are conducted in accordance with international standards and best practices that support our customers' sustainability agendas and enhances the brand value of PETRONAS' products.

In 2020, a total of 35 product LCAs were conducted supporting the Upstream, Gas + New Energy and Downstream businesses. Out of these, LCAs for PCG's Glycol products were conducted to provide disclosure on all environmental impact categories within the Dow Jones Sustainability Index. LCAs conducted for refinery and base oil products aided necessary disclosures towards addressing customer requests. Preliminary LCAs also indicate conformity to blue hydrogen criteria, which creates new business opportunities for PETRONAS.

### Product Risk Assessment

In support of SAICM, PETRONAS has completed and published the Global Product Strategy Safety (GPSS) summaries, which has been made available on the PETRONAS SDS portal (<https://sds.petronas.com.my>) for high priority petrochemical, gas and refinery products.

The GPSS summaries were developed to provide essential HSE information on products and is also aligned with the voluntary Responsible Care® initiative. They also serve as a guide to the public about the hazards and risks of products. This disclosure ensures that we conduct product risk assessments with full transparency, which in turn, strengthens public confidence in PETRONAS' products.





# Corporate Social Responsibility

## Yayasan PETRONAS – Sharing Our Success with Society

The PETRONAS Group remains committed to its mission of enriching lives for a better future through delivering sustainable impact and improving the quality of life and socio-economic well-being of the communities that we operate in. Our contributions to society are extended through our philanthropic arm, Yayasan PETRONAS (or PETRONAS Foundation). The Foundation, which is accountable to a Board of Trustees, supplements the groupwide corporate social responsibility (CSR) efforts that have been ongoing since 1974.

**Yayasan PETRONAS aims to deliver value to society by carrying out effective philanthropy; ensuring a sustainable, scalable impact on the communities; and sharing PETRONAS' success with others.**

The Foundation focuses its efforts on assisting underprivileged youth and low-income or B40 communities, by providing them sustainable opportunities that transform lives and elevate the well-being of communities. Our long-term ambition is to replicate the success stories of these target groups and scale up the delivery of proven programmes and activities so as to benefit a wider audience, impact the broader ecosystem and truly drive sustainable change.

In 2020, despite turbulent operating conditions, we continued to undertake tangible CSR initiatives (where practical) to impact society for the better.



Note: This photo was taken before the pandemic.



## Safeguarding the Well-being of People Amidst Crisis

During the year in review, exceptional and unprecedented challenges brought on by the twin shocks of the COVID-19 pandemic and the oil price rout resulted in many facing an uncertain future in terms of their livelihood. The uncertainty was especially prevalent among healthcare professionals and non-medical frontline workers, as well as underprivileged communities.

Considering the fraught economic situation that many were facing, Yayasan PETRONAS stepped up to the plate and helped out the affected communities. In addition to its ongoing programmes, the Foundation also focused on initiatives that supported capacity-building to help raise the income level of financially challenged communities. These efforts went a long way in bringing comfort to the B40 families and those affected by natural disasters.

Yayasan PETRONAS also contributed to the fight against COVID-19 by providing medical equipment and supplies to the country's National Disaster Management Agency (NADMA) to bolster the efforts of the nation's frontliners. The following are the highlights of our efforts over the course of 2020:

### March 2020

Upon the implementation of the Movement Control Order (MCO) in Malaysia on 18 March 2020, Yayasan PETRONAS acted swiftly to secure **medical equipment and supplies totalling RM20 million** through close collaborations with the Ministry of Health (MOH) and NADMA. At the same time, PETRONAS' Management and staff voluntarily contributed a total of **RM6.4 million through salary deductions** to fight the pandemic.

### November 2020

In November 2020, Yayasan PETRONAS contributed **RM2.5 million worth of medical equipment** on top of the earlier contribution to MOH and NADMA, to combat the second wave of COVID-19 in the state of Sabah.



Yayasan PETRONAS contributed **RM22.6 million** worth of medical equipment and supplies



PETRONAS employees made voluntary contribution totaling **RM6.4 million** through salary deduction



**100** beds for Intensive Care Unit (ICU)



**35 ventilators** for hospitals in 5 states



**28,900** disposable gowns



**5,150** shoe covers



**100,000** units of hand sanitisers to all hospitals and health clinics



Sanitisers and dispensers for **68,000 students** from 104 schools in 9 states



Our Upstream Business operations committed approximately **RM3.5 million** to eight host countries

This took the form of:

**Financial contributions** to host governments in **Azerbaijan and Brunei**.

**Funds and aid for PPE** in Mexico, the Republic of South Sudan, Iraq and Canada.

**Medical equipment** for **Suriname and Myanmar**.



#### PETRONAS Dagangan Berhad (PDB)



Supplied water and food items to hospitals and PDRM frontliners in Malaysia, via a joint effort with Group HSSE and Yayasan PETRONAS.

#### Collaborated with RessQ60Min

to set up service workshops at hospitals such as Hospital Sungai Buloh, Pusat Perubatan Universiti Malaya (PPUM) and Hospital Kuala Lumpur (HKL) to offer auto services to frontliners, including free PETRONAS Syntium oil changes.

#### Malaysia LNG

Distributed **3,500 food aid packets** to targeted groups in **46 areas** under the local authority, State Legislative Assembly (or DUN) Samalaju, Sarawak.

#### Malaysian Refining Company Sdn Bhd

Donated **500 pieces of Tyvek coveralls** to Pejabat Kesihatan Daerah (PKD) Melaka Tengah, Melaka.

Students and staff of **Universiti Teknologi PETRONAS (UTP)**, through the Engineering, Prototyping and Innovation Centre (EPIC) repurposed their **3D printing and laser cut technology** to produce **120 face shields daily with the target of producing 10,800 shields in three months for hospitals and clinics** in Perak.

#### PETRONAS Lubricants International



Provided **fluids for truck fleets** delivering essential goods and supporting the construction of hospitals in Wuhan, China.

Converted its **coolant production lines to manufacture ethanol-based sanitisers** for hospitals and the local communities in Italy and Brazil.

Ventured into **new product lines by enhancing its existing Fulcron formulation to bring to market specially-designed disinfectant products** through the Arexons operation in Milan.

Several associations within PETRONAS, namely **PETRONITA, Badan Kebajikan Islam PETRONAS (BAKIP) and Kelab Sukan dan Rekreasi PETRONAS (KSRP)**, organised **donation drives** rallying staff to contribute over **RM300,000** for the **supply of medical equipment and supplies** for HKL, Hospital Ampang, Hospital Canselor Tuanku Muhriz UKM and PPUM, as well as funding for the Malaysian Red Crescent Society.

#### PETRONAS Refinery and Chemicals Corporation



Extended a month's supply of essential food items to **200 low-income families** from eight villages around the Pengerang Integrated Complex (PIC) in Johor. In total, 200 bags/packets/cans each of rice, flour, salt, sugar, biscuits, rice vermicelli, tea bags as well as 400 packets/cans each of sardine, cooking oil and condensed milk were disbursed.

Contributed **200 sets of PPE, 30 boxes of surgical masks, 56 bottles of disinfectants, six boxes of rubber gloves and 35 bottles of sanitisers** to protect our medical frontliners who were fighting against the pandemic.

All in all, PETRONAS' companies, operations, associations and staff globally banded together and contributed a total of **RM50.6 million** in cash and in kind to help flatten the curve of the pandemic worldwide.

#### PETRONAS Chemicals Group Berhad

Delivered **5,000 kgs of polypropylene for universities** Universiti Teknologi MARA (UiTM), Advanced Technology Training Center (ADTEC), German-Malaysian Institute (GMI), and Universiti Teknikal Malaysia Melaka (UTeM) to produce over **300,000 face shield frames** for frontliners including government hospitals and clinics nationwide.

Disbursed food aid to **3,000 B40 families** in Kedah, Labuan, Pahang, Sabah, Sarawak and Terengganu.

#### PETRONAS Research Sdn Bhd (PRSB)

Produced hand sanitiser formula with **higher ethanol and glycerin content** within one week to fulfill the need of our frontliners.



### The Foundation's Three Key Focus Areas

Yayasan PETRONAS carries out all CSR initiatives under the banner of three focus areas - Education, Community Well-Being and Development, as well as the Environment.



#### Sentuhan Ilmu — Education

Focused on underprivileged students from the B40 income segment, Sentuhan Ilmu's series of programmes are aimed at providing educational opportunities to students for them to realise their potential through Science, Technology, Engineering and Mathematics (STEM) subjects.

Desired impact:  
**To contribute towards  
60:40 national STEM  
enrolment**



#### Sentuhan Harapan — Community Well-Being and Development

The programme aims to improve the standards of living of less-fortunate communities and youth creating opportunities for sustainable livelihoods.

Desired impact:  
**Sustainable economic  
growth**



#### Sentuhan Alam — Environment

This area focuses on the conservation of environmental and natural resources for the well-being of current and future generations. Encompassing marine, forest, river and shore-oriented initiatives, Sentuhan Alam's programmes are structured to better the environment through biodiversity, conservation and carbon-neutral programmes.

Desired impact:  
**To reduce year-on-year  
environmental impact**



**Note:** All photos were taken before the pandemic.



#### Sentuhan Ilmu — Education

Education has always been an important aspect of the Group's Human Capital Investment Programmes since we kickstarted these initiatives back in 1975. In 2019, Yayasan PETRONAS partnered with the Ministry of Education (MOE) to reach out specifically to deserving students through our Education initiatives. By providing better opportunities for both the teachers and students in underprivileged areas, we are helping to close the socio-economic gap for the betterment of all.



**Note:** This photo was taken before the pandemic.

The following are some of the programmes that are in place under the Sentuhan Ilmu education banner. As a result of the pandemic and the ensuing phases of the Movement Control Order (MCO) in 2020, public schools nationwide were closed. Due to the many restrictions over the course of the year, Yayasan PETRONAS had to significantly limit its school-based and school-building initiatives.

#### Signature Programmes

##### Program Duta Guru

The *Program Duta Guru* Kementerian Pendidikan Malaysia-Yayasan PETRONAS is Yayasan PETRONAS' flagship initiative through a collaboration with the Ministry of Education (MOE). This programme aims to nurture highly competent teacher ambassadors in STEM subjects as well as to enhance Higher Order Thinking Skills (HOTS) through education. We believe that by enhancing HOTS in STEM education today, this will help in the development of the workforce of tomorrow that will steadfastly build up Malaysia's nation-building capabilities in the long run.

The programme aims to equip 4,500 teachers in all 144 districts nationwide and positively impact 3.96 million students. It began in 2020 and will be carried out in three phases until 2028. To date, Yayasan PETRONAS has invested RM2.5 million in this programme with 135 teachers trained from 112 districts. As 2020 progressed, the programme evolved to help teachers adapt to teaching online classes and virtual content. Some 136 teachers from Cohort 1 were also provided with Online Teaching Kits that included a DIY mini green screen kit, a pedagogical book *Pembelajaran Abad ke-21* (also known as PAK21) and a variety of school stationery to help make online lessons effective, fun and interactive.

Yayasan PETRONAS also made donations amounting to RM95,624 under the Sentuhan Ilmu initiative for school and education-related activities.



## Other Programmes under Sentuhan Ilmu

### Back To School Programme

The Back to School programme aims to provide school essentials to 21,000 primary school students from low-income households nationwide and help alleviate the burden of their parents. It also serves to motivate students to stay in school while promoting the importance of education among them.

Given that schools were closed for most of year 2020, students received their personal hygiene kits and school supplies in March 2021 when school reopened. Each student received two pieces of three-layer reusable face masks, a small towel, a box of soap, a school bag, a tumbler, a student activity notebook, a pencil case and stationery items, as well as two sets of school uniforms and a pair of socks and shoes. The student activity notebook included several simple science experiments on personal hygiene, health infographics and stickers, designed to spark interest amongst the students and help them understand science and its application in real life.

### PETRONAS Counsellors Programme

The PETRONAS Counsellors Programme (PCP), is a collaboration between Yayasan PETRONAS and the Sektor Pengurusan Kaunseling dan Kerjaya Murid, Bahagian Pengurusan Sekolah Harian (or Student Counselling and Career Management Unit of the Daily School Management Division), which is under the MOE. The PCP aims to help school counsellors in their role of advising students on their career pathways, with a focus on STEM as well as Technical and Vocational Education and Training (TVET). The PCP also acts as a platform to spread awareness about PETRONAS' Learning Institutions such as Akademi Laut Malaysia (ALAM), Universiti Teknologi PETRONAS (UTP) and Institut Teknologi Petroleum PETRONAS (INSTEP); as well as the educational and financial aids that we have provisioned for the students (such as PESP and VISTA). In 2020, a total of 210 counsellors from seven states benefitted from this programme.

For more details on the PESP and VISTA initiatives, go to the Human Capital Investment sub-section on pages 166 to 167 of this report.

### Construction of Maktab Rendah Sains MARA (MRSM) in Sabah and Sarawak

PETRONAS is funding the construction of an MRSM (or MARA Junior Science College) in Sabah and Sarawak respectively. The MRSM Ranau project is a collaboration between PETRONAS, the Sabah State Government and MARA, while the MRSM Bintulu is a collaboration between PETRONAS, the Sarawak State Government, Yayasan Sarawak and MARA. Both MRSMs have a combined capacity of 900 students (450 each) and are estimated to be completed by 2021. The aim of the project is to encourage and promote students' interest in STEM while developing their talents. Due to the pandemic and the MCO, very little progress was made in the construction of these learning institutions over 2020.

### Construction of Asrama Harian Luar Bandar (AHLB) in Sabah and Sarawak



Note: This photo was taken before the pandemic.

PETRONAS, in collaboration with the MOE and state governments of Sabah and Sarawak, also funded the construction of two AHLBs or rural day hostels. The construction of the AHLB in Paloh, Sarawak and Pulau Balambangan, Sabah were completed back in July and October 2019 respectively, with a total investment of RM8.7 million. These hostels are today providing access to education for the rural communities of Sabah and Sarawak, in addition to creating opportunities for the children in Paloh and Pulau Balambangan to pursue education in a conducive learning environment.



## Sentuhan Harapan

– Community Well-Being and Development

Here at PETRONAS, we believe in strengthening the less fortunate communities and equipping youth as part of our efforts to accord them a sustainable future. Sentuhan Harapan serves as the operational platform on which all the Group's community-based activities take place.

## Signature Programmes

### The MEKAR Initiative

One of Sentuhan Harapan's signature programmes, the MEKAR (or Memampankan Ekonomi Asas Rakyat) initiative is an extension of the Planting Tomorrow programme. MEKAR aims to bring about sustainable economic growth to B40 families in both the urban and rural areas. The programme, which was established in collaboration with government agencies to upskill communities, offers participants coaching in financial literacy, knowledge on management, marketing, branding and go-to-market strategy, among others. First rolled out in 2017 as pilot projects for Sabah and Terengganu, the MEKAR programme, which was officially launched in 2019, has since been implemented in seven states and positively impacted 3,955 beneficiaries to date. Through its various initiatives, Yayasan PETRONAS aims to accomplish the following targets:

To reach **3,400 beneficiaries** in eight states over the span of two years.

#### Improve the Standard of Living:

To provide participating communities with access to basic needs such as clean water, electricity (through renewable energy) and food.

#### Strengthen Income Streams:

To create financially viable opportunities through upskilling targeted beneficiaries and providing them with resources based on market demand. Focus areas include agricultural skills and technology resources, technical services and repair works. It also aims to support small business owners selling pastries and providing spa services. All in all, MEKAR serves to motivate participants and equip them with entrepreneurial skills that include financial knowledge and marketing.

#### Ensure Sustainable Income Streams:

To propagate sustainable income by assisting beneficiaries with financial solutions through a buyers' network, an employers' network and microfinancing. The aim is to increase income by 50 to 70 per cent over six years, elevating participants' income status from B40 to M40.

#### Note:

The Planting Tomorrow initiative was implemented by Yayasan Sejahtera Sabah as part of Yayasan PETRONAS' move to improve access to water in Sabah. Not limited to solely providing water access, the programme implements a holistic approach to community development. This approach includes improving sanitation and increasing the community's income through agriculture. To learn more about this programme, please visit <https://www.yayasanpetronas.com.my/voices-of-inspiration-planting-tomorrow/>.





MEKAR @ Kuala Nerus, Terengganu (Phase 3: Go-to-Market)



Note: This photo was taken before the pandemic.

In 2020, Yayasan PETRONAS rolled out the third phase of our MEKAR programme in Kuala Nerus, Terengganu. This saw 45 alumni from the Planting Tomorrow programme receiving further coaching as they prepared to go-to-market with the businesses they had already established. The objective of this programme is to help participants gain market access and to set a clear vision for their business growth and expansion.

The business accelerator programme will end in September 2021. Following the completion of this phase, participants will have their products ready to be marketed outside their communities, for example, at supermarkets.

empowerNCER

The empowerNCER programme was implemented in collaboration with the Northern Corridor Implementation Authority (NCIA) as part of an initiative to increase the livelihood of B40 participants in the Northern Corridor Economic Region (NCER) in Kedah. To date, 1,000 beneficiaries, specifically from Baling, Kuala Muda, Pendang, Sik and Yan, have participated in the programme which started in August 2019. It is tentatively scheduled to run until July 2021, depending on the government's decision on the MCO. In 2020, Yayasan PETRONAS invested a total of RM2.3 million in this programme. As of November 2020:

**26%**

of the participants had increased their **income up to 20%**

**57%**

of the participants are now entrepreneurs

**51**

jobs have been created through this platform

**In 2020, a total investment of RM116,325 was made in the MEKAR @ Kuala Nerus, Terengganu programme.**



empowerNCER - Academic Programme

As part of our goal to equip communities, Yayasan PETRONAS in collaboration with the NCIA, initiated the empowerNCER academic programme for SPM 2020 students from B40 families with a total investment of RM500,000. Utilising an e-learning platform, the curriculum comprises the Empower English Attack (eEA), eQMaths, eWorkshops and eSTEM for SPM. The programme currently has 750 students enrolled in Kedah, specifically from Baling, Kuala Muda, Pendang, Sik and Yan. With a project timeline spanning from November 2019 until October 2021, the programme is ongoing as per schedule, with an average attendance of 98 per cent. Post-SPM students will be assisted with placement in universities/technical institutions/ skills programme where suitable.

empowerECER-MEKAR

Yayasan PETRONAS has partnered with the East Coast Economic Region Development Council (ECERDC) in this programme, which is part of an initiative to increase the income of B40 participants in Pahang, Kelantan and Terengganu. Participants are selected from each state based on a thorough demand and supply analysis. This process ensures that participants will have the opportunity to increase their skills development. Upon completion of the programme, anchor companies will be appointed to provide on-the-job training, job placement and opportunities for product placement for the participants.

The programme anticipates that some 1,000 participants from districts in Pahang (Lipis), Kelantan (Pasir Puteh and Tanah Merah) and Terengganu (Dungun and Kemaman) will be enrolled in 2021. It is scheduled to run until August 2022, subject to the government's decision on the MCO. To date, Yayasan PETRONAS has invested a total of RM 2.1 million in the project.

Collaboration with Cancer Research Malaysia



Note: This photo was taken before the pandemic.

In 2020, Yayasan PETRONAS contributed RM4 million to the Cancer Research Malaysia (CRM) as part of the Group's continued support of precision medicine in Asia. As a leading research institute, CRM is actively exploring ways to address the disease more accurately in all its stages, from prevention to detection and treatment. The grant enables the establishment of a genetic testing laboratory as well as the replacement and upgrading of the equipment that CRM requires. Through this research, CRM aims to double the proportion of preventable cancers and save lives, especially among high-risk groups. Ultimately, the institute aspires to reduce the guesswork involved for Malaysians facing the disease, leading to a future free from the fear of cancer.

**Yayasan PETRONAS also made contributions under Sentuhan Harapan amounting to RM46,000 for community well-being and development activities.**



Other Programmes under Sentuhan Harapan

Sentuhan Kasih Festive Programme

In addition to our training programmes, Yayasan PETRONAS makes contributions in kind during Malaysia's festive celebrations. Yayasan PETRONAS' *Sentuhan Kasih* programme serves as a platform for the Group to spread festive joy and care among the B40 communities.

In 2020, our contributions comprising food provisions, daily necessities and hygiene kits, were even more important as many faced harsh economic circumstances. Yayasan PETRONAS' efforts to alleviate the financial burden faced by the beneficiaries saw the Group contributing RM1.17 million in 2020, that brought smiles to the following groups:



**Total contribution in 2020: RM1.17 million**

Sentuhan Kasih Disaster Relief

Over the course of 2020, Yayasan PETRONAS also provided ad hoc assistance during local disasters, including the following:



Contributions in kind to **14 students** affected by a fire at **SK Sebauh, Bintulu, Sarawak**

Contribution of **400 cartons of bottled water** to **100 beneficiaries** from B40 communities in **Labuan** during the prolonged water crisis

Contributions in kind to **222 victims of a fire** at a **long house at RH Dinggon, Sibul, Sarawak**

Contributions in kind (**mineral water and LPG cylinders**) to flood victims in the **East Coast region**

**Total contribution in 2020: RM253,054**



**Sentuhan Alam**  
- Environment

Sentuhan Alam is the environmental focus of Yayasan PETRONAS that aims to reduce the negative impact of climate change and the Group's carbon footprint. Yayasan PETRONAS' efforts in researching biodiversity, carbon sinks and new energy as well as our biodiversity and recycling initiatives are in line with the 11<sup>th</sup> Malaysian Plan that aims to reduce Malaysia's year-on-year environmental impact in a bid to achieve net zero carbon emissions by 2050 (NZCE 2050).

Signature Programmes

Imbak Canyon Studies Centre (ICSC)

Launched in March 2019, the ICSC initiative marks a significant milestone in biodiversity conservation by PETRONAS and Yayasan Sabah to protect and conserve the 27,599-hectare Imbak Canyon Conservation Area (ICCA) in Sabah. To spur research activities, PETRONAS, through Yayasan PETRONAS, plans for a sustainable model in the areas of conservation, biodiversity and community via a Memorandum of Understanding (MoU) with Yayasan Sabah. Yayasan PETRONAS also funded the Imbak Canyon Scientific Expedition at Gunung Kali Research Station from 18 to 28 December 2019.



Note: This photo was taken before the pandemic.

Since 2010, PETRONAS has invested a total of RM83 million in the conservation of Imbak Canyon. This includes the implementation of environmental awareness and community enhancement programmes in the area. Plans are underway to introduce sustainability expeditions at the Imbak Canyon, whereby the outcomes will provide a database for future research on potential commercialisation of these expeditions. For the year in review, no activities were carried out at Imbak Canyon due to pandemic restrictions.

PCG Be Green

During the year in review, PETRONAS Chemicals Group Berhad (PCG) organised its annual conservation and plastic usage awareness programme called PCG Be Green which aims to promote the 3Rs (Reduce, Reuse, Recycle). Established in 2013, the programme aims to spread awareness on the importance of recycling and anti-littering as well as the impact of plastic usage on the environment, if not discarded properly. The programme involves talks, educational campaigns and clean-up programmes to effectively communicate 3R education to communities.

PCG first collaborated with Yayasan PETRONAS in 2019 as part of its effort to enhance the programme. The partnership saw the introduction of the *#recycleforlifecycle* awareness campaign and clean-up programme. In 2020, the "Cabaran PCG Be Green 2020" initiative was organised under the PCG Be Green banner. Utilising platforms such as WhatsApp, Instagram and Facebook, educational content was shared followed by a competition. The campaign offered prizes to those who collected the most waste items and then recycled them. The digital format of the campaign strictly adhered to the government's various COVID-19 standard operating procedures (SOPs) which are now part of the new norm. Carried out at four different locations, the campaign reached approximately 2,880 members of the community and saw 2,000 kg of recyclable waste being recovered.

PETRONAS walk4trees challenge

Yayasan PETRONAS has committed to planting 50,000 trees as part of its environmental conservation efforts under the Sentuhan Alam initiative. This initiative ties in with a commitment made by PETRONAS and its employees through the "walk4trees challenge" that aims to promote healthy lifestyles among PETRONAS staff, while they in turn pledge to do their bit to care for the environment. This programme entails planting one tree sapling for every 1 million steps that participants achieve.

For further details of this initiative, turn to the section titled "The walk4trees challenge – A Good Reason to Keep on Walking" within the HSSE section on page 146 of this report.



# Moving Forward with **Resilience**

## Commitment to Governance

The PETRONAS  
leadership  
team and our  
commitment to  
good governance  
practices.

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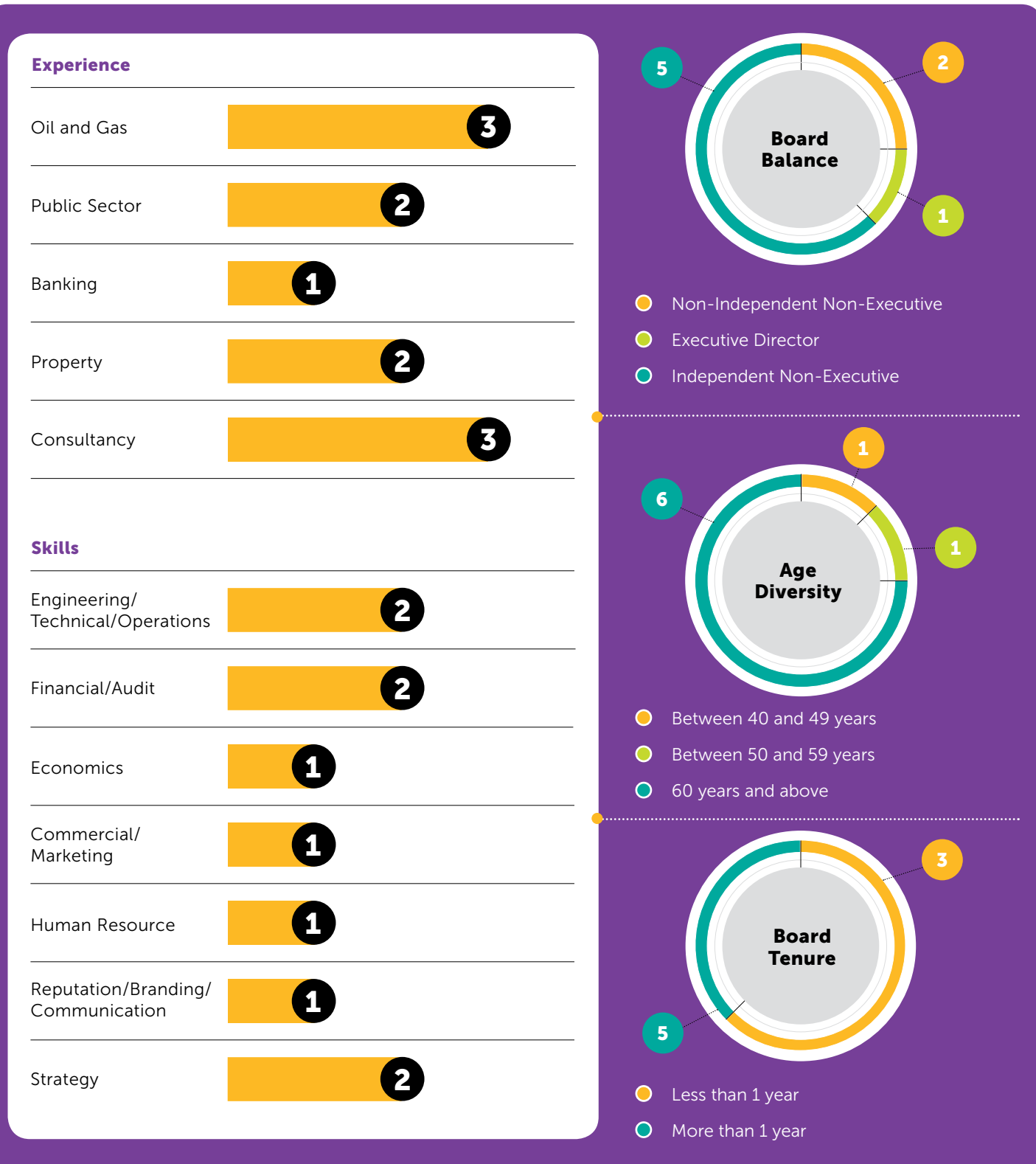




## Board Composition



# Leadership and Governance



## Profile of Board of Directors

As of 31 March 2021

### Tan Sri Ahmad Nizam Salleh

Non-Independent  
Non-Executive Chairman/  
Director (NINED)

#### Age/Gender/ Nationality

65/Male/Malaysian

#### Date Appointed to the Board

1 August 2018



#### Academic/Professional Qualifications

- Bachelor of Business Administration, Ohio University, USA
- Advanced Management Program, Wharton School, University of Pennsylvania, USA

#### Past Appointments/Experiences

- Joined PETRONAS in 1981
- Held various positions including analyst, planner and project coordinator in corporate planning and finance functions within PETRONAS' Corporate Head Office from 1981 to 1987
- Other key positions previously held within the Group
  - Head Project, Tender and Contract Division
  - Deputy Project Director of LNG 2 Project
  - Executive Assistant to the President/Chief Executive Officer
  - Senior General Manager, Crude Oil Group
  - Senior General Manager, Group Treasury
  - Managing Director/Chief Executive Officer of Malaysia LNG Group of Companies
  - Managing Director/Chief Executive Officer of Engen Petroleum Ltd, South Africa
  - Vice President, Corporate Services Division
  - Member of the PETRONAS Management Committee
  - Chairman of the PETRONAS Central Tender Committee
  - Chairman of the PETRONAS Risk Management Council
  - PETRONAS representative on the Boards of MISC Berhad, Putrajaya Holdings Berhad, Bintulu Port Holdings Berhad and other PETRONAS subsidiaries

#### Other Current Appointments

- Chairman of Yayasan PETRONAS
- Chairman of KLCC Property Holdings Berhad
- Chairman of KLCC (Holdings) Sdn Bhd
- Chairman of KLCC REIT Management Sdn Bhd
- Pro-Chancellor, Universiti Teknologi PETRONAS
- Member of National Employment Council (NEC)

#### Board Committee:



Member of Audit Committee



Member of Risk Committee



Member of Nomination and Remuneration Committee



Chairman of Committee

### Tengku Muhammad Taufik

Executive Director,  
President and Group  
CEO

#### Age/Gender/ Nationality

47/Male/Malaysian

#### Date Appointed to the Board

15 October 2018



#### Academic/Professional Qualifications

- Fellow of the Institute of Chartered Accountants in England and Wales
- Member of the Malaysian Institute of Accountants
- Bachelor of Arts (Honours) (Finance and Accounting), University of Strathclyde, United Kingdom

#### Past Appointments/Experiences

- Accumulated more than 20 years of experience in the fields of finance and business investment
- Experienced in strategic planning investment valuations, developing entry strategies for businesses and structuring fit-for-purpose funding requirements
- Areas of expertise include financial reporting, project analysis, feasibility reviews, capital projects structuring and risk management, with primary focus on the oil and gas industry
- Executive Vice President and Group Chief Financial Officer, PETRONAS
- Partner at PricewaterhouseCoopers (PwC) Malaysia
- Chief Financial Officer for two public listed companies, responsible for financial and management reporting, merger and acquisition activities, as well as developing and implementing key stakeholder engagement strategies
- Member of the Board of MISC Berhad
- Member of the Board of KLCC Property Holdings Berhad

#### Other Current Appointments

- Chairman of Audit Committee for East Coast Economic Region Development Council (ECERDC) and Northern Corridor Implementation Authority (NCIA)
- Chairman of National Trust Fund
- Council Member of ECERDC and NCIA
- Member of Asia-Pacific Economic Cooperation (APEC) Business Advisory Council (ABAC)
- Member of Board of Trustees of the Merdeka Award Trust
- Member of National Employment Council (NEC)
- Member of the Board of various PETRONAS companies
- Member of World Economic Forum (WEF) Industry Action Group and WEF Oil and Gas Governors Forum
- Chairman of CEO Action Network



Profile of Board of Directors

As of 31 March 2021

**Ainul Azhar  
Ainul Jamal**

Independent Non-Executive Director (INED)

**Age/Gender/  
Nationality**

61/Male/Malaysian

**Date Appointed to  
the Board**

15 May 2018



**Academic/Professional Qualifications**

- Bachelor of Electrical Engineering, University of Sussex, United Kingdom
- Advanced Finance, IMD Lausanne, Switzerland
- Emerging Leaders Program, Daniel Business School, University of Denver, Colorado, United States of America

**Past Appointments/Experiences**

- Joined Schlumberger Limited in 1984. Spent over 32 years with Schlumberger with vast experience in oilfield services and technologies. Held various key positions around the world including:
  - Managing Director for Malaysia, Brunei, Philippines and Singapore
  - Reservoir Group HR Director
  - Treasurer of Schlumberger Foundation
  - Vice President Global Accounts
  - Chairman for Asia Pacific
- Held directorships at several private companies and was an Independent Non-Executive Director as well as Chairman of the Risk Committee at a public listed company in Malaysia.

**Other Current Appointments**

- Member of the Student Development Advisory Council, Universiti Teknologi PETRONAS, Malaysia

**Tan Sri Dato' Seri  
Mohd Bakke Salleh**

Independent Non-Executive Director (INED)

**Age/Gender/  
Nationality**

66/Male/Malaysian

**Date Appointed to  
the Board**

18 June 2019



**Academic/Professional Qualifications**

- Bachelor of Science (Economics), London School of Economics, United Kingdom
- Fellow of Institute of Chartered Accountants in England and Wales
- Member of the Malaysian Institute of Accountants

**Past Appointments/Experiences**

- Held key positions in a number of Government-linked companies and local corporations:
  - Director of Eastern & Oriental Berhad (effective up to 10 May 2021)
  - Chairman of Federal Land Development Authority (FELDA)
  - Chairman of Malaysian Palm Oil Board (MPOB)
  - President and Group Chief Executive of Sime Darby Berhad
  - Chairman of Yayasan FELDA
  - Executive Deputy Chairman and Managing Director of Sime Darby Plantation Berhad
  - Group President and Chief Executive Officer of Felda Global Ventures Holdings Berhad
  - Group Managing Director and Chief Executive Officer of Lembaga Tabung Haji
  - Chairman of Bank Islam Malaysia Berhad
  - Group Managing Director of Felda Holdings Bhd
  - Director, Property Division of Pengurusan Danaharta Nasional Berhad
  - Managing Director of Syarikat Perumahan Pegawai Kerajaan Sdn Berhad (SPPK)
  - Group General Manager of Island and Peninsular Berhad

**Other Current Appointments**

- Chairman of Telekom Malaysia Berhad
- Council Member of Yayasan Sime Darby
- Pro Chancellor of Universiti Putra Malaysia (effective up to 30 June 2021)

**Board Committee :**



Profile of Board of Directors

As of 31 March 2021

**Dato' Razali  
Mohd Yusof**

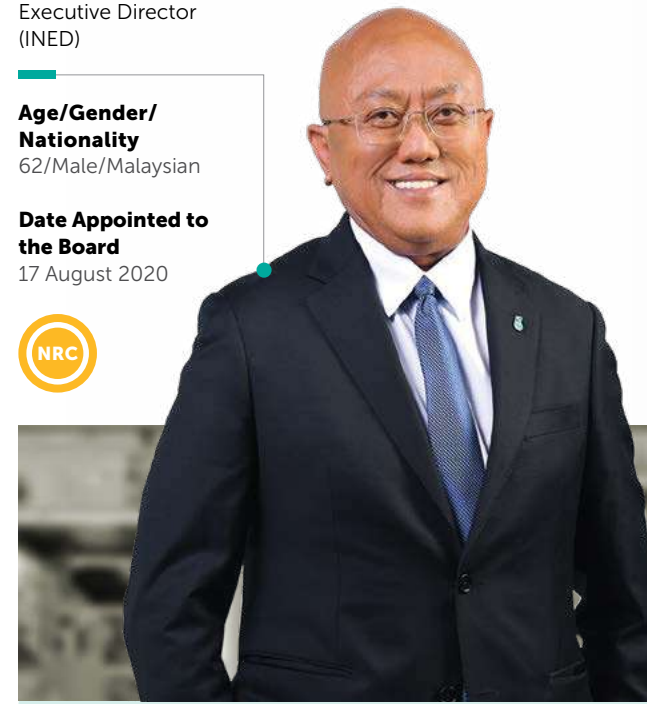
Independent Non-Executive Director (INED)

**Age/Gender/  
Nationality**

62/Male/Malaysian

**Date Appointed to  
the Board**

17 August 2020



**Academic/Professional Qualifications**

- Diploma in Petroleum and Natural Gas Engineering, University of Technology, Malaysia
- Bachelor of Science (Mining Engineering), University of Missouri, United States of America
- Master of Science (Engineering Management), University of Missouri, United States of America

**Past Appointments/Experiences**

- Held several key roles in private and multinational companies in Malaysia:
  - Director of Datasonic Group Berhad
  - Project Engineer/Project Manager, Pahang Investment & Industrial Co. Ltd
  - Operations Contract Engineer and Underwater Operations Engineer, Sarawak Shell Berhad
  - Managing Director/Shareholder, Sarku Engineering Services Sdn Bhd
  - Chairman/Shareholder, OMNI Petromaritime Sdn Bhd

**Other Current Appointments**

- Director of Intralink Properties Sdn Bhd
- Director of Urban Terrace Sdn Bhd
- Director of Bagus Tioman Sdn Bhd

**Board Committee :**



**Zakiah Jaafar**

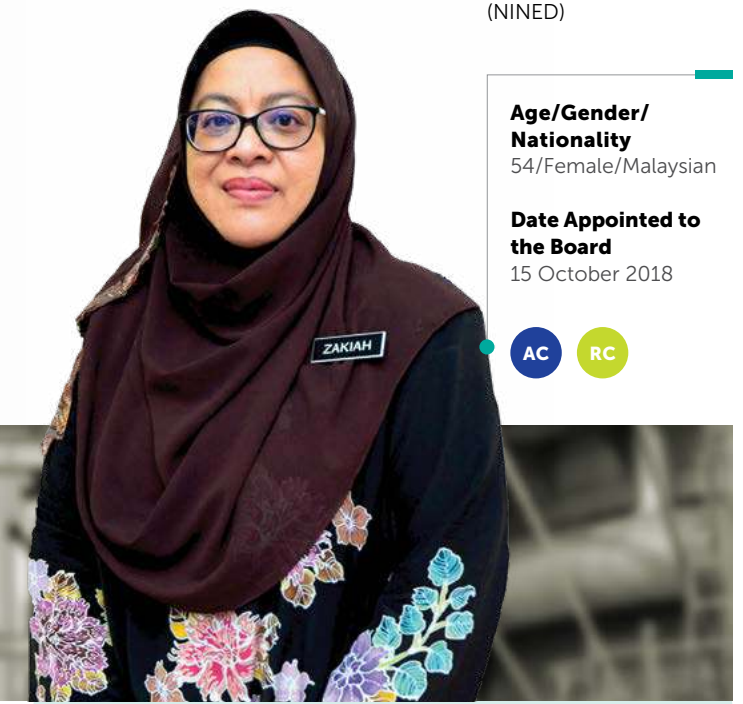
Non-Independent Non-Executive Director (NINED)

**Age/Gender/  
Nationality**

54/Female/Malaysian

**Date Appointed to  
the Board**

15 October 2018



**Academic/Professional Qualifications**

- Premier Executive in Advanced Development Programme, Razak School of Government, Canberra, Australia
- Advanced Management and Leadership Programme, University of Oxford, United Kingdom
- Postgraduate Diploma in Public Administration, National Institute of Public Administration (INTAN), Malaysia
- Master of Social Science (Economics), University of Birmingham, United Kingdom
- Bachelor of Science (Honours) (Economics), University of Warwick, United Kingdom

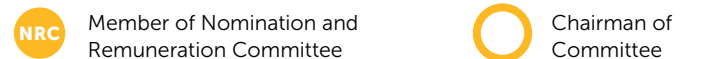
**Past Appointments/Experiences**

- Former Deputy Secretary General (Investment) for the Ministry of Finance, Malaysia, responsible for coordinating, monitoring and updating policies, regulations, Acts and strategies to government investment companies, statutory bodies, public assets and strategic public investments
- Former Deputy Secretary General (Macro) of the Ministry of Economic Affairs (MEA), responsible for the preparation of medium-and long-term macroeconomic framework for the Malaysian economy and also oversaw the policy directions for the manufacturing and services sectors; science, technology and innovation; environment economics as well as knowledge-based economy

**Other Current Appointments**

- Deputy Secretary General (Policy) for the Ministry of Finance, Malaysia
- Board Member of Pengurusan Aset Air Berhad
- Board Member of Employees Provident Fund
- Board Member of Bintulu Port Holdings Berhad

**Board Committee :**





Profile of Board of Directors  
As of 31 March 2021

**Tan Sri Zaharah Ibrahim**

Independent Non-Executive Director (INED)

**Age/Gender/Nationality**

68/Female/Malaysian

**Date Appointed to the Board**

17 August 2020



**Dato Haji Ibrahim Haji Baki**

Independent Non-Executive Director (INED)

**Age/Gender/Nationality**

62/Male/Malaysian

**Date Appointed to the Board**

17 August 2020



**Academic/Professional Qualifications**

- Bachelor of Laws (Honours) (LL.B), University Malaya

**Past Appointments/Experiences**

- Held key positions in the Judicial and Legal Services and the Judiciary in Malaysia:
  - Magistrate in Melaka
  - Director of Intellectual Property Division, Ministry of Domestic Trade and Consumer Affairs
  - State Legal Advisor, Selangor
  - Parliamentary Draftsman, Attorney General's Chambers of Malaysia
  - Judicial Commissioner, High Court of Malaya (Kuala Lumpur and Shah Alam)
  - High Court Judge, High Court of Malaya (Shah Alam and Kuala Lumpur)
  - Court of Appeal Judge, Court of Appeal, Putrajaya
  - Federal Court Judge, Federal Court, Putrajaya
  - Chief Judge of Malaya
  - Chairman of Prasarana Malaysia Berhad

**Other Current Appointments**

- N/A

**Academic/Professional Qualifications**

- Honours Degree in Law
- A Barrister-at-Law and a member of Lincoln's Inn

**Past Appointments/Experiences**

- Has served as City Councillor and active in social welfare and charitable organisations
- Former Executive Chairman / Shareholder of Hubline Berhad
- Director / Shareholder of Gegasan Abadi Properties Sdn Bhd
- Chairman / Shareholder of Warisan Kenyalang Sdn Bhd
- Chairman / Shareholder of IBZ Corporation Sdn Bhd
- Chairman of Layang-Layang Aerospace Sdn Bhd

**Other Current Appointments**

- Chairman, Daya Builders Sdn Bhd, Government Linked Company
- Commission Member of Registrar of Companies Malaysia (SSM)
- Chairman / Shareholder of Supreme Consolidated Resources Berhad
- Chairman / Shareholder of Gegasan Sdn Bhd
- Chairman of Redpyne Sdn Bhd
- Chairman / Shareholder of IBA Holdings Sdn Bhd
- Chairman of Lestari Asiabina Sdn Bhd
- Chairman/ Shareholder of two newspapers, the New Sarawak Tribune and Suara Sarawak

**Board Committee :**

- Member of Audit Committee
- Member of Risk Committee
- Member of Nomination and Remuneration Committee
- Chairman of Committee

Profile of Company Secretaries

As of 31 March 2021

**Maliki Kamal Mohd Yasin**

Senior Vice President and Group General Counsel, Group Legal

**Age/Gender/Nationality**

57/Male/Malaysian

**Date Appointed**

1 June 2017



**Academic/Professional Qualifications**

- Bachelor of Law (Honours), International Islamic University Malaysia, Malaysia
- Wharton's Advanced Management Program at Wharton University of Pennsylvania

**Past Appointments/Experiences**

- Joined PETRONAS in 1990
- Has more than 31 years of experience in the legal and company secretarial fields
- Other key positions currently held within the Group:
  - Director of Malaysian Jet Services Sdn Bhd
- Other key positions previously held within the Group:
  - Head of Legal Downstream, Finance and Technology, PETRONAS
  - Head of Legal Finance and Secretariat, PETRONAS
  - General Counsel of RAPID Project
  - Head of Legal and Corporate Secretariat, PETRONAS Chemicals Group Berhad

**Other Current Appointments**

- Company Secretary, PETRONAS

**Intan Shafinas (Tuty) Hussain**

Company Secretary

**Age/Gender/Nationality**

48/Female/Malaysian

**Date Appointed**

1 June 2018



**Academic/Professional Qualifications**

- Graduate Diploma in Law, University of Western Australia, Australia
- Bachelor of Laws (Honours), University of Leicester, United Kingdom
- Certificate in Legal Practice, Legal Professional Qualifying Board, Malaysia
- Licensed Company Secretary

**Past Appointments/Experiences**

- Joined PETRONAS in 2001 and has over 19 years of extensive experience in legal, corporate governance and company secretarial matters
- Previously served as the Joint Company Secretary of PETRONAS Gas Berhad and Head of Legal of PETRONAS Gas Berhad
- Other portfolios held include Legal Counsel of Legal Corporate Services, PETRONAS Chemicals Group Berhad, Corporate Services and Technology as well as Petrochemical Business of PETRONAS

**Other Current Appointments**

- Head of Group Secretarial and Board Governance, PETRONAS



Profile of Executive Leadership Team

As of 31 March 2021

# Delivering Our Strategy, Driving Performance



**1**  
**Tengku Muhammad Taufik**  
President and Group Chief Executive Officer



**2**  
**Datuk Md Arif Mahmood**  
Executive Vice President and Chief Executive Officer, Downstream



**3**  
**Adif Zulkifli**  
Executive Vice President and Chief Executive Officer, Upstream



**4**  
**Adnan Zainol Abidin**  
Executive Vice President and Chief Executive Officer, Gas + New Energy



**5**  
**Liza Mustapha**  
Executive Vice President\* and Group Chief Financial Officer



**6**  
**Mazuin Ismail**  
Senior Vice President, Corporate Strategy



**7**  
**Maliki Kamal Mohd Yasin**  
Senior Vice President Group Legal and Group General Counsel



**8**  
**Samsudin Miskon**  
Senior Vice President, Project Delivery and Technology



**9**  
**Farehana Hanapiah**  
Senior Vice President\*, Group Human Resource Management

**Note:**

\* Effective 1 June 2021

# Effective 1 April 2021

Profile of Executive Leadership Team

As of 31 March 2021

**1**

**Tengku Muhammad Taufik**

President and Group Chief Executive Officer

**Age/Gender/Nationality**  
47/Male/Malaysian

**Date Appointed**  
15 October 2018

**Academic/Professional Qualifications**

- Fellow of the Institute of Chartered Accountants in England and Wales
- Member of the Malaysian Institute of Accountants
- Bachelor of Arts (Honours) (Finance and Accounting), University of Strathclyde, United Kingdom

**Appointments/Experiences**

- Accumulated more than 20 years of experience in the fields of finance and business investment
- Experienced in strategic planning investment valuations, developing entry strategies for businesses and structuring fit-for-purpose funding requirements
- Areas of expertise include financial reporting, project analysis, feasibility reviews, capital projects structuring and risk management, with primary focus on the oil and gas industry
- Executive Vice President and Group Chief Financial Officer, PETRONAS
- Partner at PricewaterhouseCoopers (PwC) Malaysia
- Chief Financial Officer for two public listed companies, responsible for financial and management reporting, merger and acquisition activities, as well as developing and implementing key stakeholder engagement strategies
- Member of the Board of MISC Berhad
- Member of the Board of KLCC Property Holdings Berhad

**Other Current Appointments**

- Chairman of Audit Committee for East Coast Economic Region Development Council (ECERDC) and Northern Corridor Implementation Authority (NCIA)
- Chairman of National Trust Fund
- Council Member of ECERDC and NCIA
- Member of Asia-Pacific Economic Cooperation (APEC) Business Advisory Council (ABAC)
- Member of Board of Trustees of the Merdeka Award Trust
- Member of National Employment Council (NEC)
- Member of the Board of various PETRONAS companies
- Member of World Economic Forum (WEF) Industry Action Group and WEF Oil and Gas Governors Forum
- Chairman of CEO Action Network

**2**

**Datuk Md Arif Mahmood**

Executive Vice President and Chief Executive Officer, Downstream

**Age/Gender/Nationality**  
58/Male/Malaysian

**Date Appointed**  
1 April 2016

**Academic/Professional Qualifications**

- Bachelor of Science (Summa Cum Laude) (Electrical Engineering), Boston University, United States of America
- Master of Business Administration, Massachusetts Institute of Technology, United States of America

**Appointments/Experiences**

- Joined PETRONAS in 1984
- Has more than 36 years of experience in the oil, gas and petrochemicals industries, in the fields of engineering, operation and strategic planning, business development and mergers and acquisitions
- Led the acquisition of Canada's Progress Energy Inc. in 2012 and established joint venture partnership with Saudi Aramco for Pengerang Integrated Complex
- Other key positions currently held within the Group:
  - Chairman of PETRONAS Chemicals Group Berhad
  - Chairman of PETRONAS Dagangan Berhad
  - Chairman of PETRONAS Marketing International Sdn Bhd
  - Chairman of Pengerang Petrochemical Company Sdn Bhd
  - Chairman of Pengerang Refining Company Sdn Bhd
  - Director of PETRONAS Carigali Sdn Bhd
  - Director of PETRONAS International Corporation Ltd
  - Director of PETRONAS Refinery & Petrochemical Corporation Sdn Bhd
  - Director of Johor Petroleum Development Corporation

**Other Current Appointments**

- Nil

**3**

**Adif Zulkifli**

Executive Vice President and Chief Executive Officer, Upstream

**Age/Gender/Nationality**  
50/Male/Malaysian

**Date Appointed**  
1 April 2019

**Academic/Professional Qualifications**

- Bachelor of Science (Honours) in Petroleum Engineering, Colorado School of Mines
- Master of Business Administration, Kellogg School of Management, Northwestern University

**Appointments/Experiences**

- Joined PETRONAS in 1993
- Has almost 30 years of experience in the oil and gas industry in the fields of petroleum engineering, operations, strategic planning, corporate transformation, petroleum economics, mergers and acquisitions, and business development
- Other key positions currently held within the Group:
  - Chairman of PETRONAS Energy Canada Ltd
  - Director of PETRONAS Carigali Sdn Bhd
  - Director of PETRONAS International Corporation Ltd
  - Trustee of the Abandonment Cess Fund
- Other key positions previously held within the Group:
  - Chairman of PETRONAS Gas Berhad
  - Chairman of PETRONAS Research Fund
  - Executive Vice President, Gas + New Energy
  - Senior Vice President, Development and Production Upstream Business
  - Senior Vice President, Corporate Strategy
  - Vice President, Malaysia Petroleum Management
  - Head, Strategy and New Ventures Division in Exploration & Production Business

**Other Current Appointments**

- Chairman of the Society of Petroleum Engineers, Asia Pacific Advisory Council
- Vice Chairman, International Petroleum Technology Conference Board of Directors
- Executive Committee Co-Chair, International Petroleum Technology Conference 2021 (Kuala Lumpur)
- Conference Advisor for the Offshore Technology Conference Asia (Kuala Lumpur) 2020



Profile of Executive Leadership Team  
As of 31 March 2021

4

**Adnan Zainol Abidin**

Executive Vice President and  
Chief Executive Officer,  
Gas + New Energy

**Age/Gender/Nationality**  
60/Male/Malaysian

**Date Appointed**  
1 April 2019

**Academic/Professional Qualifications**

- Bachelor of Science in Chemical Engineering, University of Leeds, United Kingdom

**Appointments/Experiences**

- Joined PETRONAS in 1984
- Possesses more than 36 years of experience in the oil and gas industry
- Other key positions currently held within the Group:
  - Chairman of PETRONAS Gas Berhad
  - Director of LNG Canada Development Inc
  - Chairman of Malaysia LNG Sdn Bhd
  - Chairman of Malaysia LNG Dua Sdn Bhd
  - Chairman of Malaysia LNG Tiga Sdn Bhd
  - Chairman of PETRONAS Canada LNG Limited
  - Chairman of PETRONAS LNG 9 Sdn Bhd
  - Chairman of PETRONAS LNG Sdn Bhd
  - Director of Pacific NorthWest LNG Ltd
  - Director of PETRONAS Carigali Sdn Bhd
  - Director of PETRONAS International Corporation Ltd
- Other key positions previously held within the Group:
  - Senior Vice President, Project Delivery and Technology
  - Vice President, LNG Assets
  - Vice President, Global LNG Projects

**Other Current Appointments**

- Nil

5

**Liza Mustapha**

Executive Vice President\* and  
Group Chief Financial Officer

**Age/Gender/Nationality**  
50/Female/Malaysian

**Date Appointed**  
1 July 2020

**Academic/Professional Qualifications**

- Bachelor of Science Degree in Economics, majoring in Accounting and Finance, London School of Economics, United Kingdom
- Fellow of the Association of Chartered Certified Accountants
- Advanced Management Programme, Harvard Business School

**Appointments/Experiences**

- Joined PETRONAS in 1995
- Has more than 25 years of experience in PETRONAS covering finance at business and corporate
- Other key positions currently held within the Group:
  - Chairman of Energas Insurance (L) Ltd.
  - Director of KLCC Property Holdings Berhad (KLCCP)
  - Director of KLCC REIT Management Sdn Bhd (KLCCRM)
  - Director of MISC Berhad
  - Director of PETRONAS Carigali Sdn Bhd
  - Director of PETRONAS International Corporation Ltd
- Other key positions previously held within the Group:
  - Vice President, Group Procurement
  - Group Financial Controller
  - Chief Financial Officer, Upstream Business
  - Senior General Manager, Group Treasury
  - Chief Financial Officer, PETRONAS Gas Berhad

**Other Current Appointments**

- Member, Board Audit Committee, MISC Berhad
- Member, Audit Committees of KLCCP and KLCCRM
- Member, Nomination and Remuneration Committees of KLCCP and KLCCRM
- Treasurer, Malaysian Petroleum Club

**Note:**

\* Effective 1 June 2021

6

**Mazuin Ismail**

Senior Vice President,  
Corporate Strategy

**Age/Gender/Nationality**  
52/Male/Malaysian

**Date Appointed**  
16 April 2016

**Academic/Professional Qualifications**

- Bachelor of Science (Civil and Structural Engineering), University of Bradford, United Kingdom
- Master of Business Administration (Advance), University of Adelaide, Australia

**Appointments/Experiences**

- Joined PETRONAS in 1991
- Has 30 years of experience in PETRONAS covering project execution and engineering, internal audit, governance, and business development. He had also held leadership roles in petroleum management, strategic planning and change management
- Other key positions currently held within the Group:
  - Chairman of PETRONAS Digital Sdn Bhd (formerly known as PETRONAS ICT Sdn Bhd)
  - Chairman of Petroleum Research Fund
  - Chairman of Kertih Terminal Sdn Bhd
  - Director of PETRONAS Carigali Sdn Bhd
  - Director of PETRONAS International Corporation Ltd
  - Director of Institute of Technology PETRONAS Sdn Bhd
  - Director of PTV International Ventures Ltd
  - Director of Malaysian Industry-Government Group for High Technology (MIGHT)
- Other key positions previously held within the Group:
  - Senior Vice President, Project Delivery and Technology
  - Vice President of Technical Global (PETRONAS)

**Other Current Appointments**

- Nil

Profile of Executive Leadership Team  
As of 31 March 2021

7

**Maliki Kamal Mohd Yasin**

Senior Vice President and  
Group General Counsel, Group Legal

**Age/Gender/Nationality**  
57/Male/Malaysian

**Date Appointed**  
1 June 2017

**Academic/Professional Qualifications**

- Bachelor of Law (Honours), International Islamic University Malaysia, Malaysia
- Wharton's Advanced Management Program at Wharton University of Pennsylvania

**Appointments/Experiences**

- Joined PETRONAS in 1990
- Has more than 31 years of experience in the legal and company secretarial fields
- Other key positions currently held within the Group:
  - Director of Malaysian Jet Services Sdn Bhd
- Other key positions previously held within the Group:
  - Head of Legal Downstream, Finance and Technology, PETRONAS
  - Head of Legal Finance and Secretariat, PETRONAS
  - General Counsel of RAPID Project
  - Head of Legal and Corporate Secretariat, PETRONAS Chemicals Group Berhad

**Other Current Appointments**

- Company Secretary, PETRONAS

8

**Samsudin Miskon**

Senior Vice President,  
Project Delivery and Technology

**Age/Gender/Nationality**  
60/Male/Malaysian

**Date Appointed**  
16 October 2019

**Academic/Professional Qualifications**

- Bachelor of Science (Honours) Chemical Engineering, Aston University, United Kingdom
- Master of Science in Project Management, University of Reading, United Kingdom
- Advance Management Program, Harvard Business School, USA

**Appointments/Experiences**

- Joined PETRONAS in 1983
- Has more than 36 years of experience in the fields of project management, plant operation and human resource management
- Other key positions currently held within the Group:
  - Chairman of PETRONAS Research Sdn Bhd
  - Chairman of PETRONAS Technical Services Sdn Bhd
  - Chairman of Institute of Technology PETRONAS Sdn Bhd
  - Director of KLCC (Holdings) Sdn Bhd
  - Director of UTP FutureTech Sdn Bhd
  - Board of Trustees of Petroleum Research Fund
  - Board of Trustees of Dana Asy-Syakirin
  - Board of Trustees of Abandonment Cess Fund
- Other key positions previously held within the Group:
  - General Manager of Malaysia LNG Dua Sdn Bhd
  - Senior General Manager of MLNG Plant Complex
  - MD/CEO of PETRONAS Gas Berhad
  - Vice President of Group Procurement

**Other Current Appointments**

- Nil

9

**Farehana Hanapiah**

Senior Vice President#,  
Group Human Resource Management

**Age/Gender/Nationality**  
52/Female/Malaysian

**Date Appointed**  
1 January 2020

**Academic/Professional Qualifications**

- Bachelor of Commerce and Administration (Accountancy), Victoria University of Wellington, New Zealand
- Advanced Management Programme, Harvard Business School

**Appointments/Experiences**

- Joined PETRONAS in 1990
- Has more than 30 years of experience in corporate functions
- Other key positions currently held within the Group:
  - Chairman of PETRONAS Management Training Sdn Bhd
  - Chairman of PETRONAS Technical Training Sdn Bhd
  - Chairman of Dana Asy-Syakirin
  - Chairman of PETRONAS Lubricants International Sdn Bhd's Nomination and Remuneration Committee
  - Director of Institute of Technology PETRONAS Sdn Bhd
  - Director of PETRONAS Digital Sdn Bhd (formerly known as PETRONAS ICT Sdn Bhd)
  - Director of PETRONAS Lubricants International Sdn Bhd
- Other key positions previously held within the Group:
  - General Manager, Group Strategic Planning
  - Head, Commercial Development & JV Formation of PETRONAS Refinery & Petrochemical Corp
  - Head, Human Capital Expertise, Group HRM
  - Head, Human Capital Management, Group HRM
  - Chief Executive Officer, PETRONAS Management Training Sdn Bhd

**Other Current Appointments**

- Nil

**Note:**

# Effective 1 April 2021





# Board Governance and Structure



In these unprecedented times, the importance of strong governance structures plays a key role in ensuring our businesses are sustainable.

The PETRONAS Board remains committed to maintaining the highest standards of corporate governance, ethics and integrity within the PETRONAS Group whilst also ensuring that PETRONAS achieves its key objectives and oversees the implementation of the Three-Pronged Growth Strategy.



## Board Leadership

The Board provides effective stewardship of the Company and is responsible for the Group's strategic direction and control of the Company. The Board exercises this control by way of a governance framework, effective delegation, risk management and a system of assurances regarding financial reporting and internal controls. The Board is accountable to its shareholders and towards a wider range of stakeholders such as employees, suppliers, community and the government.

Each Director has the duty to act in good faith and in the best interest of the Company. In discharging its roles and duties effectively, the Board is guided by the Board Charter, a document which sets out the authority, responsibilities and operations of the Board and well-defined Terms of Reference of the Board Committees. The differing roles of the Chairman and President and Group Chief Executive Officer (President and GCEO) are acknowledged and set out in the Board Charter.

## How the Board Functions

The Board meets regularly and additional meetings are arranged as and when circumstances dictate. Each meeting is conducted in accordance with a formal and structured agenda and Board papers are circulated on time to ensure that directors are well informed and that debate and decisions are constructive and robust. During 2020, the Board met on 21 occasions, with 100 per cent attendance.

Each Director has full access to the services of the Company Secretaries, who play an advisory role to the Board, particularly with regards to the Constitution of the Company, Board policies and procedures and the Company's compliance with the regulatory requirements, guidelines and legislation.

The Board has an approved and documented schedule of matters reserved for its decision. These include approval of the Group's strategy, annual budget, funding requirements, major capital expenditure and acquisitions and monitoring of performance, health, safety, environmental matters and risk management.

## Matters Reserved for the Board

### 1 Strategy and Management

Strategy, policies, annual budgets and major investment decisions which include capital projects, mergers and acquisitions, and funding requirements.

### 2 Financial, Governance and Risk

Financial reporting and control, and risk management.

### 3 Corporate Matters

Reputation and stakeholder management, Health, Safety, Security and Environment (HSSE), Board and Board Committees' memberships, and Directors' remuneration and succession planning.

## Governance Structure

PETRONAS is led by a Board whose Directors are collectively responsible for creating and delivering long-term sustainable value for the business. A key responsibility of the Board is to balance the interests of the Group and our stakeholders including employees and the wider communities we serve. Our governance structure ensures role clarity by clearly delineating roles and areas of accountability and recognises the independent roles and duties required to effectively govern the Company. The governance structure aims to promote strategic alignment across the Group while facilitating efficient decision-making at the appropriate levels.

### Board of Directors

#### Non-Executive Chairman

- Leads the Board and ensures it operates effectively
- Maintains a culture of openness and debate

#### Independent Non-Executive Directors

- Provide independent judgment, external perspective and objectivity to the Board's deliberation
- Contribute to deliberations and discussions with a broad range of experience and expertise

#### President and Group Chief Executive

- Day-to-day management of the business and implementation of policies, strategies and decisions approved by the Board

### AC Audit Committee

Assists the Board in fulfilling its oversight functions in relation to the Company's internal controls and financial reporting to safeguard PETRONAS' assets. The Committee provides the Board with quality and reliability assurance of the financial information reported by the Company, while promoting efficiency and good governance practices.



For more information about the Audit Committee, please refer to page 208.

### NRC Nomination and Remuneration Committee

Responsible for assessing the performance of the Board, as well as identifying and nominating new Directors. The Committee also supports the Board on the implementation of a succession plan for the Board, President and GCEO, and Top Management as well as Top Management's appointments/ renewals. The Committee recommends to the Board the remuneration policy for the Non-Executive Directors and Top Management.

The Committee also reviews the annual President and GCEO's Performance Scorecard for the year.



For more information about the Nomination & Remuneration Committee, please refer to page 209.

### RC Risk Committee

Responsible for the review of principal risks, and oversees the adequacy and effectiveness of the risk assessment and risk management system for the PETRONAS Group. The Committee also reviews and recommends to the Board the appropriate corporate governance policies and procedures in accordance with good governance standards and best practices.



For more information about the Risk Committee, please refer to page 209.

### President and Group CEO

#### Executive Leadership Team

The ELT was established to assist the President and GCEO in managing the business affairs of the Company and is responsible for providing a holistic approach to all business strategies as well as high impact and high value investments including mergers and acquisitions. The ELT has Focused ELT Meetings to discuss specific matters which include HSSE, Technology and People Development.





## Board Roles and Attendance

### Chairman

Responsible for the effective running of the Board and ensures that the Board plays a full and constructive role in the development and determination of the Company and the Group's strategy and overall commercial objectives.

Leads the Board in setting the values and ethical standards of the Company.

Promotes the highest standards of integrity and corporate governance at the Board level.

### President and GCEO

Responsible for all executive management matters of the Company and/or the Group and leads the Executive Leadership Team.

Responsible for developing and recommending the long-term strategy and vision for the Company and/or the Group.

To foster a corporate culture that promotes ethical practices, encourages individual integrity and the fulfillment of the Company's corporate social responsibilities.

Champions the Company's values and behaviours across the whole Group.

### Attendance at Meetings

The implementation of the Movement Control Order (MCO) due to the COVID-19 pandemic in March 2020 in Malaysia has not affected the Board in carrying out its affairs effectively. The Directors' commitment in discharging their duties and responsibilities is reflected by their attendance at the Board and Board Committee meetings which were held virtually during the year under review.

The number of meetings of the Board and each of the Audit, Risk and Nomination and Remuneration Committees during the year ended 31 December 2020, together with a record of the attendance is detailed in the table below:

## Board and Board Committee Meeting Attendance

Directors as at 31 December 2020	Designation	Board	Audit Committee	Nomination and Remuneration Committee	Risk Committee
<b>Tan Sri Ahmad Nizam Salleh</b>	Chairman	21/21	-	-	-
<b>Tengku Muhammad Taufik</b>	President and Group Chief Executive Officer	20/20	-	-	-
<b>Ainul Azhar Ainul Jamal</b>	Independent Non-Executive Director	21/21	7/7	7/7	-
<b>Tan Sri Dato' Seri Mohd Bakke Salleh</b>	Independent Non-Executive Director	21/21	7/7	-	5/5
<b>Zakiah Jaafar</b>	Non-Independent Non-Executive Director	21/21	5/7	5/6	4/5
<b>Tan Sri Zaharah Ibrahim</b>	Independent Non-Executive Director (appointed w.e.f 17/08/2020)	11/11	2/2	1/1	-
<b>Dato' Razali Mohd Yusof</b>	Independent Non-Executive Director (appointed w.e.f 17/08/2020)	11/11	-	1/1	-
<b>Dato Haji Ibrahim Haji Baki</b>	Independent Non-Executive Director (appointed w.e.f 17/08/2020)	11/11	-	-	2/2

Directors who have resigned in 2020	Designation	Board	Audit Committee	Nomination and Remuneration Committee	Risk Committee
<b>Tan Sri Wan Zulkiflee Wan Ariffin</b>	President and Group Chief Executive Officer (resigned w.e.f 15/06/2020)	7/7	-	-	-
<b>Ahmad Faris Rabidin</b>	Independent Non-Executive Director (resigned w.e.f 23/08/2020)	10/10	-	6/6	3/3

### Non-Executive Directors

Provide alternative insights and constructively challenge proposals to ensure all relevant matters are objectively considered by the Board.

Oversight on the performance of the Management and monitor the delivery of Group strategy within the risk and control environment set by the Board.

### Company Secretary

Facilitates the effective operation of the Board and ensures that the Directors receive accurate, timely and clear information to enable them to discharge their responsibilities.

Provides support and advice to the Board in respect of governance matters.





# Board Balance and Effectiveness

## Composition and Independence

As at the date of this report, the Board of Directors of PETRONAS comprises eight members; the Non-Executive Chairman, the President and GCEO and six Non-Executive Directors (NEDs), out of which five are Independent Non-Executive Directors (INEDs). The names of the Directors together with their biographical details are set out on pages 192 to 196.

The size and composition of the Board is fundamental to its success in providing strong and effective leadership. The NRC is responsible for reviewing the composition of the Board and assessing whether the balance of skills, experience, knowledge and independence is appropriate to enable them to operate effectively.

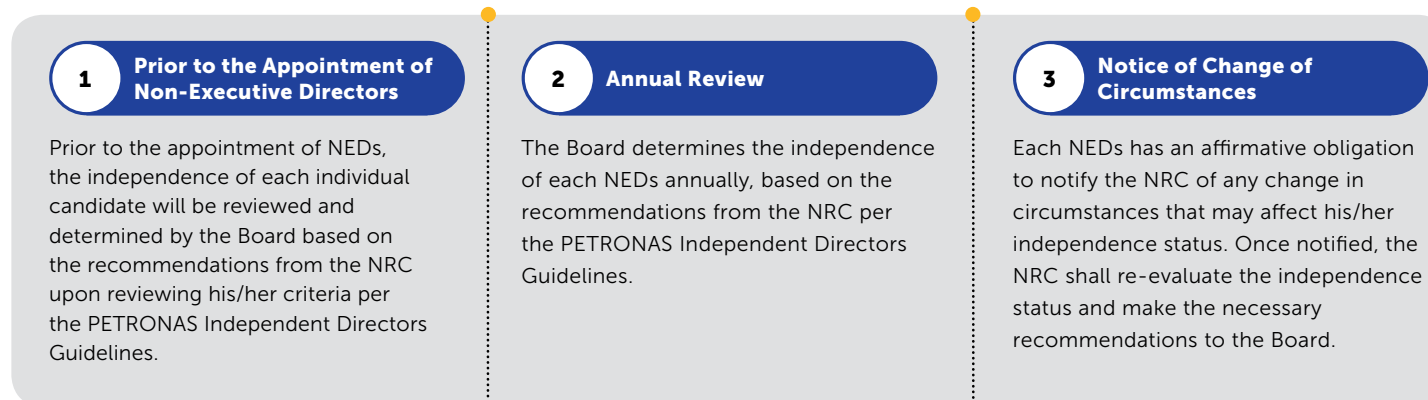
The INEDs have been appointed for their specific experience and expertise and are independent of management and free from any business or other relationship which could materially interfere with the exercise of their independent judgement. NEDs may serve on the boards of other companies provided this does not involve a conflict of interest and that the appointment does not restrict their ability to discharge their duties to PETRONAS in any way.

### Diversity

The Board recognises the importance of diversity and the value it brings to the PETRONAS Group. Diversity promotes the inclusion of different perspectives, raising the standards of good practice in Board leadership and enhancement of valuable insights in business judgment.

### Board Independence

The Board assesses the independence of its NEDs annually. The independence assessment takes into account whether the NEDs have demonstrated an independent state of mind and objective judgment in their deliberations and decision-making process. The assessment on the independence of the NEDs may be undertaken in the following circumstances:



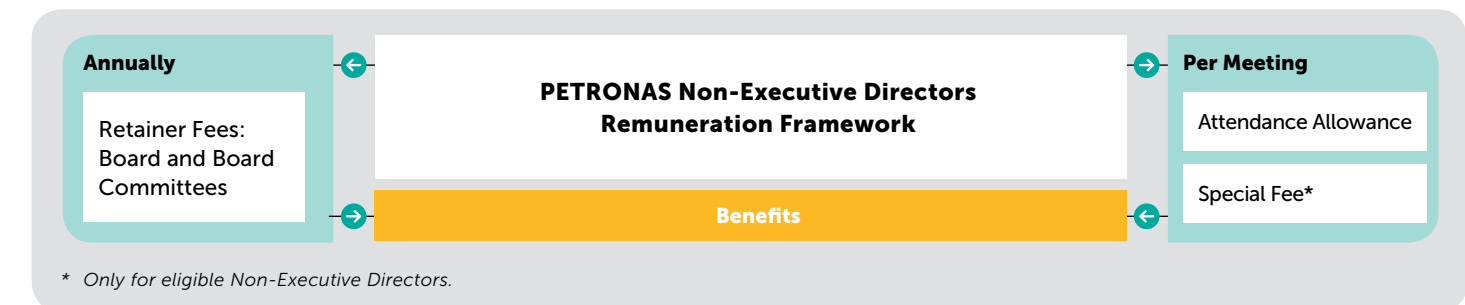
### Conflict of Interest

In ensuring transparency and integrity of the decision-making process as well as to prevent any conflict of interest, a declaration of interest by Directors is a fixed agenda item at the start of every Board meeting. A Director who has direct or indirect interest in a transaction shall recuse himself/herself when required and abstain from deliberations and voting to allow unbiased and free discussions and decision-making. Disclosure of the nature and extent of the Directors' interest and abstention from decision making proceedings are recorded in the minutes of the Board meetings. The Principles of Directorship for the PETRONAS Group was established to govern the way Directors conduct themselves in a conflict of interest situation, which corresponds with the Companies Act 2016 and the Code of Conduct and Business Ethics (CoBE) of the Company.

The Directors are also required to declare their interests annually, in line with the requirements on the disclosure of Director's interests in the Company's Audited Financial Statements.

## Board Remuneration Policy

Given the highly competitive market, PETRONAS designed a robust fee structure to attract, retain and appropriately compensate the diverse and internationally experienced NEDs. The fee framework is illustrated below:



## Board Onboarding and Professional Development Programme

The Board recognises the importance of ensuring that new Directors have a complete introduction to the business so that they are able to make a full and meaningful contribution to the Board. To that end, the Board has adopted a comprehensive onboarding programme for new Directors, including meetings with key senior leadership team, bespoke training on relevant regulatory and legal obligations and on Board procedures and processes.

Directors will have full access to roundtable discussions, seminars and other events, covering topics relevant to the Group and their roles. The Company provides Directors with the necessary resources to update their knowledge and capabilities throughout the year.

A suite of development programmes, known as the PETRONAS Board Excellence has been in place since 2016 to chart the Directors' development plans in a structured manner.

Suite	PETRONAS Board Excellence (PBE)								
Solution	Onboarding	Foundational*		Advanced			Continuous Education	Conference	
Programme	Onboarding Programme for New Directors	Essentials for Directorship	Rising Above 2	Best Practices for Board Excellence (Advanced 1)	Effective Strategy for Stakeholder Management (Advanced 2)	Round Table	Updates on trends	Directors Conference	Audit Committee Forum
Continuous Programme	E-Learning (5 Critical Legal Areas, Code of Conduct, Anti Corruption, Data Privacy)								
	Board Assessment (Observation, Interview and Digital)								

\* The Foundational programmes only apply to the directors who are employees of the PETRONAS Group, thus, the PETRONAS Directors, upon their onboarding, will attend the Advanced programmes of the PBE.

## Board Evaluation

The Board, through the NRC, endeavours to conduct annual performance evaluation of the Board and its Committees, facilitated by the Company Secretary. Evaluation results are reported to the NRC. Individual Director's evaluation results are made available to the NRC Chairman and reported directly to the Chairman of the Board. The Chairman of the Board will then conduct feedback sessions through peer-to-peer meetings.



**AC** Audit Committee

**Ainul Azhar Ainul Jamal**  
Chairman

**Zakiah Jaafar**

**Tan Sri Dato' Seri Mohd Bakke Salleh**

**Tan Sri Zaharah Ibrahim**  
(appointed w.e.f 08/09/2020)

For more information about the Audit Committee's attendance, please refer to pages 204 to 205.

**Key Matters in 2020**

The Audit Committee continued to play a key role in assisting the Board to fulfill its oversight responsibilities in ensuring the effectiveness of financial reporting, systems of internal control and the internal and external audit functions.

**Financial**

During the year under review, the Committee reviewed the quarterly financial results and the financial performance of business segments and of the PETRONAS Group. The Committee also reviewed the effects of the application of accounting judgments and estimates on impairment assessment and provision for decommissioning, dismantling, removal and restoration (DDRR).

**Internal Control and Audit Activities**

The Committee deliberated and endorsed on internal audit reports which include opinions on the adequacy and effectiveness of governance and internal controls, audit finding's root cause and implications and the recommended corrective actions to be undertaken by the Management. The internal audit exercise are conducted to provide reasonable assurance on the following key areas (but not limited to):

- Business and operational activities are carried out effectively and efficiently
- Management reporting are accurate, reliable and timely
- Applicable policies, procedures, laws and regulations are complied with

The coverage of audits activities are as per Group Internal Audit universe (excluding PETRONAS Public Listed Companies with dedicated Audit Committees) which comprise various PETRONAS business inclusive of international offices, overseas operations and projects with key important scopes are covered during the audit activities such as procurement, project management, operation and maintenance, finance and accounts etc. Agreed Corrective Actions arising from the audit activities are monitored and reviewed on a quarterly basis.

The Committee also reviewed and endorsed the Annual Audit Plan developed based on the enterprise and business risks, strategies, audit history result and stakeholder feedbacks. Changes of Annual Audit Plan are reviewed on quarterly basis to ensure the proposed audit activities are carried out as per emerging and relevant risks as well as business strategies.

During the year under review, the Committee endorsed the results of the External Quality Assessment Review (EQAR) performed by the Institute of Internal Auditors Malaysia on PETRONAS Group Internal Audit. The assessment resulted in enhancement of PETRONAS positioning in respect to the application of the Internal Audit Standards, enhancements to the Committee's Terms of Reference and Internal Audit Charter as well as the renaming of the Board Audit Committee to Audit Committee which were recommended by the Committee and approved by the Board for adoption.

The Committee reviewed with the external auditors the results of the statutory audit and the audit report as well as the proposed fees for the statutory audits and limited review fees for PETRONAS and selected subsidiaries for FY2020 to FY2022.

**Focus Areas for 2021**

The Committee shall continue to review the implementation of digital projects and operations as well as Cyber Security activities across the group. The committee shall focus on key thematic audits for the year among others are Legal Compliance, PETRONAS Resiliency Model & Risk Culture, Process Safety Management etc. to ensure the identified key risks within PETRONAS are monitored and mitigations actions are implemented effectively. Additionally, PETRONAS Group Internal Audit is accelerating its digital adoptions in leveraging digital and technology especially in analytics to improve its key deliverables to the Committee. Other strategic initiatives on integrity risk and capability management are enhanced in order to improve the quality of audit deliverables and to elevate the culture and compliance on Governance, Risk and Control for PETRONAS.

**NRC** Nomination and Remuneration Committee

**Dato' Razali Mohd Yusof**  
Chairman  
Appointed w.e.f 08/09/2020

**Tan Sri Zaharah Ibrahim**  
(appointed w.e.f 08/09/2020)

**Ainul Azhar Ainul Jamal**

**Ahmad Faris Rabidin**  
(resigned w.e.f 23/08/2020)

**Zakiah Jaafar**  
(01/01/2020-08/09/2020)

For more information about the Nomination and Remuneration Committee's attendance, please refer to pages 204 to 205.

**Key Matters in 2020**

- The NRC continued to play its role in assisting the Board in ensuring that the Board retains an appropriate structure, size and balance of skills to support the strategic objectives and values of the Company.
- In line with the requirements of the PETRONAS Independent Directors Guidelines on the annual review of independence of the NEDs, the Committee reviewed and recommended to the Board, the status of independence of the NEDs of PETRONAS. The Committee also reviewed the findings of the PETRONAS Board and Board Committees performance evaluation exercise for FY2020.
- The ever-changing global climate has created an impetus for PETRONAS to pivot its portfolio and retool its human capital ecosystem in order to ensure the Company survives and thrives amidst uncertainties. Apart from reviewing the Top Management's service contracts, renewals and mobility, the Committee also reviewed the Top Management's remuneration strategy in support of transformational leadership and long-term performance or growth of the Company.
- The Committee also reviewed and endorsed the establishment of the 2020 President and GCEO's Scorecard to provide a top down guidance that will cultivate the right behaviour across the Group in this challenging period.

**Focus Areas for 2021**

The Committee is committed to ensure a stable and robust succession for PETRONAS' Board of Directors as well as Top Management and support the holistic talent development strategies in driving competitiveness of our resources and the organisation.

**RC** Risk Committee

**Tan Sri Dato' Seri Mohd Bakke Salleh**  
Chairman

**Dato Hj. Ibrahim Hj. Baki**  
(appointed w.e.f 08/09/2020)

**Zakiah Jaafar**

**Ahmad Faris Rabidin**  
(resigned w.e.f 23/08/2020)

For more information about the Risk Committee's attendance, please refer to pages 204 to 205.

**Key Matters in 2020**

- The volatile market conditions and uncertainties require the Committee to continue to oversee the adequacy and effectiveness of the risk management system in the PETRONAS Group. The Committee assists the Board in reviewing the PETRONAS Group's Corporate Risk Profile and Risk Appetite on a quarterly basis. Revisions to Risk Appetites were recommended by the Committee and approved by the Board for adoption in line with the requirement of the business and strategic objectives.
- During the year under review, the Committee endorsed the enhancement to the Risk Management Operating Model for the PETRONAS Group, as part of oversight on the organisation's risk management infrastructure.
- The Committee appraised the performances and activities of Group Integrity on a quarterly basis and being apprised on the progress of the Group's integrity and governance programmes.
- The Committee also reviewed the enhancements to various policies including PETRONAS Corporate Financial Policy and Whistleblowing Policy. It also endorsed the establishment of PETRONAS Tax Policy, PETRONAS Board Succession Planning Framework, Blueprint for Commodity Risk & Strategy Management and Portfolio Hedging Programme.
- During the year, the Committee also played its oversight role in reviewing risks related to strategic and high impact business matters such as projects' Final Investment Decisions of the Company.

**Focus Areas for 2021**

Focus will also be given to provide overall quality assurance in the implementation of Enterprise Risk Management projects, the comprehensive commodity price risk exposure management and risk assessment on high impact business matters.





# Compliance

The compliance culture is driven with “tone from the top” messaging to ingrain the values and principles of conduct that shape the behaviour and attitude of employees at all levels of businesses and activities across the PETRONAS Group. This commitment is clearly demonstrated through adopting compliance policies and guidelines, conducting training and

awareness on compliance subjects, establishing internal controls embedded into business practices, and performing structured assurance programmes by the businesses to ensure that compliance risks are effectively managed in PETRONAS.

## Legal Compliance Framework

The PETRONAS Legal Compliance Framework (LCF) was developed as a control oversight and monitoring of legal and regulatory compliance to the five (5) critical legal areas to effectively manage legal compliance which embeds and integrates compliance assurance and reporting for the Group.

The LCF consists of a set of procedures, standards, and controls (see Figure 1 beside) aimed to ensure compliance with legal and regulatory requirements in the five (5) critical legal areas, which pose as enterprise risk to the Group.

These critical legal areas are Ethics & Integrity, Data Privacy, Sanctions, Export Control and Competition which are international laws with extra-territorial effect that could result in high civil and criminal penalties and severe reputational impact to the enterprise. The LCF is the structured process to manage and ensure compliance with the legal controls by PETRONAS entities within the Group.

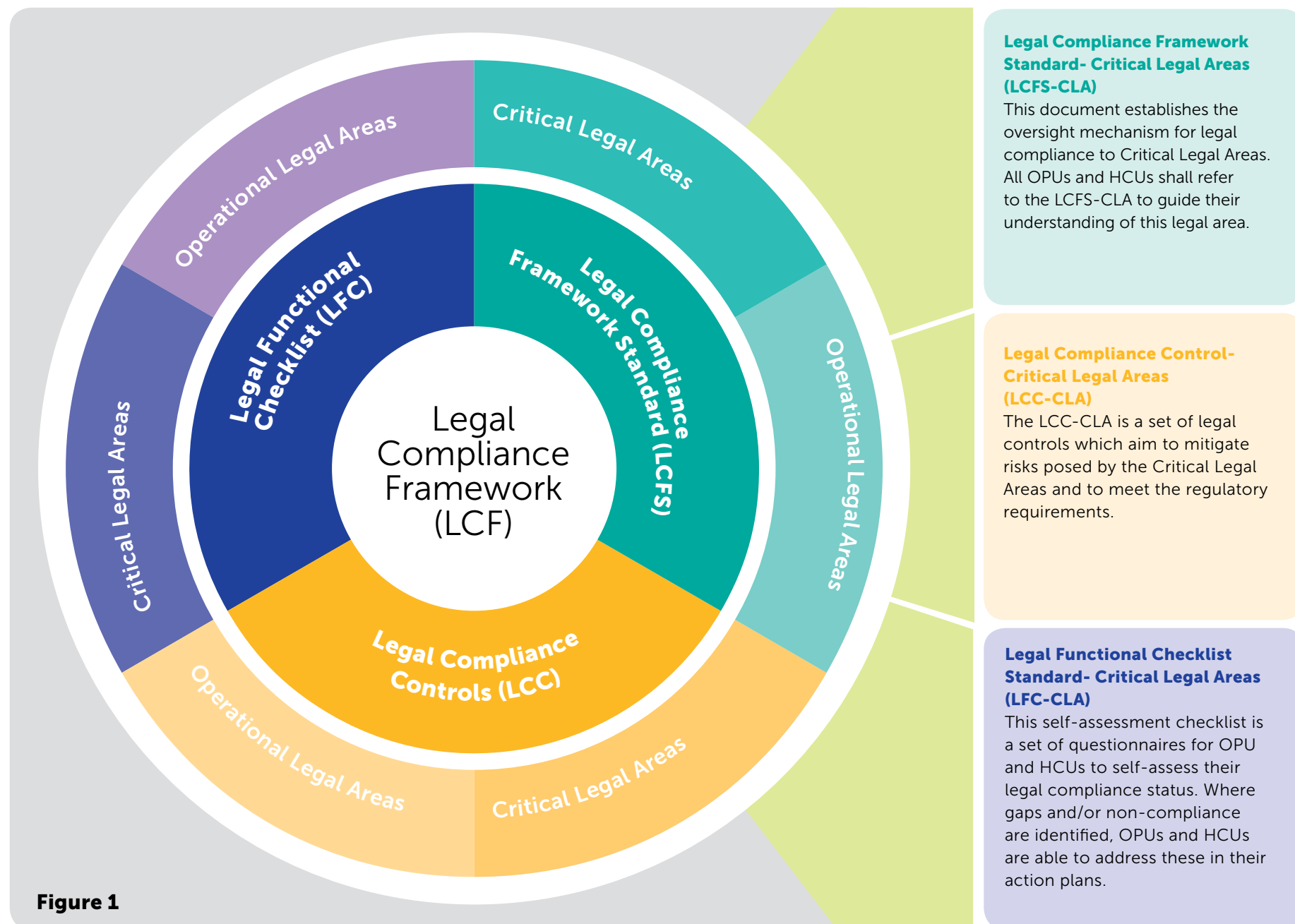


Figure 1

### Governance and Risk Assessment

PETRONAS has in place the following applicable governance documents in relation to the five (5) critical legal areas for adoption and implementation by companies across the Group. These governance documents such as policies, standards, guidelines, frameworks, procedures and others, form the basis for carrying out internal controls across the organisation within the PETRONAS Group.

Critical Legal Area	Governance Document
<b>Ethics and Integrity</b>	i. PETRONAS Code of Conduct and Business Ethics (CoBE) ii. PETRONAS Anti-Bribery and Corruption Policy and Guidelines (ABC Manual) iii. PETRONAS Whistleblowing Policy iv. PETRONAS Raid Protocol v. PETRONAS Human Rights Commitment
<b>Data Privacy</b>	i. PETRONAS Corporate Privacy Policy ii. PETRONAS Master Guidelines to the PETRONAS Corporate Privacy Policy
<b>Sanctions</b>	i. PETRONAS Economic Sanctions and Export Control Policy and Guidelines
<b>Export Control</b>	i. PETRONAS Economic Sanctions and Export Control Policy and Guidelines
<b>Competition</b>	i. PETRONAS Competition Law Guidelines ii. PETRONAS Competition Law Compliance Law Protocols: <ul style="list-style-type: none"> <li>Meetings and information sharing</li> <li>Merger and acquisition Transactions</li> </ul>

### Training and Awareness

Training and communication programmes are key to raising awareness and understanding of the five (5) critical legal areas across the PETRONAS Group. Delivery of effective training programmes is high on the agenda for PETRONAS directors and staff to inculcate and build strong compliance culture within the PETRONAS Group. Despite the global pandemic of COVID-19, PETRONAS has continued its efforts by conducting online/webinar training programmes on the five (5) critical legal areas. Through our established e-learning modules which are specific to the five (5) critical legal areas, PETRONAS staff groupwide can further inculcate compliance awareness and depth through various digital and communications platforms. This ensures PETRONAS staff are sufficiently trained and regularly updated on the five (5) critical legal areas and its related policies and guidelines.

### Monitoring and Assurance

The governance of business activities and operations at all levels within the PETRONAS Group is necessary to ensure compliance with the five (5) critical legal areas. To evaluate and monitor compliance status with the five (5) critical legal areas, the LCF serves as an assurance program to identify potential areas of non-compliance, and/or unsound practices on the status of PETRONAS' legal compliance to ensure effective and informed decision making for the business. Conducted and performed by PETRONAS entities within the PETRONAS Group, the LCF assurance process is performed, documented and consolidated in PETRONAS' integrated myAssurance platform.





Business Practice

**PETRONAS strives to effectively identify, prioritize, develop and evaluate compliance activities to address key risks, and to document action plans related to the mitigation of these risks. Some of the year in review's business practices, which are part of the LCF control and risk mitigation are as follows:**

①

**PETRONAS Privacy Notices and Statements for PETRONAS Group**

The PETRONAS Privacy Notices and Statements (Privacy Notices and Statements) are notices and statements that are designed to provide notice of and assist in understanding why and how PETRONAS collects, uses and manages personal data, to whom such data is disclosed and to whom data access requests can be addressed. This is a demonstration of commitment by PETRONAS and will ensure that the flow and management of personal data processed by the Group complies with the PETRONAS Corporate Privacy Policy, the Master Guidelines and applicable personal data protection and privacy laws.

②

**Enhancement of the PETRONAS Whistleblowing Policy**

Enhancement of the PETRONAS Whistleblowing Policy and its procedures is essential to comply with Guidelines on Adequate Procedures under Section 17A(5) of the Malaysian Anti-Corruption Commission Act ("MACC Act"). The Policy encourages staff and members of the public that disclosures are secure and dealt with, confidentially, and through our accessible whistleblowing channels, which are operated with the highest standards of integrity and accountability. The Policy provides clarity on the oversight and responsibilities of the whistleblowing process, the reporting process, protection to whistleblowers and the confidentiality afforded to whistleblowers globally.

The PETRONAS Whistleblowing Policy applies to every employee, director and officer of PETRONAS. Joint venture companies in which PETRONAS is not a controlling stakeholder and associate companies of PETRONAS are encouraged to adopt the PETRONAS Whistleblowing Policy whilst contractors, agents, outsourced workers and business associates are required to always act consistently with the applicable parts of the PETRONAS Whistleblowing Policy when dealing with, acting on behalf of or in the name of PETRONAS.

③

**Third-Party Risk Management**

The Third-Party Risk Management (TPRM) is a due diligence process to safeguard the Group from any corporate liability that can be attributed to PETRONAS arising from the misconduct of third parties (e.g. partners, contractors, vendors, suppliers, distributors, agents) in respect to the five (5) critical legal areas. The TPRM applies to all businesses in the Group to detect possible red-flags of potential third parties prior to any formal engagement, and seeks to provide the necessary mitigation or contractual safeguard against any risks of legal, financial or reputational damages that may be caused by them to PETRONAS.

The implementation of the TPRM process within the PETRONAS Group contributes to a strong and effective governance and compliance practices in protecting PETRONAS from the risks posed by third parties.

PETRONAS Commitment to Integrity

**PETRONAS is governed by frameworks and policies that uphold good governance which is aimed at maintaining a robust culture of integrity and compliance. This supports PETRONAS' zero tolerance against all forms of bribery and corruption.**

**Anti-Bribery and Corruption**

PETRONAS implemented its anti-bribery and corruption programmes and controls around the T.R.U.S.T values and principles, guided by the Guidelines on Adequate Procedures.

Throughout the year in review, groupwide communications were high on the agenda with tone from the top messaging by the Chairman and PETRONAS ELT. It plays an instrumental role in raising awareness of transparency and integrity by promoting awareness campaigns entitled "Leaders Speak Integrity" to all PETRONAS employees, with key emphasis on the efforts and commitment in implementing best practices and integrity in its day-to-day operations and business transactions.

With the LCF as the overarching compliance framework for PETRONAS entities to self assess against the five (5) critical legal areas which include bribery and corruption, businesses within the Group are able to perform risk assessments to evaluate its current state of compliance and to adopt, embed and implement mitigating controls prioritised according to internal and external corruption risks.

As a single and exclusive platform to conduct audit and to monitor assurance activities for the Group, the PETRONAS Integrated Assurance was established in 2019 to ensure effective and efficient assessment of bribery & corruption risks.

Awareness and training programs on corporate liability and the importance of compliance to Adequate Procedures for PETRONAS groupwide, are carried out through webinars, video conference and our e-learning platform with the objective to equip PETRONAS' employees, directors and associated person with essential knowledge on PETRONAS' guidelines and policies with respect to antibribery and corruption.

PETRONAS has continuously maintained its standards to the International Organization for Standardization 37001 on Anti-Bribery Management System (ISO 37001) certification where it validates PETRONAS' strategy in implementing global best practices to combat bribery and corruption. The certification also evidences PETRONAS' commitment to anti-bribery and anti-corruption in a verifiable way and is a testament of PETRONAS' zero tolerance against bribery and corruption.

**PETRONAS Integrity Compliance Framework (PICF)**

The PICF, which was established in 2012, is PETRONAS' commitment towards integrity, serving as the framework to instill and ensure compliance of all elements related to the propagation of integrity and business ethics within the business activities of the Group.

As an on-going effort towards PETRONAS' zero tolerance against all forms of bribery and corruption, a reflection of PETRONAS' commitment to high ethical standards and anti-bribery and corruption laws, the PICF was strengthened to address the requirements of the Guidelines on Adequate Procedures under Section 17A of the MACC Act.

**PETRONAS Whistleblowing Policy and Procedures**

The PETRONAS Whistleblowing Policy and procedures is available on PETRONAS' corporate website: <https://www.petronas.com/whistleblowing>

\* All disclosures will be treated in the strictest confidence

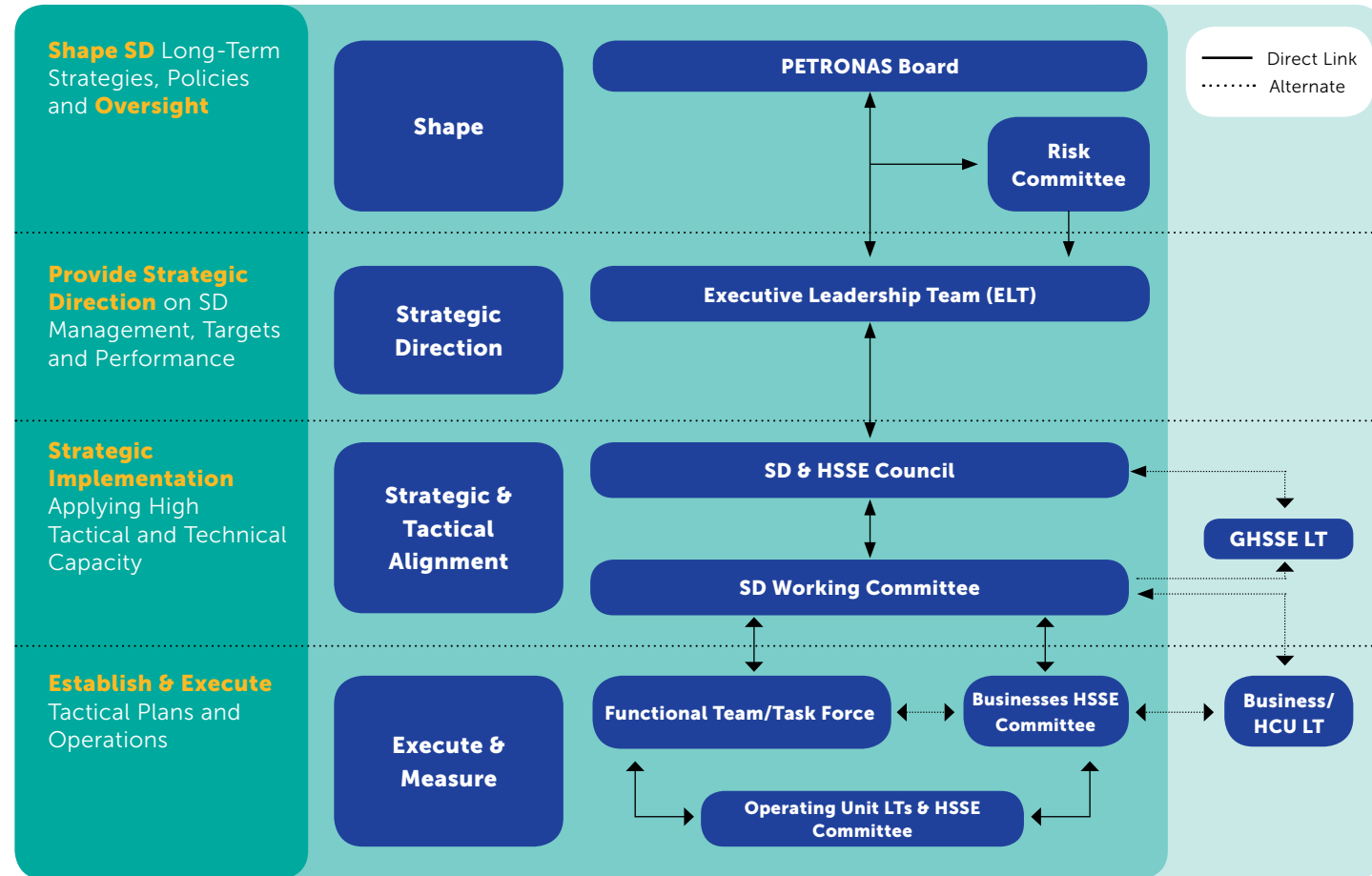


## Sustainability Governance

### Sustainability Governance Structure

The Board has oversight for steering our Sustainability Agenda and for cascading its strategic implementation down throughout the PETRONAS Group via diverse roles and levels of accountability. Figure 1 depicts PETRONAS' Sustainable Development (SD) Governance Structure including the inter-relationship between various management committees.

**Figure 1:**  
PETRONAS SD Governance Structure



**The PETRONAS Board shapes** the long-term SD strategic objectives and related policies as well as sets the overall SD direction for the Group.

**The Executive Leadership Team (ELT)** supports the PETRONAS Board in achieving the Agenda by providing the strategic direction and steers development of SD through policies, commitments, long-term aspirations and Group level short/medium-term targets. The ELT receives periodic performance updates on the implementation progress of key SD strategies and initiatives across the Group either directly from the respective businesses or from the Sustainable Development and Health, Safety, Security and Environment (SD and HSSE) Council.

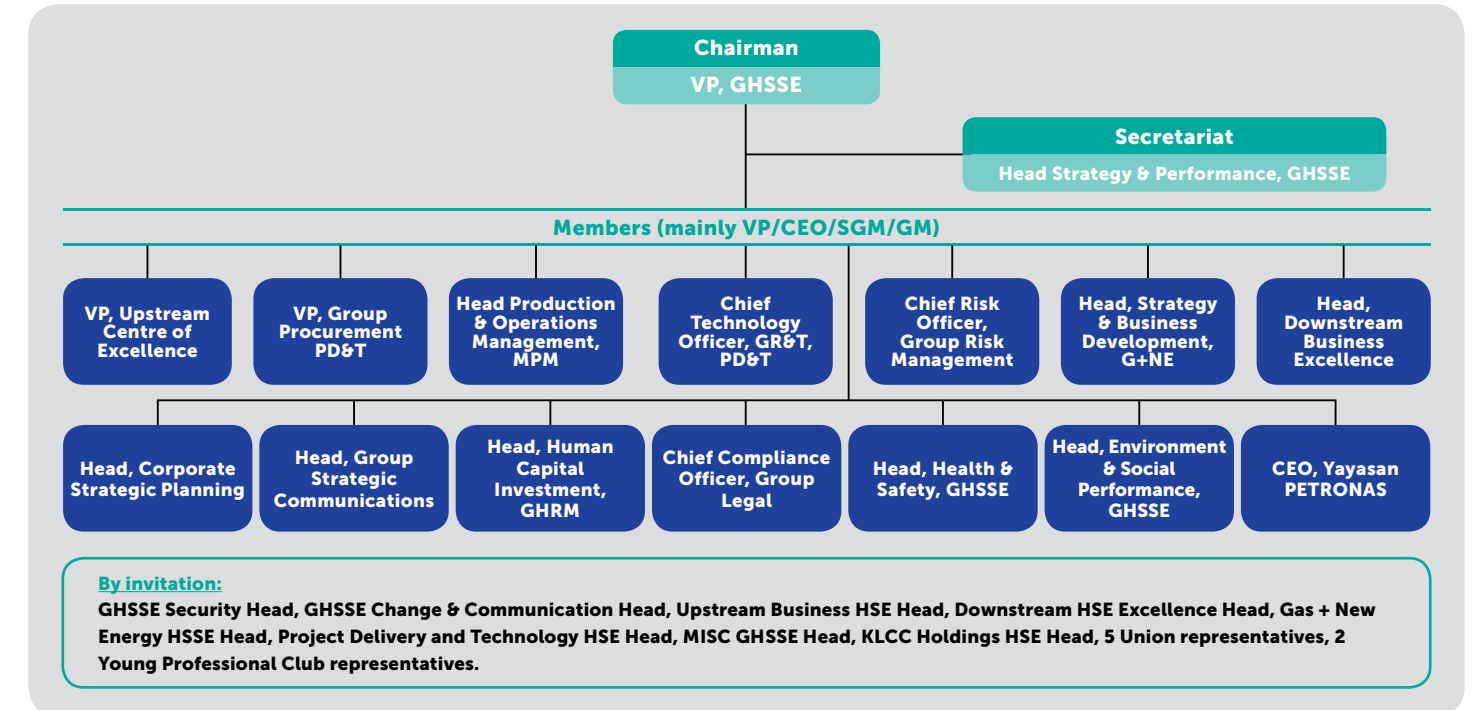
**The SD and HSSE Council** provides the steer on development and implementation of SD and HSSE strategies, as well as initiatives in PETRONAS to meet the expectations of key stakeholders (such as employees, customers and communities, governments, partners and investors) where the company operates.

The Council is accountable for facilitating integration of the SD and HSSE focus areas to drive implementation that is aligned with PETRONAS' Statement of Purpose, Sustainability Agenda, and the seven priority UN SDGs, while ensuring value-driven deliverables. The Council shall update and/or make recommendations to the ELT on the progress of impactful HSSE and sustainability initiatives across PETRONAS that deliver any one or more of the SDGs.

## Sustainability Governance

Currently, the Council is chaired by the Vice President (VP) of GHSSE, with members comprising a balanced representation of the senior management members from the Business Units (BUs) and Holding Company Units (HCUs) in key functions that support sustainability implementation. The structure of the Council is depicted in Figure 2 below:

**Figure 2:**  
Composition of Membership for the PETRONAS SD and HSSE Council



Aside from management representatives from the various departments, the SD and HSSE Council also consist of permanent representation from diverse groups within PETRONAS which include the Head of Group Security, Heads of Businesses HSSE, PETRONAS Young Professional Club (YPC) and employee union representatives, to ensure inclusiveness in all decisions made in relation to sustainability. The Group has also established Working Groups that meet regularly and report on the progress of SD and HSSE-related matters to the Council.

**The Sustainable Development Working Committee (SDWC)** drives the Agenda through gradual implementation of SD activities across the Group in an integrated manner. The SDWC provides guidance, monitors the progress and reviews SD implementation in business practices, plans and initiatives in alignment with the Agenda. The Committee also oversees the disclosure of SD materiality topics and elements performance as well as long-term targets in PETRONAS reports. The Committee may report to the SD and HSSE Council on pertinent sustainability matters such as key SD endorsements made and recommend actions for continuous improvements, as and when required.

The involvement of the HCUs, BUs and Operating Units (OPUs) are key in making the Sustainability Agenda an integral part of PETRONAS' culture and practices. The HCUs, BUs and OPUs implement/execute/integrate the SD strategies/plans/targets into their respective projects and operations. They also participate in the SDWC to ensure seamless sustainability orchestration across the Group.

### Key Actions/Decisions made by the SD and HSSE Council in 2020

Provided strategic guidance and stewardship on SD and HSSE associated matters including:

- Endorsement of PETRONAS NZCE 2050 aspiration.
- Endorsement of PETRONAS sustainability roadmap.
- Endorsement of Key SD metrics associated with GHG emissions as well as the installation of energy and educational beneficiaries. All these ultimately aim to provide clarity while ensuring the concerted efforts of the various businesses come together nicely.
- Enabled disclosures of sustainability materiality elements performance and long-term targets to elevate PETRONAS' sustainability reputation.
- Steered and rallied the overall SD awareness and communications, both internally and externally.

Refer to the Material Topics section on pages 58 to 59 for more details.



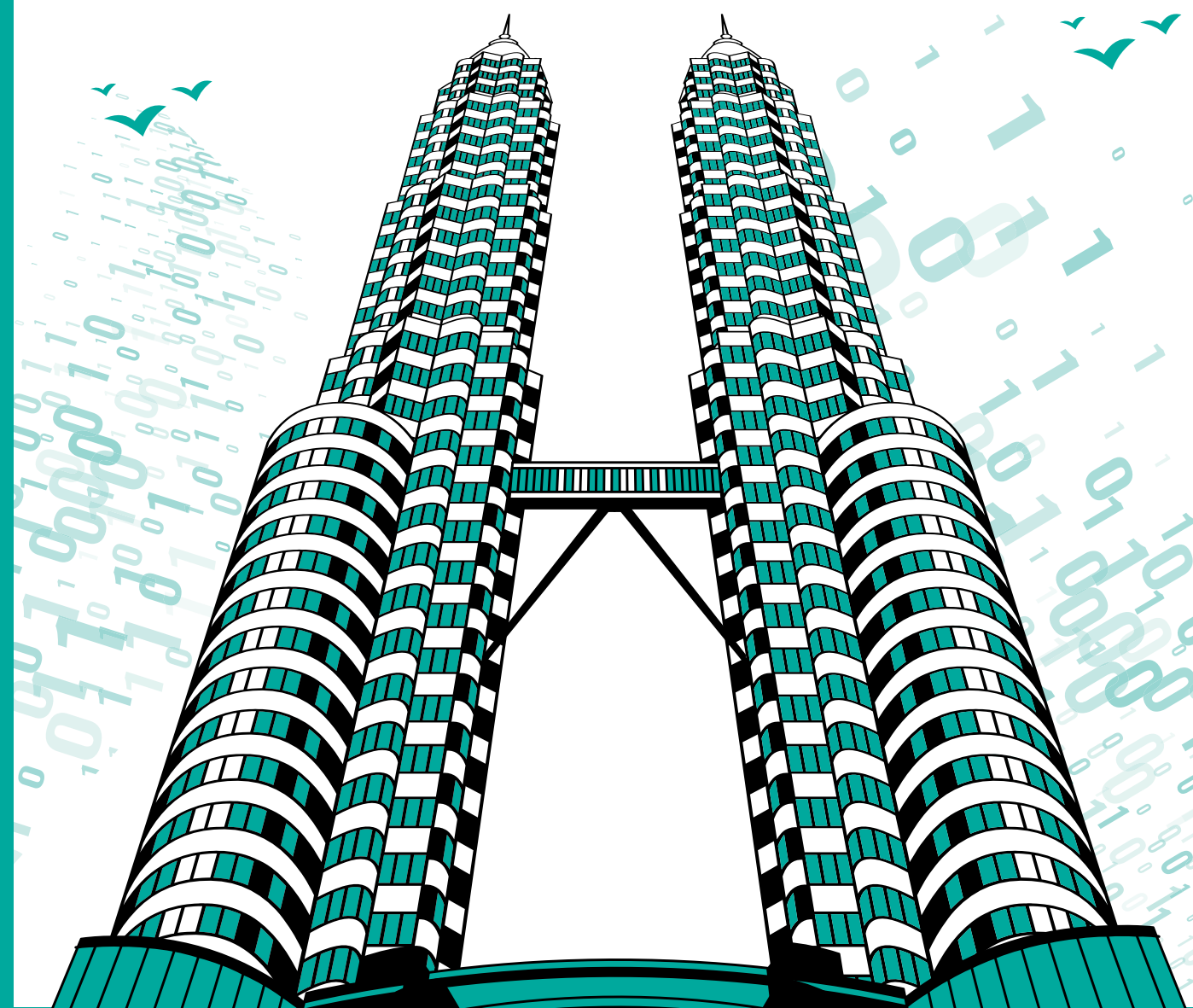
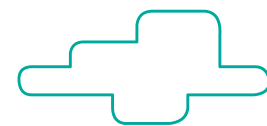
# Financial Review and Other Information

An overview of our financial performance and other relevant details.

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Scan this QR code to access our Financial Report 2020



## Group Financial Results and Position

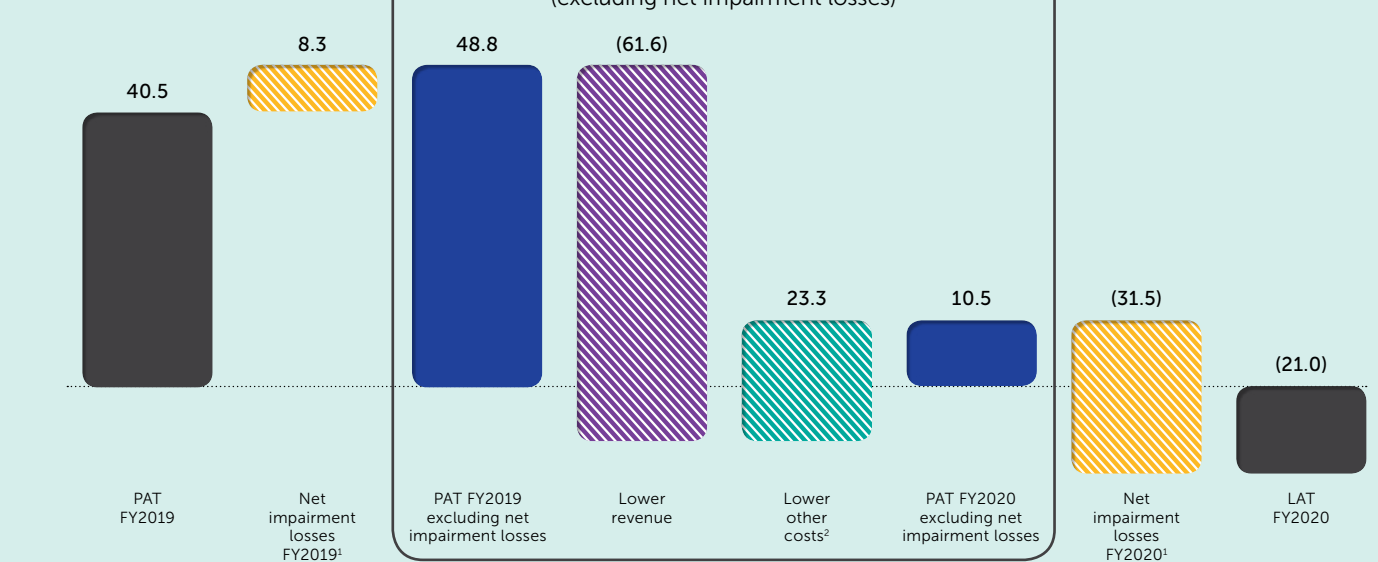
### Analysis of Financial Results

#### Consolidated Statement of Profit or Loss and Other Comprehensive Income

In RM million	FY2020	FY2019
Revenue	178,741	240,263
Cost of revenue	(134,958)	(155,926)
<b>Gross profit</b>	<b>43,783</b>	84,337
Selling and distribution expenses	(8,174)	(7,536)
Administration expenses	(9,675)	(12,862)
Net impairment losses/write-off	(32,681)	(7,151)
Other expenses	(5,871)	(2,261)
Other income	4,102	5,158
<b>Operating (loss)/profit</b>	<b>(8,516)</b>	59,685
Financing costs	(4,133)	(3,734)
Share of profit after tax and non-controlling interests of equity accounted associates and joint ventures	328	1,019
<b>(Loss)/Profit before taxation</b>	<b>(12,321)</b>	56,970
Tax expense	(8,708)	(16,498)
<b>(Loss)/Profit for the year</b>	<b>(21,029)</b>	40,472
(Loss)/Profit attributable to:		
Shareholders of the Company	(23,851)	33,021
Non-controlling interests	2,822	7,451
<b>(Loss)/Profit for the year</b>	<b>(21,029)</b>	40,472

#### PETRONAS Group Earnings

Profit/(Loss After Tax)  
PAT/(LAT)  
(RM billion)



<sup>1</sup> Includes write-off of exploration expenditure under intangible assets, loss on remeasurement of finance lease receivables and provision for contracts exposure.

<sup>2</sup> Other costs mainly comprise lower product costs.

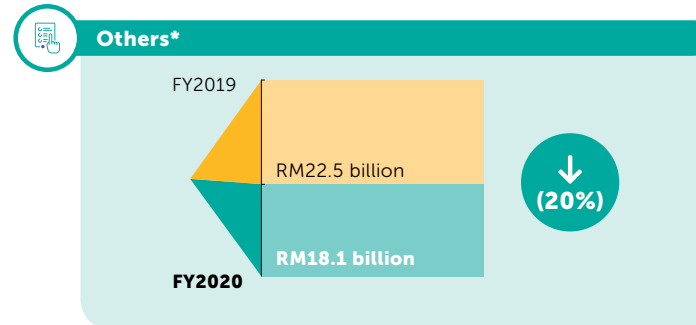
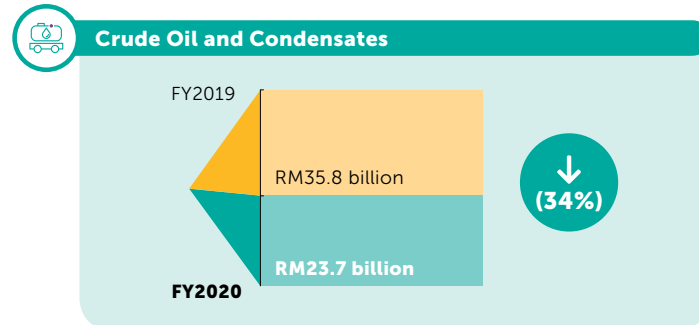
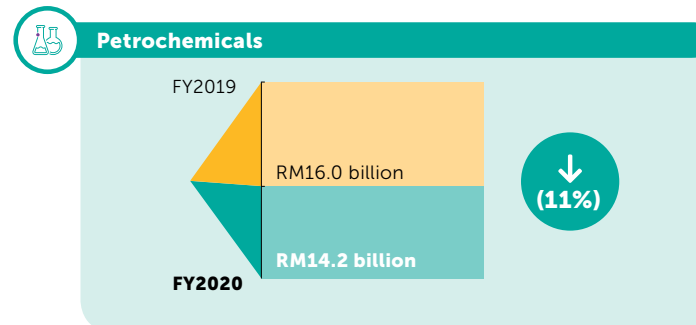
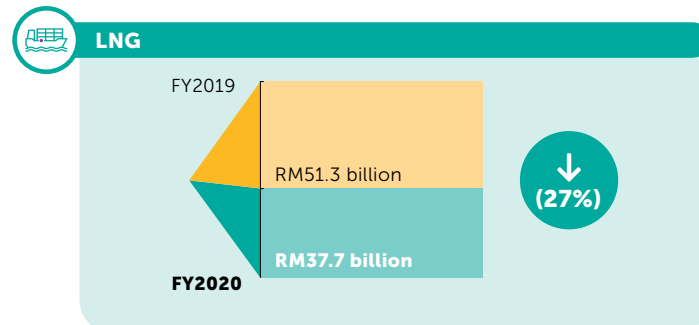
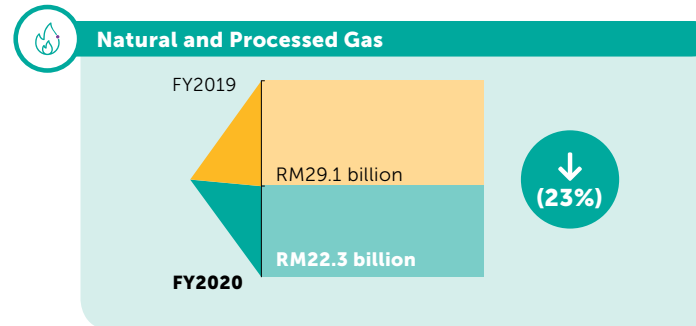
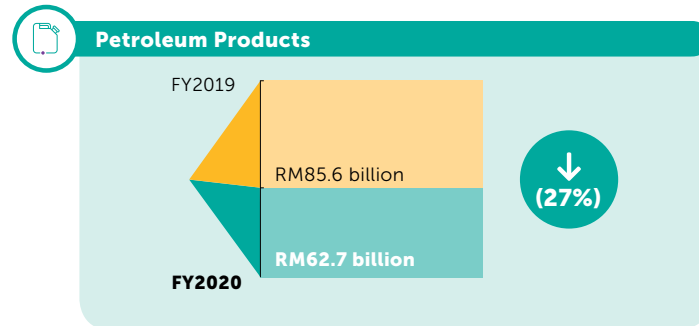
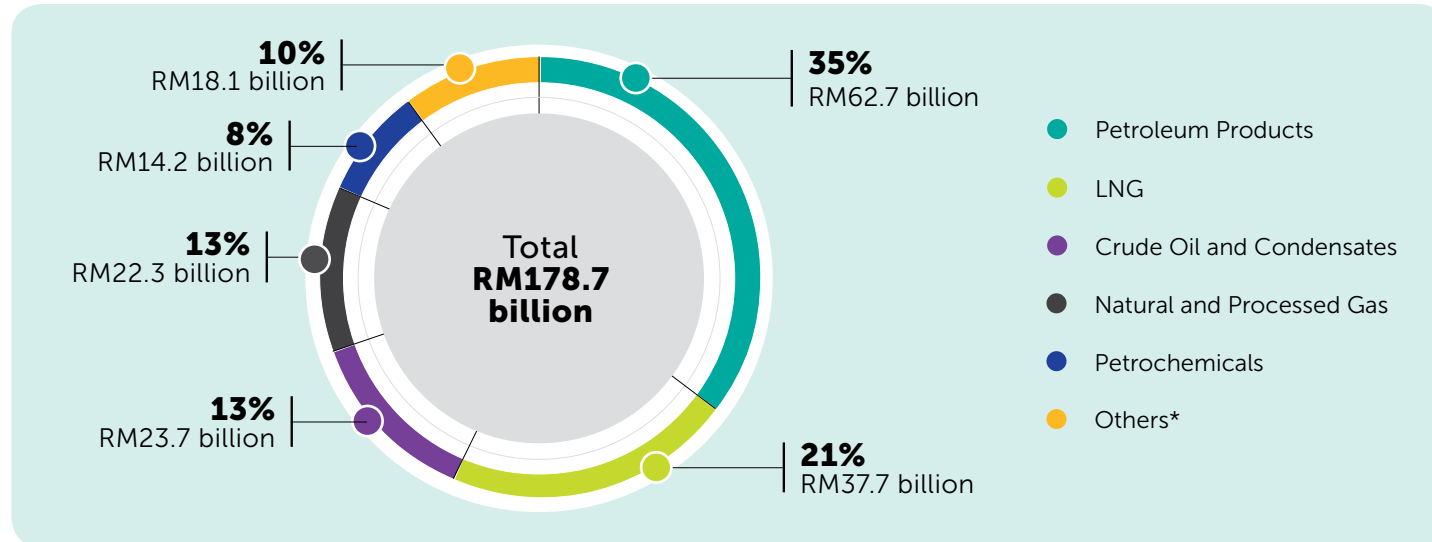
In FY2020, lower Group Costs resulted from cost compression efforts had cushioned the impact of lower revenue realised. This contributed towards PETRONAS Group recording a PAT excluding net impairment losses of RM10.5 billion in FY2020.



Group Financial Results and Position

Revenue By Product

In FY2020, the Group registered total revenue of RM178.7 billion, the bulk of which was contributed by petroleum products and LNG which accounted for 35 per cent and 21 per cent of our revenue respectively.

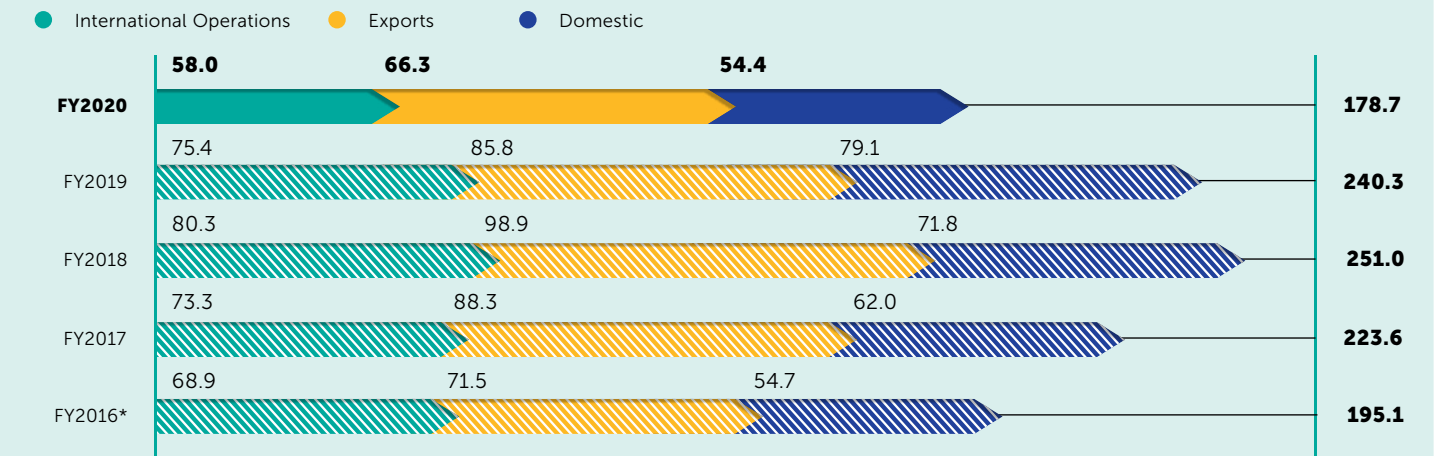


\* Others comprise Property & Others and Maritime & Logistics.

Group Financial Results and Position

Revenue by Geographical Trade

(RM billion)



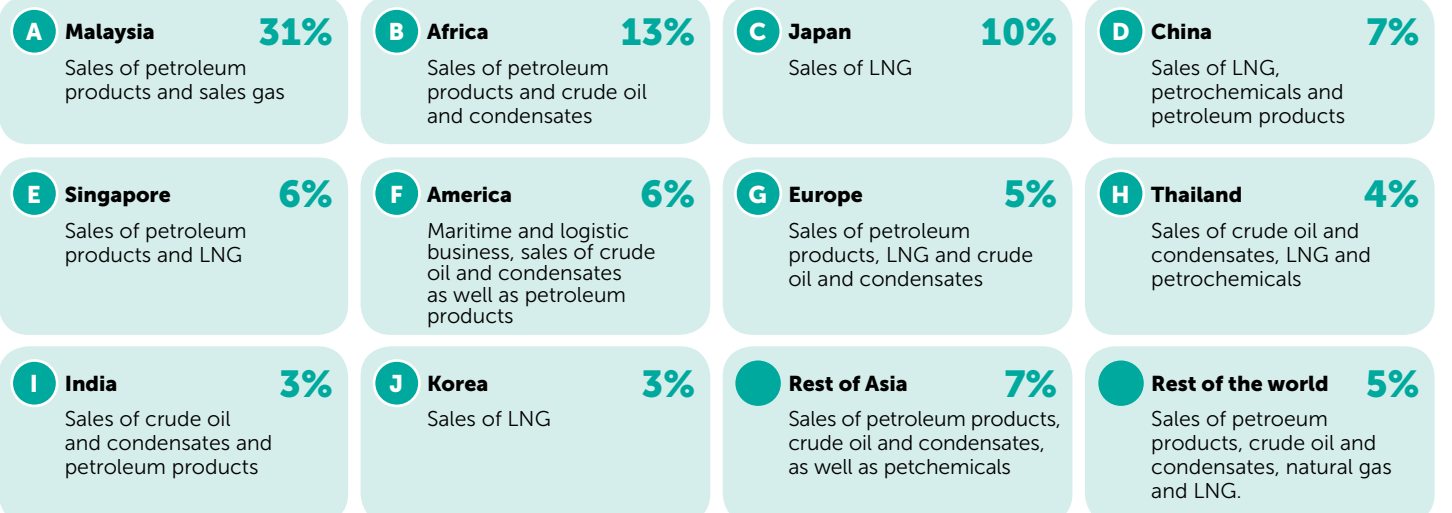
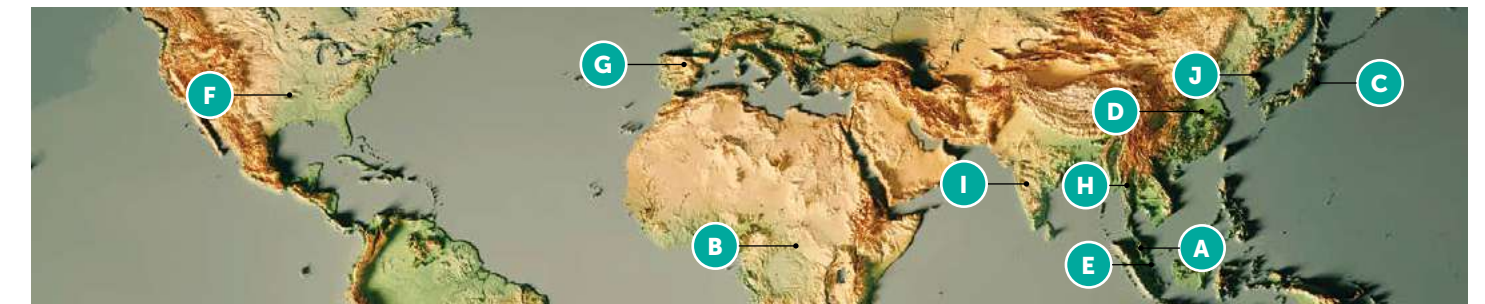
\* Figures have been restated due to changes in accounting policies with respect to revenue reporting and inventory valuation of gas trading activities.

PETRONAS recorded lower revenue for all categories of geographical trade in FY2020 as a result of significantly lower product prices. At RM66.3 billion, revenue from exports remained the major contributor to the Group's revenue, accounting for 37 per cent of total Group revenue. Lower exports revenue was mainly due to the downward trending key benchmark prices for all products coupled with lower sales volumes. Compared to FY2019, revenue from exports was lower by 23 per cent.

The year saw revenue from PETRONAS' domestic operations declining by 31 per cent due to lower sales volume for petroleum products as well as lower processed gas demand from the power and non-power sectors following the implementation of the Movement Control Order (MCO) as a result of the COVID-19 outbreak. This was further compounded by lower product prices.

Our international operations, which accounted for 33 per cent of the Group's total revenue, saw its revenue contribution dropping by 23 per cent as compared to FY2019. This too was the result of lower sales volume following global lockdowns as well as the downward trending of key benchmark prices.

Revenue by Geographical Segment

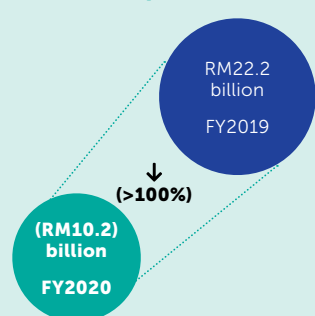




### Segment Earnings

The Group operates three core business segments, namely Upstream, G+NE, as well as Downstream. Corporate and Others, which complements our core businesses, comprises the logistics and maritime segment, property segment as well as the central treasury and Project Delivery and Technology (PD&T) functions.

#### PAT/(LAT) Upstream



#### Upstream

The Upstream segment recorded a LAT of RM10.2 billion in FY2020 which was primarily due to the lower prices for liquids and gas as well as higher net impairment losses on assets. This was partially offset by a lower tax expense, operating expenses and cash payments.

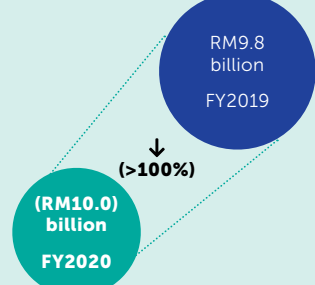
Excluding net impairment losses, Upstream registered RM5.1 billion in PAT, which was lower by RM19.1 billion compared to the previous year.

In line with PETRONAS' focus on upholding operational efficiencies, commercial excellence and maintaining fiscal discipline, Upstream continued to enhance its strategies to cushion the adverse impact arising from the twin shocks on its business. Upstream undertook several tactical interventions including optimisation of production, in response to lower demand to protect value.

As a result, Upstream recorded a lower total daily production average of 2,209 thousand boe per day in FY2020, as compared to 2,406 thousand boe per day in FY2019.

Refer to pages 72 to 81 for more information on Upstream's operational performance.

#### PAT/(LAT) Gas + New Energy



#### Gas + New Energy

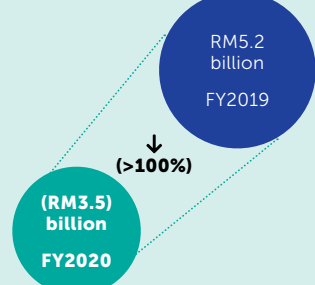
G+NE recorded a LAT amounting to RM10.0 billion in FY2020. This was mainly due to the lower overall average realised prices and sales volume as well as higher net impairment losses on assets which was partially offset by lower product costs.

Excluding net impairment losses, the segment recorded PAT of RM2.7 billion, which was lower by RM12.9 billion as compared to FY2019.

In response to the weakened market demand, the segment has established adaptive measures to optimise its production profile to ensure the best value for the molecules, while meeting contractual obligations to customers. In addition, the business also adopted the agile operating philosophy to ensure value preservation, thus mitigating the impact of softer demand and prices on profitability.

Refer to pages 82 to 91 for more information on G+NE's operational performance.

#### PAT/(LAT) Downstream



#### Downstream

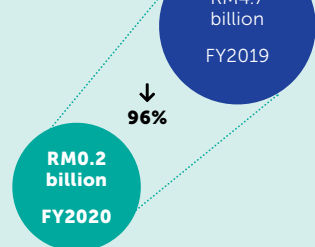
The Downstream business recorded a LAT of RM3.5 billion in FY2020 as compared to a PAT of RM5.2 billion recorded in FY2019. The drop in profit was mainly attributable to the inventory and net impairment losses on assets, compressed margins and lower petroleum product marketing sales volume.

Excluding net impairment losses, Downstream recorded a LAT of RM1.7 billion, which was some RM7.2 billion lower than the preceding year's PAT of RM5.5 billion.

Due to the demand erosion, Downstream undertook swift action to adjust its refineries utilisation based on demand and market movements.

Refer to pages 92 to 101 for more information on Downstream's operational performance.

#### PAT Corporate and Others



#### Corporate and Others

PETRONAS' Corporate and Others business recorded a lower PAT of RM0.2 billion, as compared to FY2019's PAT of RM4.7 billion. The lower profit recorded was mainly due to higher net impairment losses on assets recognised and provision for litigation claims arising from an unfavourable arbitration result. The segment recorded a PAT excluding net impairment losses of RM1.9 billion.

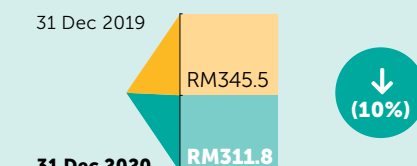
MISC Berhad (MISC) and KLCC Property Holdings Berhad (KLCCP) were the two major contributors to this segment. MISC recorded a LAT of RM0.2 billion during the year, mainly from offshore businesses following the impact of an unfavourable arbitration result. Meanwhile, KLCCP's PAT decreased to RM0.4 billion as compared to RM0.8 billion in the same period last year mainly due to the loss of revenue from its retail and hotel segment due to the impact of the COVID-19 pandemic.

Refer to the respective 2020 Integrated Annual Reports of MISC and KLCCP for more information.

## Analysis of Financial Position

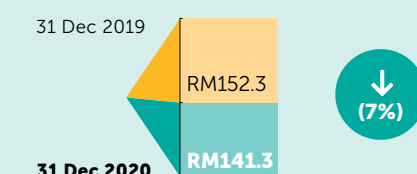
### Consolidated Statement of Financial Position

#### Property, Plant and Equipment & Intangible Assets (RM billion)



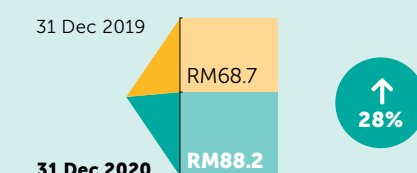
Lower mainly due to significant net impairment losses recognised on oil and gas property, project-in-progress, plant and equipment as well as intangible assets.

#### Cash and Fund Investments (RM billion)



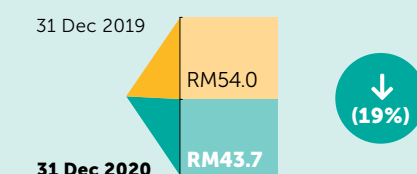
Lower mainly as a result of dividend payments and cash paid on capital expenditures partially offset by cash flows from operations.

#### Borrowings (RM billion)



Higher mainly as the result of the issuance of USD6 billion multi-tranche senior bonds during the year.

#### Trade and Other Payables (RM billion)



Lower in line with lower product prices.

In RM million	As at 31.12.2020	As at 31.12.2019
<b>Assets</b>		
Property, plant and equipment	291,717	319,204
Investment properties and land held for development	13,454	11,708
Investments in associates and joint ventures	12,599	15,902
Intangible assets	20,044	26,260
Fund and other investments	1,009	1,929
Other non-current assets	41,854	40,956
<b>Total non-current assets</b>	<b>380,677</b>	415,959
Trade and other inventories	12,491	14,447
Trade and other receivables	40,583	41,285
Assets classified as held for sale	18	398
Fund and other investments	9,779	8,710
Cash and cash equivalents	130,523	141,622
<b>Total current assets</b>	<b>193,394</b>	206,462
<b>Total assets</b>	<b>574,071</b>	622,421
<b>Equity</b>		
Share capital	100	100
Reserves	330,521	388,996
<b>Total equity attributable to shareholders of the Company</b>	<b>330,621</b>	389,096
Non-controlling interests	50,413	49,819
<b>Total equity</b>	<b>381,034</b>	438,915
<b>Liabilities</b>		
Borrowings	76,808	53,422
Deferred tax liabilities	8,455	12,598
Other long-term liabilities and provisions	51,056	44,486
<b>Total non-current liabilities</b>	<b>136,319</b>	110,506
Trade and other payables	43,728	53,968
Borrowings	11,421	15,316
Taxation	1,569	3,716
<b>Total current liabilities</b>	<b>56,718</b>	73,000
<b>Total liabilities</b>	<b>193,037</b>	183,506
<b>Total equity and liabilities</b>	<b>574,071</b>	622,421

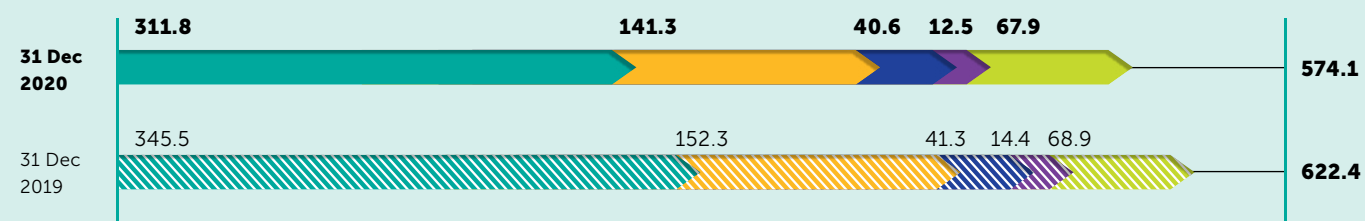


Group Financial Results and Position

**Total Assets**

(RM billion)

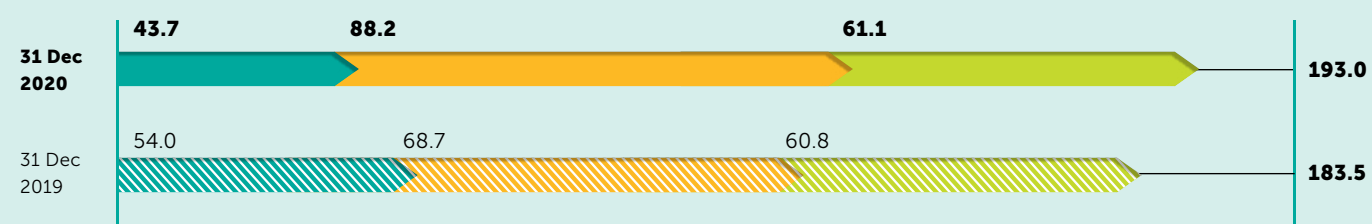
- Property, Plant and Equipment & Intangible Assets
- Cash and Fund Investments
- Trade and Other Receivables
- Trade and Other Inventories
- Others



**Total Liabilities**

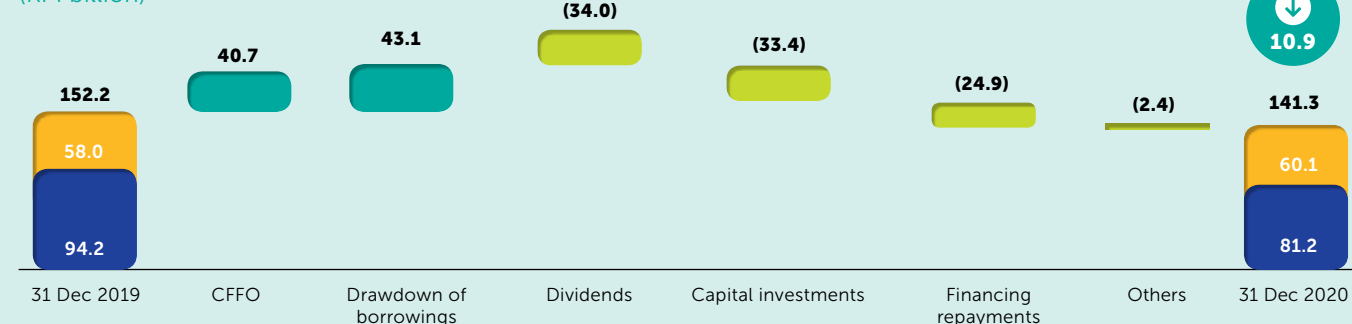
(RM billion)

- Trade and Other Payables
- Borrowings
- Others



**Movement in Cash and Fund Investments**

(RM billion)



Mainly comprise remaining funds of non-wholly owned subsidiaries and trust funds within the Group

Funds of wholly owned subsidiaries and PETRONAS' portion of non-wholly owned subsidiaries

**Net Cash Position**

The Group's ability to continue holding a unique Net Cash position of RM52.1 billion demonstrates our disciplined fiscal management approach in fulfilling existing financing commitments while sustaining our momentum for long-term growth.

Group Financial Results and Position

**Analysis of Cash Flow**

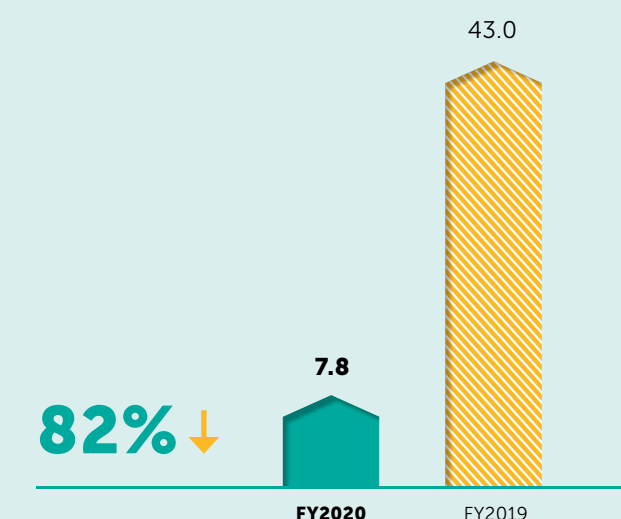
**Consolidated Statement of Cash Flows**

In RM million

	FY2020	FY2019
<b>Cash flows from operating activities</b>		
(Loss)/Profit before taxation	(12,321)	56,970
Adjustments for non-cash items	69,840	41,542
Net changes in working capital	(4,197)	8,385
Cash generated from operations	53,322	106,897
Interest expenses paid	(2,689)	(2,990)
Interest income from fund and other investments	4,838	6,889
Taxation paid, net of refund	(14,726)	(20,025)
<b>Net cash generated from operating activities</b>	<b>40,745</b>	90,771
<b>Cash flows from investing activities</b>	<b>(32,914)</b>	(52,177)
<b>Cash flows from financing activities</b>	<b>(17,467)</b>	(69,880)
Net decrease in cash and cash equivalents	(9,636)	(31,286)
Increase in cash and cash equivalents restricted	(298)	(699)
Net foreign exchange differences	(1,752)	(622)
Cash and cash equivalents at beginning of the year	139,851	172,458
<b>Cash and cash equivalents at end of the year</b>	<b>128,165</b>	139,851

**Free Cash Flow Analysis**

**Free Cash Flow**  
(RM billion)



PETRONAS Group managed to register a positive free cash flow of RM7.8 billion during the year despite the challenging market environment. However, free cash flow in FY2020 was lower as compared to RM43.0 billion in the preceeding year mainly due to:

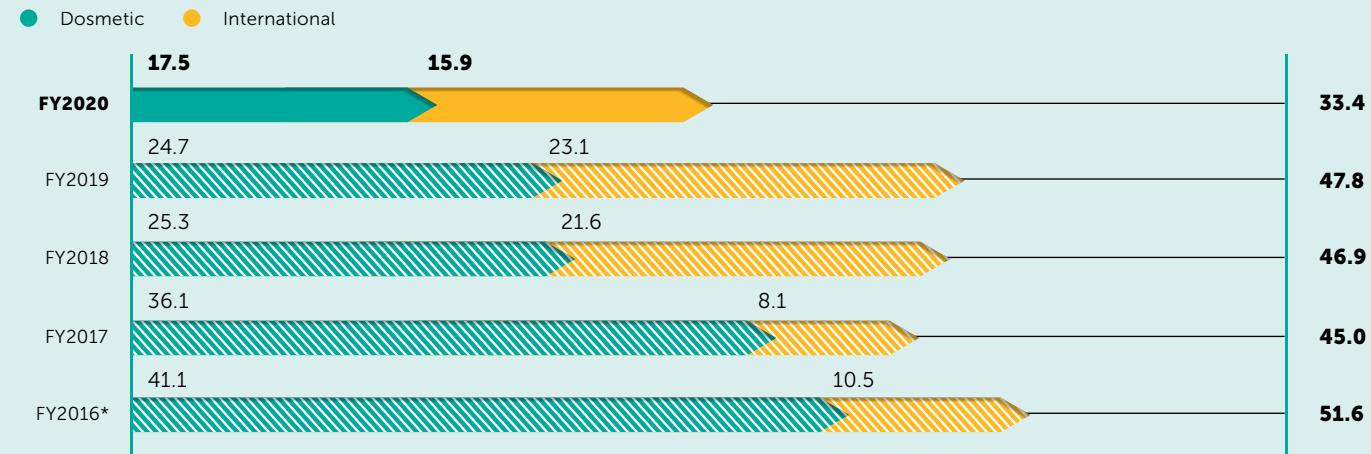
- **Reduced cash generated from operations in line with lower profits which was partially offset by lower taxes paid.**
- **Partially offset by lower capital expenditure as a result of strategic reassessment of capital allocation through prioritisation of projects.**



Capital Investments

For the year in review, the Group's capital investment decreased to RM33.4 billion as compared to RM47.8 billion in the preceding year. The reduction reflects the collective effort by all business segments in optimising their portfolios and reprioritising projects with the aim to safeguard PETRONAS' liquidity. Despite the spending optimisation effort, PETRONAS continued to invest in key projects which are aligned with the Group's long-term Sustainability Agenda.

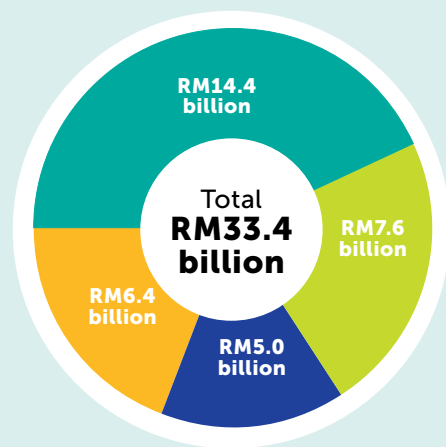
Domestic and International Capital Investments Breakdown  
(RM billion)



\* The figures has been restated to include cost of acquisition of subsidiaries and investment in associates and joint ventures.

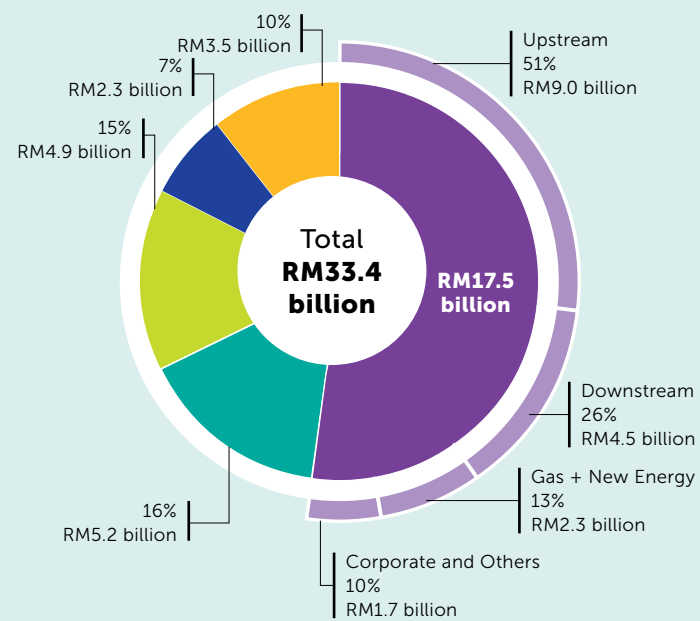
Segment Capital Investments

Capital Investments by Business Segments in FY2020



- Upstream
- Gas + New Energy
- Downstream
- Corporate and Others

Capital Investments by Geographical Segments in FY2020



- Malaysia
- Canada
- USA
- Asia (excluding Malaysia)
- Rest of the World

Segment Capital Investments



Upstream

Upstream continued to dominate the larger percentage of capital investments at RM14.4 billion or 43 per cent of the Group's total capital investment in FY2020. Upstream's capital investments for FY2020 were predominantly spent on exploration, development and production activities aimed at sustaining and growing production in Malaysia and international operations.

Domestically, RM9.0 billion or 62 per cent of Upstream's total capital investment was spent on key projects such as the Kasawari Gas Field Development, Bayan Phase 2, Baram Delta Enhanced Oil Recovery and Pegaga Gas Field Development.

A total of RM5.4 billion was allocated towards international portfolio investments with key countries including Canada, Iraq, Azerbaijan and Mexico. Notable investments include Upstream's first entry into the oil and gas operations in the Gulf of Mexico, USA through a subsidiary, Progress Resources USA LLC (PRUL), for a 30 per cent working interest in the Monument Prospect in early FY2020.



Gas + New Energy

The G+NE business accounted for 23 per cent of the Group's total capital investments and incurred a total spending of RM7.6 billion in FY2020.

The capital investments for FY2020 were predominantly spent on its international ventures particularly for its LNG project in Canada. During the year, the segment also made further investments through the acquisition of solar assets under Acme Solar in India.



Downstream

The Downstream segment utilised capital investments of RM5.0 billion during the year or 15 per cent of the Group's overall capital investment allocation.

The spending made during the year was mainly allocated towards further investments in the Pengerang Integrated Complex (PIC), which is currently on track with its plan to transition to commercial operations. Other investments were mainly related to operational capital investments as well as turnaround activities.



Corporate and Others

The businesses under Corporate and Others spent RM6.4 billion during the year, higher by RM1.9 billion as compared to 2019 with MISC accounting for 81 per cent of the total spending.

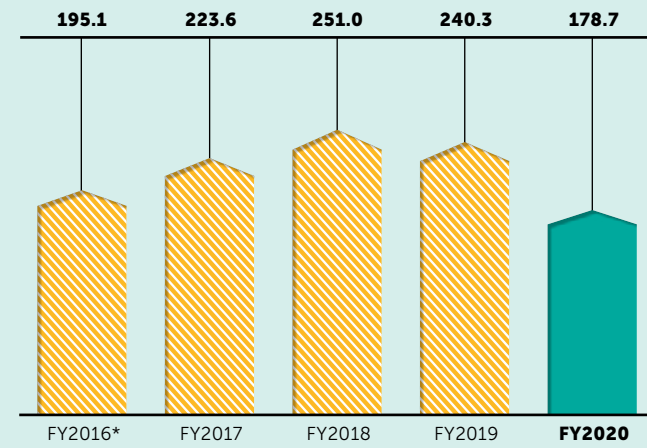
During the year, MISC's significant investments include the milestone payment for six units of Very Large Ethane Carrier (VLEC) and petroleum newbuild vessels.



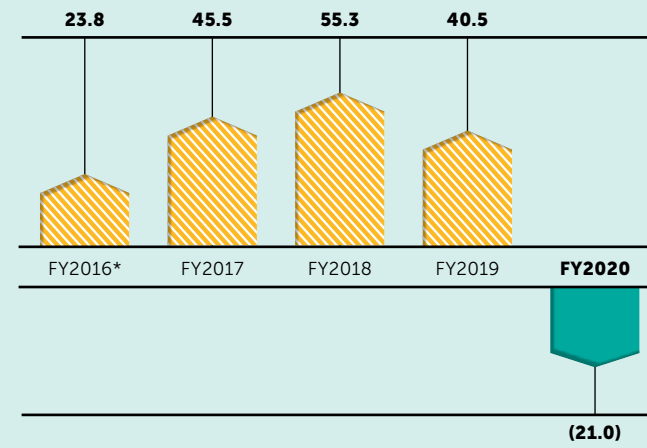
## Five-Year Key Financial Indicators

(RM billion)

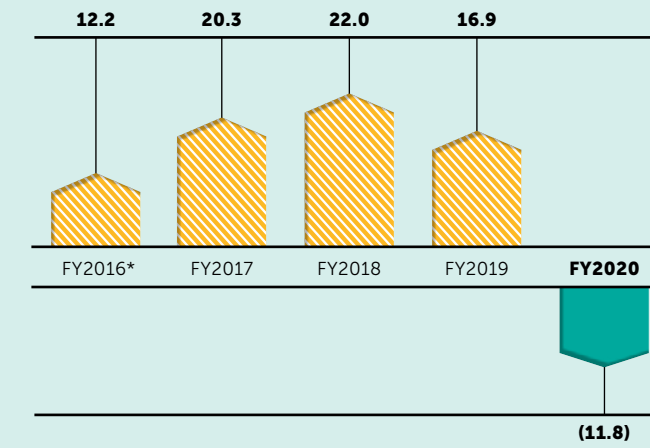
### Revenue



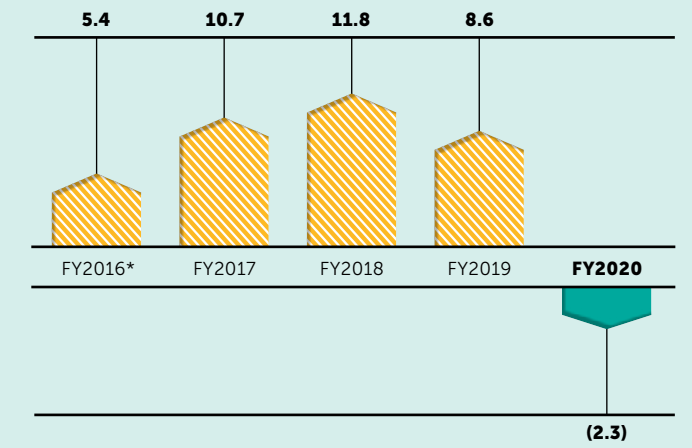
### Profit/(Loss After Tax) PAT/(LAT)



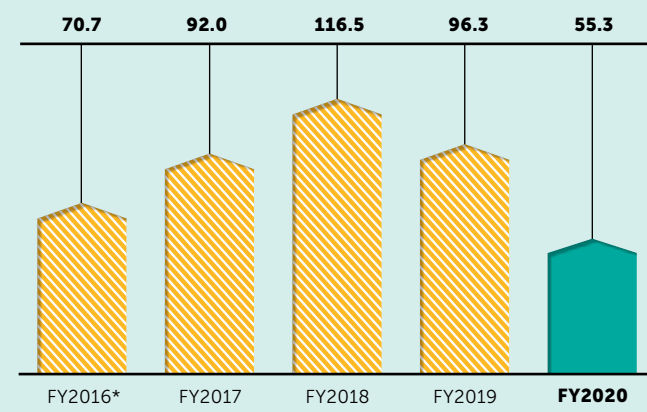
### PAT Margin (%)



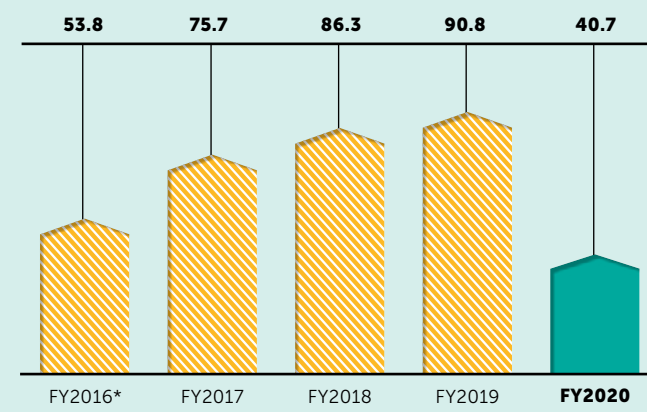
### Return on Total Assets (ROTA) (%)



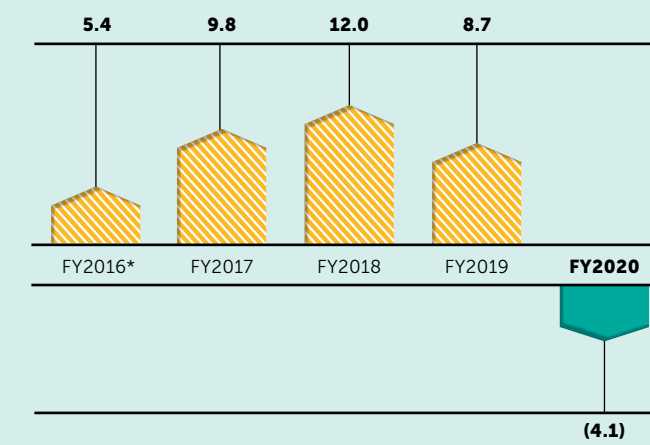
### EBITDA



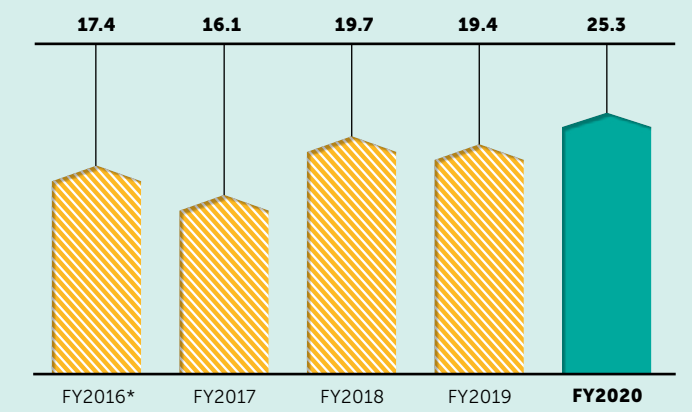
### CFFO



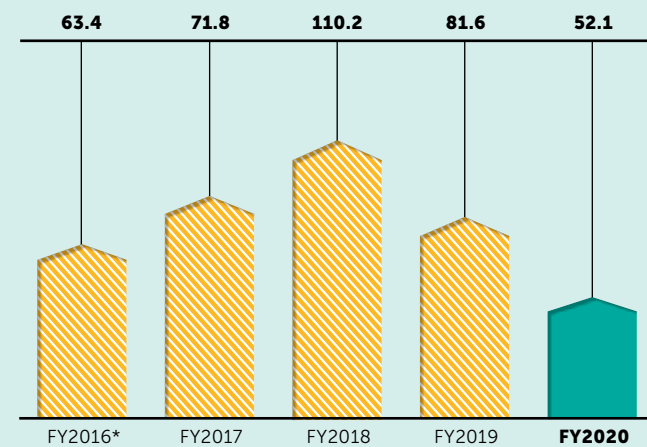
### Return on Average Capital Employed (ROACE) (%)



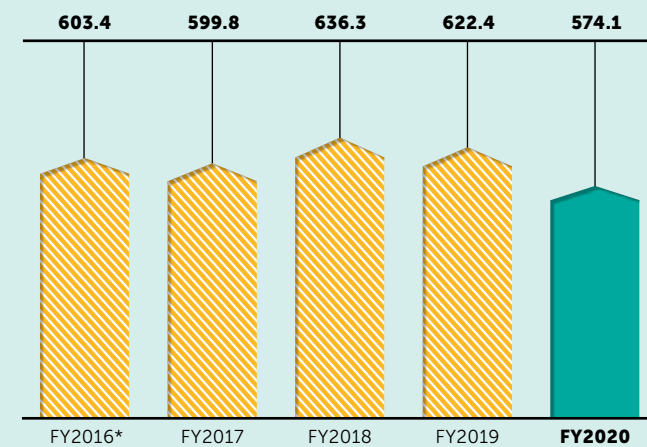
### Gearing Ratio (%)



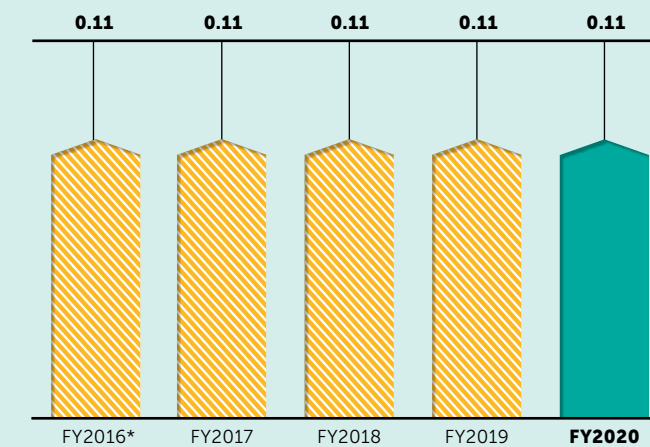
### Net Cash Position



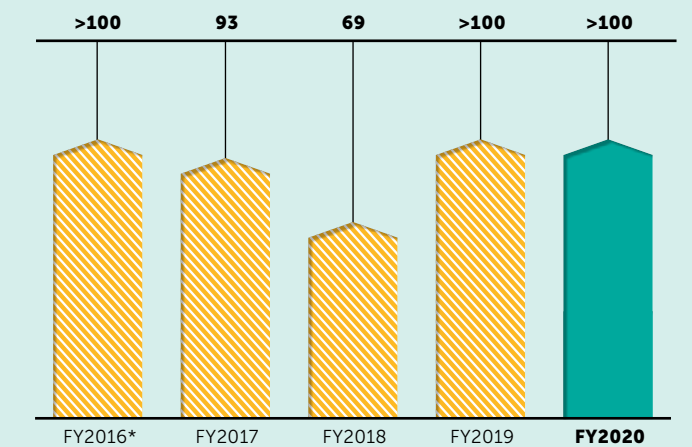
### Total Assets



### Debt/Assets Ratio (x)



### Dividend Payout Ratio (%)



\* Certain financial information and their corresponding financial ratios have been restated due to the change in accounting policies with respect to revenue reporting and inventory valuation for gas trading activities.

\* The figures have been restated due to the change in accounting policies with respect to revenue reporting and inventory valuation for gas trading activities.



## Appendix

### Non-Financial Content Index

The results of our Materiality Assessment helped determine the non-financial topics covered in this report. This index includes reference to IPIECA/API/IOGP Sustainability reporting guidance for oil and gas industry as well as the Global Reporting Initiative Standards that correspond to the topics covered in the report. The guidelines are available at [ipieca.org](http://ipieca.org) and [globalreporting.org](http://globalreporting.org).

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## Glossary of Terms

Abbreviation	Full Term/Definition
2C	Contingent Resources
2P	Petroleum Reserves
3R	Reduce, reuse, recycle
AC	Audit Committee
ABC	Anti-Bribery and Corruption
AI	Artificial Intelligence
ASEAN	Association of Southeast Asian Nations
B40	Bottom 40 per cent of income earners
bbbl	Barrel
bboe	Billion barrel of oil equivalent
BCM	Business Continuity Management
BCP	Business Continuity Plan
Board	Board of Directors
boe	Barrel of oil equivalent
C3	Corporate Command Centre
CAPEX	Capital expenditure
CCS	Carbon Capture and Storage
CCUS	Carbon Capture, Utilisation and Storage
CEFS	Centralised Emergency and Fire Services
CFFO	Cash Flows from Operations
CG	Corporate Governance
CIMS	Crisis and Incident Management System
CMT	Crisis Management Team
CO <sub>2</sub>	Carbon dioxide
CO <sub>2</sub> e	Carbon dioxide (CO <sub>2</sub> ) equivalent
CoBE	Code of Conduct and Business Ethics
CoCHR	Contractors Code of Conduct on Human Rights
COVID-19	2019 novel coronavirus (or 2019-nCoV)
CSR	Corporate Social Responsibility
D&I	Diversity and Inclusion
DOE	Department of Environment
DOSH	Department of Occupational Safety and Health
E&P	Exploration and production
EBITDA	Earnings Before Interest, Tax, Depreciation and Amortisation
ECER	East Coast Economic Region
ELT	Executive Leadership Team
ERE	Emergency Response Exercise
ERM	Enterprise Risk Management
ERP	Enterprise Risk Profile

Abbreviation	Full Term/Definition
ERS	Equipment Reliability Strategy Programme
ESG	Environmental, Social and Governance
FAR	Fatal Accident Rate
FID	Final Investment Decision
FLNG	Floating Liquefied Natural Gas
GCEO	Group Chief Executive Officer
GDP	Gross Domestic Production
GEES	Graduate Employment Enhancement Scheme
GHG	Greenhouse gas
GJ	Gigajoule
G+NE	Gas + New Energy
G&P	Gas and Power
GRI	Global Reporting Initiative
GWh	Gigawatt Hour
HCU	Holding Company Unit
HOTS	Higher Order Thinking Skills
HRM	Human Resource Management
HSE	Health, Safety and Environment
HSSE	Health, Safety, Security and Environment
ICT	Information and Communication Technology
IFRS	International Financial Reporting Standards
IIRC	International Integrated Reporting Council
INED	Independent Non-Executive Director
INSTEP	Institut Teknologi Petroleum PETRONAS
IPIECA	International Petroleum Industry Environmental Conservation Association
JTC	Joint Technical Committee
JVs	Joint ventures
kboe	Kilo barrels of oil equivalent
kboed	Kilo barrels of oil equivalent per day
kbpd	kilo barrels per day
kg	Kilogramme
KMt	Kilometric tonnes
kWp	Kilowatt peak
LAT	Loss After Tax
LBV	LNG Bunkering Vessel
LNG	Liquefied Natural Gas
LOPC	Loss of Primary Containment
LTE	Long-term evolution
LTIF	Loss Time Injury Frequency
MEKAR	Memampankan Ekonomi Asas Rakyat
MCF	Mandatory Control Framework

## Glossary of Terms

Abbreviation	Full Term/Definition
MCO	Movement Control Order
MFRS	Malaysian Financial Reporting Standards
mmBtu	Million British Thermal Units
MMscfd	Million Standard Cubic Feet Per Day
MMT	Million metric tonnes
MOE	Ministry of Education
MOH	Ministry of Health
MoU	Memorandum of Understanding
mtpa	Metric tonnes per annum
MW	Megawatt
MWh	Megawatt-hour
NADMA	National Disaster Management Agency
NCER	Northern Corridor Economic Region
NCIA	Northern Corridor Implementation Authority
NEDs	Non-Executive Directors
NGOs	Non-governmental organisations
NGV	Natural gas vehicle
NINED	Non-Independent Non-Executive Director
nm <sup>3</sup>	Normal cubic meters
NZCE 2050	Net zero carbon emissions by 2050
OE	Operational Excellence
OEE	Overall Equipment Effectiveness
OPEC+	Organisation of the Petroleum Exporting Countries Plus
OPEX	Operating expenditure
OPU	Operating unit
PAT	Profit after tax
PCB	PETRONAS Cultural Beliefs
PCC	PETRONAS Carbon Commitment
PCG	PETRONAS Chemicals Group Berhad
PDB	PETRONAS Dagangan Berhad
PD&T	Project Delivery and Technology
PDR	Product Delivery Reliability
PGB	PETRONAS Gas Berhad
PGU	Peninsular Gas Utilisation
PLC	PETRONAS Leadership Centre
PIC	Pengerang Integrated Complex
PIVOT	PETRONAS Integrated Vision for Operational Excellence Transformation
PPMS	PETRONAS Project Management System
PPRT	Pandemic Preparedness and Response Team
PSC	Production Sharing Contract

Abbreviation	Full Term/Definition
R&D	Research and Development
RC	Risk Committee
RESCISCO	Project to change the paradigm and the approach of developing competencies in PETRONAS through enhancement of capability development philosophy and framework
RFSU	Ready for Start-Up
RGT	Regasification terminal
RM	Ringgit Malaysia
ROVR	An innovative service which allows for a seamless and safe refuelling experience for both the commercial and everyday drivers, beyond conventional petrol stations
SDG	Sustainable Development Goals
SeMS	Security Management System
SME	Small and Medium Enterprise
SME	Subject Matter Expert
STEM	Science, Technology, Engineering and Mathematics
SOP	Standard Operating Procedure
tCO <sub>2</sub> e	Tonnes (t) of carbon dioxide (CO <sub>2</sub> ) equivalent
The Board	Petroleum Nasional Berhad (PETRONAS) Board of Directors
The Group	Petroleum Nasional Berhad (PETRONAS) and its subsidiaries
TPA	Third Party Access
tpa	Tonnes per annum
TRCF	Total Reportable Case Frequency
TROIF	Total Recordable Occupational Illness Frequency
UN	United Nations
UNGP	United Nations Guiding Principles
UN SDGs	United Nations' Sustainability Development Goals
UTP	Universiti Teknologi PETRONAS
UPC	Unit Production Cost
USD	US dollar
VPS	Virtual Pipeline System
WFH	Work from home
WTI	West Texas Intermediate
WTO	World Trade Organisation
ZeTo	Zero Tolerance



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