

Maintaining Performance
Amid the Pandemic
**To Optimize Contribution
to the Country**



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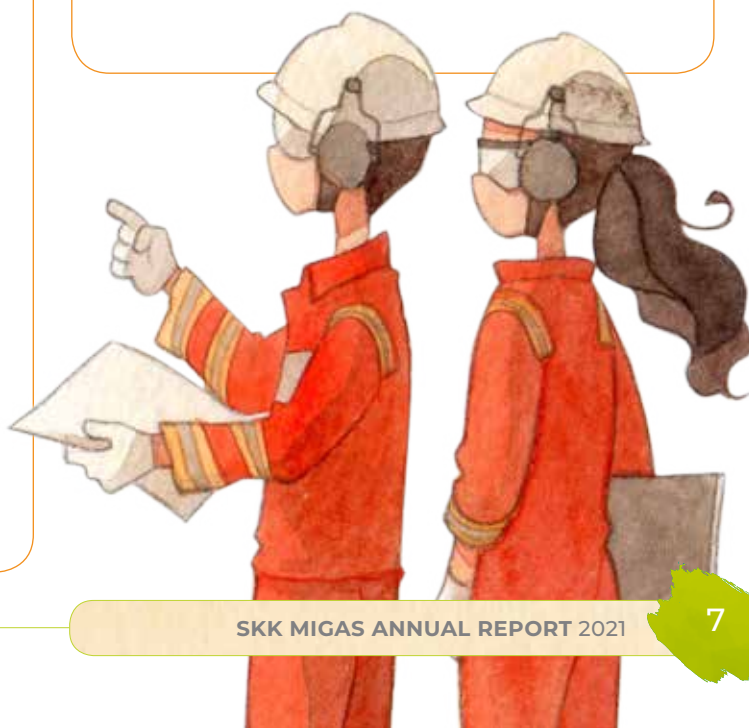
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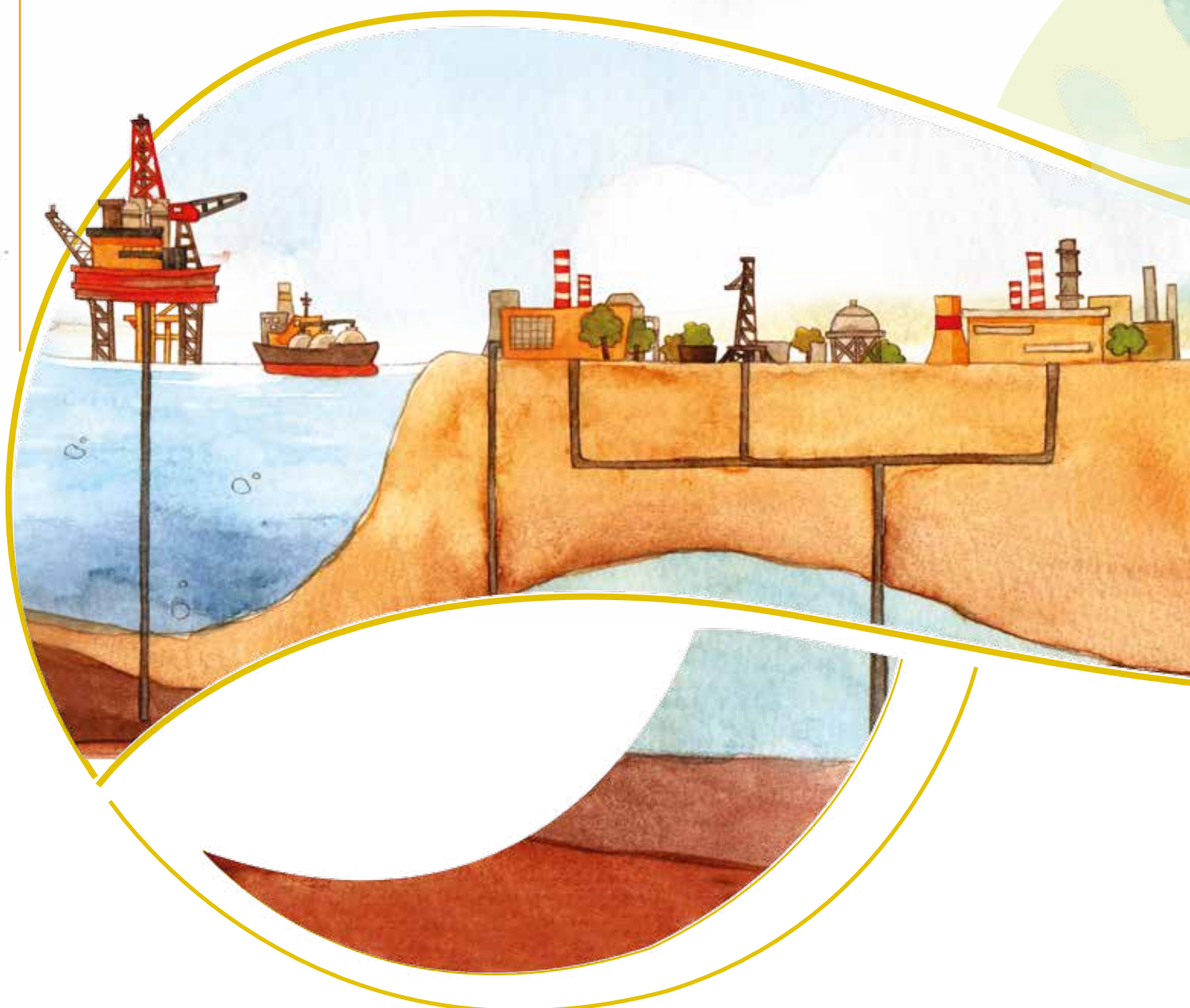
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CHAPTER

INTRODUCTION





SKK Migas Vision and Mission

Core Values

Salutation from The Chairman of
SKK Migas Oversight Committee

SKK Migas Oversight Committee

Salutation from The Chairman
of SKK Migas

SKK Migas Management

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Executive Summary Report

SKK MIGAS VISION AND MISSION

VISION

Becoming a Proactive and Trustworthy Entity and A Prime Mover in the Development of Strategic Upstream Oil And Gas Industry for the Interest Of the Nation And State.

MISSION

- Conducting activities to supervise and control cooperation contracts for upstream oil and gas business activities to ensure effectiveness and efficiency as well as to maintain environmental preservation;
- Synergizing with stakeholders and production sharing contract contractors ("PSC Contractors") to increase Indonesia's oil and gas reserves and production;
- Work towards a conducive working culture through synergy, coordination and application of change management, knowledge, and technology systems;
- Supporting and developing national capabilities of being able to compete at national, regional, and international levels;
- Increasing the state revenue to contribute the most towards the national economy, developing, and strengthening the position of Indonesia's upstream oil and gas industry.



CORE VALUES

As a form of SKK Migas's commitment and seriousness in the development upstream oil and gas industry in Indonesia, SKK Migas hold values called “**P R U D E N T**” described below:

P

PROFESSIONAL

Think and act in accordance with applicable standards in carrying out work.

R

RESPONSIVE

Reacting and responding quickly and positively.

U

UNITY IN DIVERSITY

Able to accept, acknowledge, appreciate, and synergize diversity to achieve mutually agreed goals.

D

DECISIVE

Having the ability to make decisions quickly and effectively in accordance with authority based on rational consideration and evaluation of risk and consequences of the decisions made.

E

ETHICS

Acting in accordance with the applicable norms, regulations and/ or business ethics in carrying out the main duties and functions and authority of the position.

N

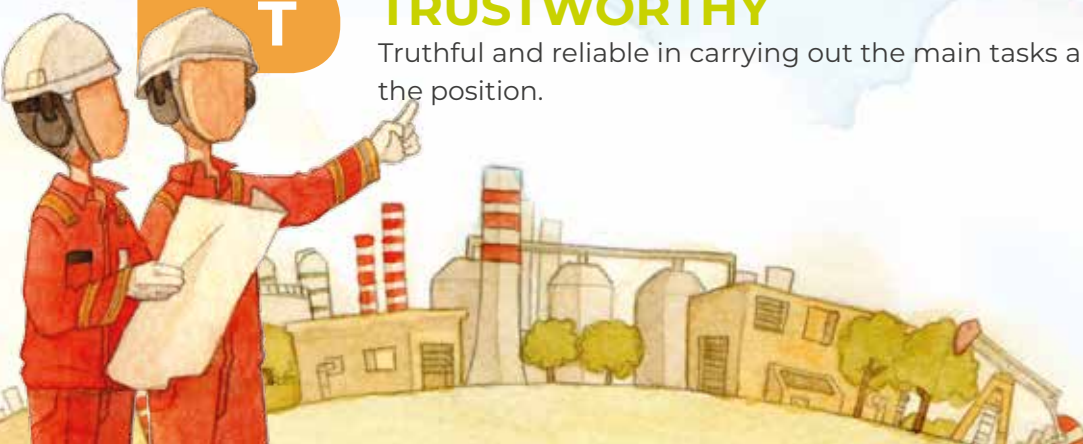
NATION FOCUSED

Understand and try to maximize national potential and capabilities in making decisions and carrying out daily tasks.

T

TRUSTWORTHY

Truthful and reliable in carrying out the main tasks and functions and authority of the position.



SALUTATION FROM THE CHAIRMAN OF SKK MIGAS OVERSIGHT COMMITTEE



Assalamu'alaikum Warahmatullahi Wabarakaatuh

We thank God Almighty for all His gifts and for helping us face various challenges in 2021. During the Covid-19 Pandemic, which is still raging and suppressing the country's economy, the upstream oil and gas industry keeps delivering more significant contributions than the target.

On the other hand, world crude oil prices which recovered faster than the initial estimate, have encouraged investment in the upstream oil and gas sector, flowing more rapidly at the end of 2021 and simultaneously promoting the realization of a more optimal work plan. We see this as an encouraging achievement. Moreover, at this time, we also observe strong intentions from upstream oil and gas companies to divert some of their investment to the new and renewable energy (NRE) sector after the world demands commitment from various countries to increase the use of clean energy.

The Oversight Committee appreciates the efforts and hard work of SKK Migas and PSC Contractors, who have effectively made various breakthroughs.

Exploration activities have been successfully increased through new technology, accelerating the availability of new data to ensure the presence of resources in the fields. Meanwhile, exploration drilling can also be carried out effectively with an impressive success ratio above the average world exploration success ratio. We also maintain

a reserves replacement ratio (RRR) above 100%. The series of exploration activities have confirmed the presence of the reserves and will provide certainty for further efforts to increase production.

The industry has also carried out better and more efficient exploitation activities. One of them can be seen from realizing a cost recovery of US\$7.79 billion, or smaller than the previously planned US\$8.07 billion. The efficiency carried out has had a positive impact on state revenues. The achievement should be appreciated because when world oil prices are high, the costs will usually increase, further causing higher cost recovery.

State revenues from the upstream oil and gas sector in 2021 will reach US\$13.7 billion, equivalent to Rp199 trillion. This achievement is 188% of the target set in the 2021 State Revenue and Expenditure Budget (APBN). This is a real upstream oil and gas industry contribution to state revenues. Especially when the Government needs significant funds to deal with the Covid-19 Pandemic, the Government is also trying to recover the economy.

More aggressive efforts to increase production are urgently needed to speed up the reserves-to-production. Thus, it will impact increasing national oil and gas production and lifting, one of the indicators that are still under the target. The realization of oil lifting in 2021 is 660 barrels of oil per day (bopd), or around 93.7% of the target in the 2021 State Revenue and Expenditure Budget. As for the gas lifting, the realization is 5,501 million cubic feet per day (MMscfd), or 97.6% of the target.

I believe we still have an opportunity to increase production and lifting. The achievement of natural gas lifting in 2021 can exceed the realization of gas lifting in 2020. I hope we can maintain this momentum in 2022 and make the year a turning point in increasing sustainable national oil and gas production.

The upstream oil and gas sector will still play an important role in providing national energy needs in the coming years. Although the percentage contribution of energy sources from oil and gas will decrease, the volume will continue to increase in line with national economic growth and increasing population. Energy consumption growth is expected to continue, as the General National Energy Plan estimates. The Government's policy to accelerate the implementation of the energy transition from fossil-based energy to the NRE does not eliminate the role of oil and gas energy.

Along with the role of the upstream oil and gas industry in supporting economic development, the paradigm of the upstream oil and gas industry has shifted from a source of state revenue to a more strategic function as capital as well as an engine for national and regional development.

The Government supports efforts to increase long-term national oil and gas production to 1 million bopd and 12 thousand MMscfd in 2030. These supports include gas price adjustments, fiscal system flexibility, fiscal stimulus, permit simplification, data provision and transparency, and upstream-downstream integration.

However, we are aware that more efforts are still needed to increase the competitiveness of the upstream oil and gas industry. We must continue encouraging more efforts to create efficiency and technological breakthroughs, including implementing Enhance Oil Recovery (EOR) and yearly drilling activities as targeted.

Therefore, let's strengthen the synergy within the industry and with stakeholders to support the upstream oil and gas industry's more significant contribution to the nation.

Wassalamualaikum Warahmatullahi Wabarakatuh.

ARIFIN TASRIF

Minister of Energy and Mineral Resources

(As Chairman of SKK Migas Oversight Committee)

SKK MIGAS OVERSIGHT COMMITTEE

ARIFIN TASRIF

Chairman of SKK Migas Oversight Committee

Arifin Tasrif was appointed as Minister of Energy and Mineral Resources on October 23, 2019 in the Cabinet of Indonesia Maju. He was a former Indonesian Ambassador to Japan, from March 13, 2017, to October 22, 2019. He had a long journey in the fertilizer industry, was the President Director of PT Pupuk Indonesia (Persero) from 2010 to 2015, and was the President Director of PT Petrokimia Gresik from 2001 to 2010. In 1977, he was a Chemical Engineering alumnus of Bandung Institute of Technology.



SKK MIGAS OVERSIGHT COMMITTEE

SRI MULYANI INDRAWATI

Deputy Chairman of SKK Migas Oversight Committee

Sri Mulyani Indrawati was appointed as Minister of Finance in the Cabinet of Indonesia Maju on October 23, 2019. She was previously Minister of Finance from 2014 to 2019 in the Cabinet Kerja. After she had served as Minister of Finance in 2008 until 2010 while also concurrently held the Coordinating Minister for Economic Affairs position, she managed to deliver her solemn services to the international financial institution as an Executive Director of the World Bank from 2010 to 2016.

She was the Minister of the National Development Planning/Head of Bappenas from 2004 to 2005. The financial institution, IMF, then trusted her to take the lead as IMF Executive Director from 2002 to 2004.

In 1986, she was an alumna of the Faculty of Economics, University of Indonesia. Two years later, she pursued her Masters and Doctoral education at the University of Illinois Urbana Champaign with a Master of Science of Policy Economics (1990) and Ph.D. of Economics (1992).



SITI NURBAYA BAKAR

SKK Migas Oversight Committee

Siti Nurbaya Bakar was appointed as Minister of Environment and Forestry in the Cabinet of Indonesia Maju on October 23, 2019. In her previous career, she was the Minister of Environment and Forestry in Cabinet Kerja for the 2014-2019 period. She commenced and had a 17-year career in Lampung Province's Regional Development Planning Agency (Bappeda). In 1998, She was moved to Jakarta to be a part of the Ministry of Home Affairs. From 2001 to 2005, she was trusted to be the Secretary General of the Ministry of Home Affairs 2001-2005; and in 2006-2013, she became the Secretary General of the Regional Representative Council of the Republic of Indonesia. In the period of 1975-1979, she was an undergraduate student at Bogor Agricultural Institute (IPB); she then continued her Master's Degree at the International Institute for Aerospace Survey and Earth Science (ITC), Enschede, Netherlands and graduated in 1988. She respectfully earned her Doctorate Degree at IPB in collaboration with the Siegen University, Germany, and graduated in 1998.



SKK MIGAS OVERSIGHT COMMITTEE

BAHLIL LAHADALIA

SKK Migas Oversight Committee

Bahlil Lahadalia was appointed as Chairman of the Indonesian Investment Coordinating Board on October 23, 2019. Before serving as the Chairman of the Indonesian Investment Coordinating Board, he was the General Chairman of the Central Management Board of the Indonesian Young Entrepreneurs Association from 2015 to 2019. He has a background as a businessman engaged in diverse fields under the authority of PT Rifa Capital as a holding company. He was an undergraduate student of STIE Port Numbay, Jayapura.



LISTYO SIGIT PRABOWO

SKK Migas Oversight Committee

Listyo Sigit Prabowo has been appointed as the Chief of the Indonesian National Police (Kapolri) since January 27, 2021. Before serving as Kapolri, he was assigned as Head of the National Police's Criminal Investigation Agency from December 2019 to January 2021, Head of the National Police's Profession and Security Division from 2018 to 2019, and Head of the Regional Police of Metro Jaya from 2016 to 2018.

Listyo, born on May 5, 1969, in Ambon, Maluku, has held several positions in the Central Java area. Listyo was the Head of the Pati Police, the Deputy Chief of the Semarang Police, as well as the Chief of the Solo Police. In 2012, Listyo was transferred to Jakarta to serve as Head of Sub-Directorate II of the Dittipidum Bareskrim Polri. In May 2013, he was appointed as Director of the General Criminal Investigation of the Southeast Sulawesi Regional Police.

He studied Police Academy and graduated in 1991, then continued his education at the Police Science College (PTIK) in 1998. His next education was SESPIM in 2006, followed by a master's degree at STIK PTIK in 2008. His last education was LEMHANAS in 2017.



SALUTATION FROM THE CHAIRMAN OF SKK MIGAS

We are grateful to Allah SWT for His blessing, so Indonesia's upstream oil and gas industry managed to perform well throughout 2021. Although the year is full of challenges, the industry can still surpass several government targets and continue contributing to driving the national economy.

The higher-than-target performance can be seen, among others, in the Reserves Replacement Ratio (RRR) of 116%. The achievement also marks that, for four consecutive years, the upstream oil and gas industry has successfully obtained primary capital for increasing production in the future.

As part of our efforts to increase production, we carried out massive exploration activities in 2021. We completed a 101,918 km full tensor gravity survey to acquire data on oil and gas potential in the Papua region

. It's the most extensive survey in Asia in the last decade, making a breakthrough in getting data relatively quickly.

We also see encouraging results from exploration well drilling. Of the 20 exploration wells drilled, 11 wells succeeded in discovering oil and gas reserves. Therefore, Indonesia's exploration drilling success ratio in 2021 reached 55%, or higher than the world's success ratio of 23.8%.

Innovations to increase production were also actively conducted in the field, including project acceleration and other breakthroughs. As a result, by the end of the year, we completed 15 major projects or more than the original plan of 12 projects. We also made a breakthrough through the filling-the-gap program, which is a program to boost production from activities outside those in the Work, Program, and Budget (WP&B). This program resulted in additional oil and natural gas production of 11,611 bopd and 49.72 MMscfd, respectively.



We appreciate the hard work of PSC Contractors and stakeholders who support this achievement. This achievement needs to be appreciated, especially when the global upstream oil and gas investment climate is declining due to the energy transition towards new and renewable energy. The International Energy Forum recorded that the decline in upstream oil and gas investment has occurred since 2020 and continued into 2021, with a decrease of 35% and then 23%.

This affected upstream oil and gas investment in Indonesia in 2021, amounting to US\$10.9 billion or equivalent to Rp155 trillion, or 88.1% of the target set at US\$12.38 billion.

To maximize state revenues, SKK Migas managed to control cost recovery below the set ceiling, which was US\$7.79 billion or only 96.5% of the target. This cost recovery efficiency directly impacted the state revenue from the upstream oil and gas sector in 2021, which reached US\$13.7 billion (equivalent to Rp199 trillion) or 188% of the target set in the State Revenue and Expenditure Budget.

To fulfill the constitutional mandate that the upstream oil and gas sector provides the utmost benefit to the prosperity of the people, national companies get space to take part in the industry. We monitor their involvement through the local content requirement (TKDN). More opportunities are available to increase national companies' role, particularly in good and service procurement. By field coaching, TKDN in 2021 reached 58.95%, or higher than the target set by SKK Migas of 57% and above the target set by the Government, which is at least 50%.

We still face several obstacles in 2021, including the realization of major upstream oil and gas projects that have not met the target due to various reasons. Efforts to increase production have also not gone according to plan due to the decline in production from the existing field, which was faster than predicted, as well as unexpected trouble at production facilities (unplanned shutdown) which reduced the realization of production.

To catch up and improve existing achievements, we hope for stakeholders' support to achieve the 2022 target. The situation ahead will get more challenging amid the world's commitment to using new renewable energy towards net zero emissions in 2060. However, as a net oil importing country, Indonesia still needs oil and gas energy in the transition era. For example, Indonesia still needs oil and gas for the petrochemical industry sector. For this reason, we are even more excited to achieve the 2030 production target of 1 million bopd of oil and 12 thousand MMscfd of natural gas.

All SKK Migas's efforts aim to optimize the benefits of oil and gas for the country and its people. For this reason, we call on all stakeholders to work together in a smart, aggressive, massive, fast, and efficient way.

One team, one goal, one million.

Wassalamualaikum Warahmatullahi Wabarakatuh.

DWI SOETJIPTO

Chairman of SKK Migas

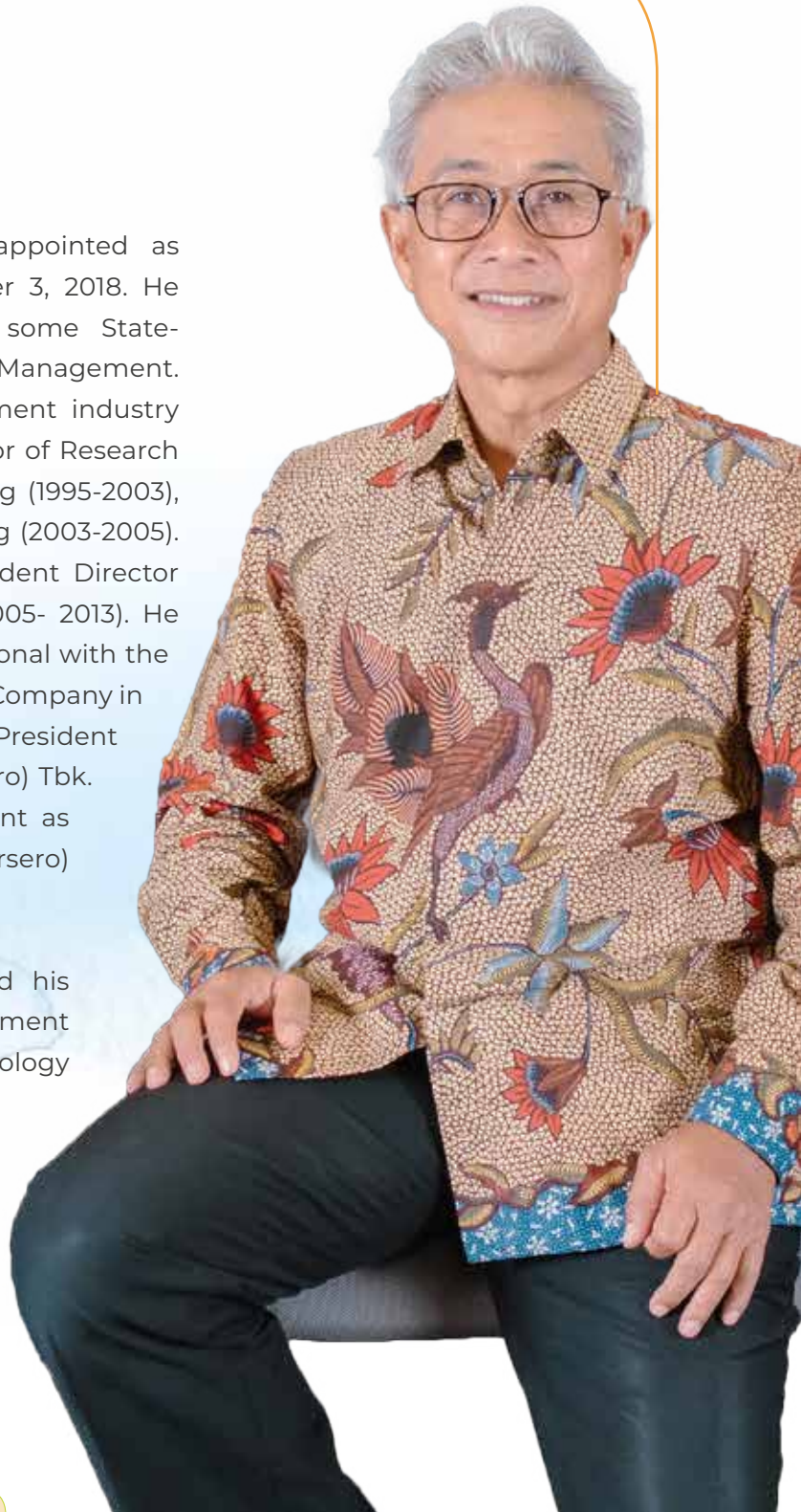
SKK MIGAS MANAGEMENT

DWI SOETJIPTO

Chairman of SKK Migas

Dwi Soetjipto Dwi Soetjipto was appointed as Chairman of SKK Migas on December 3, 2018. He previously received assignments in some State-Owned Companies (BUMNs) as Top Management. He has had a long career in the cement industry since 1981 and won the trust as Director of Research and Development in PT Semen Padang (1995-2003), President Director of PT Semen Padang (2003-2005). He then got the assignment as President Director of PT Semen Gresik (Persero) Tbk. (2005- 2013). He brought BUMN Cement to go international with the acquisition of the Thang Long Cement Company in Vietnam. He then got an assignment as President Director of PT Semen Indonesia (Persero) Tbk. (2013-2014), then he got an assignment as President Director of PT Pertamina (Persero) (2014-2017).

He was born in 1955 and completed his undergraduate education in the Department of Chemical Engineering, Technology Institute of Sepuluh November Surabaya, followed by a master program in Andalas University and a doctoral program in University of Indonesia. Currently, he is a member of the University of Airlangga's Board of Trustees and Deputy Chairman of the Padang State University's Advisory Council.



SKK MIGAS MANAGEMENT

FATAR YANI ABDURRAHMAN

Vice Chairman of SKK Migas



Fatar Yani Abdurrahman was appointed as Vice Chairman of SKK Migas on August 12, 2019, after having served as a Deputy for Operations of SKK Migas for the 2017-2019 period. With his education background of ITB Chemical Engineering, he then began his career at ARCO as petroleum engineer in 1989 and has 30 years' experience in the oil & gas industry for 30 years. Various fields in oil and gas have been undertaken, such as exploration, downstream, as well as Liquefied Natural Gas (LNG). He has worked for 8.5 years at ExxonMobil in Indonesia and Houston USA and then continued at the downstream Shell of the Asia Pacific. He also carried through exploration projects at Talisman and Murphy as well as the production department at ConocoPhillips, before serving as Head of Production and Head of ORSA Front End of Petronas Global in Kuala Lumpur, Malaysia.

TASLIM Z. YUNUS

Secretary of SKK Migas



Taslim Z. Yunus was appointed as Secretary of SKK Migas on February 1, 2021, after previously holding the position of SKK Migas Internal Controller. He graduated in mechanical engineering from the Bandung Institute of Technology (ITB) and earned a doctoral degree in business management from the Padjajaran University (Unpad) in 2008. Taslim started his career in oil and gas in 1987 and joined SKK Migas (then BP Migas) in 2002 as an investment and business development expert. Before being appointed as Secretary of SKK Migas, he held various positions, including Head of the Internal Control Unit, Vice President of Management Representative, Head of the Public Relations Division, and Head of the Program and Reporting Division.

SKK MIGAS MANAGEMENT

BENNY LUBIANTARA

Deputy for Planning of SKK Migas

Benny Lubiantara was appointed as Deputy for Planning of SKK Migas on July 27, 2021 after serving as Vice President of SKK Migas at the Ministry of Energy and Mineral Resources. With an educational background in petroleum engineering from the Bandung Institute of Technology (ITB) and economics and management from the University of Indonesia (UI). He served as a fiscal policy analyst at OPEC Secretariat in Vienna, Austria, from 2006 to 2013.



JULIUS WIRATNO

Deputy for Operations of SKK Migas

Julius Wiratno was appointed Deputy for Operations at SKK Migas on September 19, 2019. He was born in 1966 completed his UPN Veteran Yogyakarta Oil Engineering education in 1996. He then earned a master's degree in management at Prasetya Mulya in 2006. He joined SKK Migas since 2010 after having served at ConocoPhillips for the 1992-2009 period.



SKK MIGAS MANAGEMENT

ARIEF SETIAWAN HANDOKO

Deputy for Finance and Monetization of SKK Migas

Arief Setiawan Handoko was appointed as Deputy for Finance and Monetization of SKK Migas on April 4, 2019, after having served as Secretary of SKK Migas for the 2017- 2019 period. Before joining SKK Migas, he was Vice President of Supply Chain Management at ConocoPhillips Indonesia. Born in Jakarta in 1967, he completed his accounting education from the State Higher Education Accountancy School (STAN) in 1989 and followed by an accountant degree from the University of Indonesia (UI). He then obtained his Master of Business Administration from Case Western Reserve University Cleveland, USA in 2001. Having a background as an Auditor, before joining ConocoPhillips for almost 10 years from 2008-2017, he had been active for 19 years in the Audit Board of the Republic of Indonesia.



RUDI SATWIKO

Deputy for Business Support of SKK Migas and Acting Deputy for Procurement Control of SKK Migas

Rudi Satwiko was appointed as Deputy for Business Support of SKK Migas on February 1, 2021, after previously holding the position of Head of the Tangguh Train-3 and Genting Kasuri Project Acceleration Unit. At the same time, he was also inaugurated as Acting Deputy for Procurement Control of SKK Migas. He was born in Yogyakarta, completed his education in electrical engineering at the Sepuluh November Institute of Technology in Surabaya (ITS), and continued his study for a master's degree in Industrial Engineering at the University of Indonesia and Queensland University of Technology, Australia. Born in 1966 and with his experience working since 1991 at Pertamina and pursuing a career at BPMIGAS and SKK Migas, he had intensive working experience in the upstream oil and gas industry for approximately 30 years.



SKK MIGAS MANAGEMENT



MURDO GANTORO

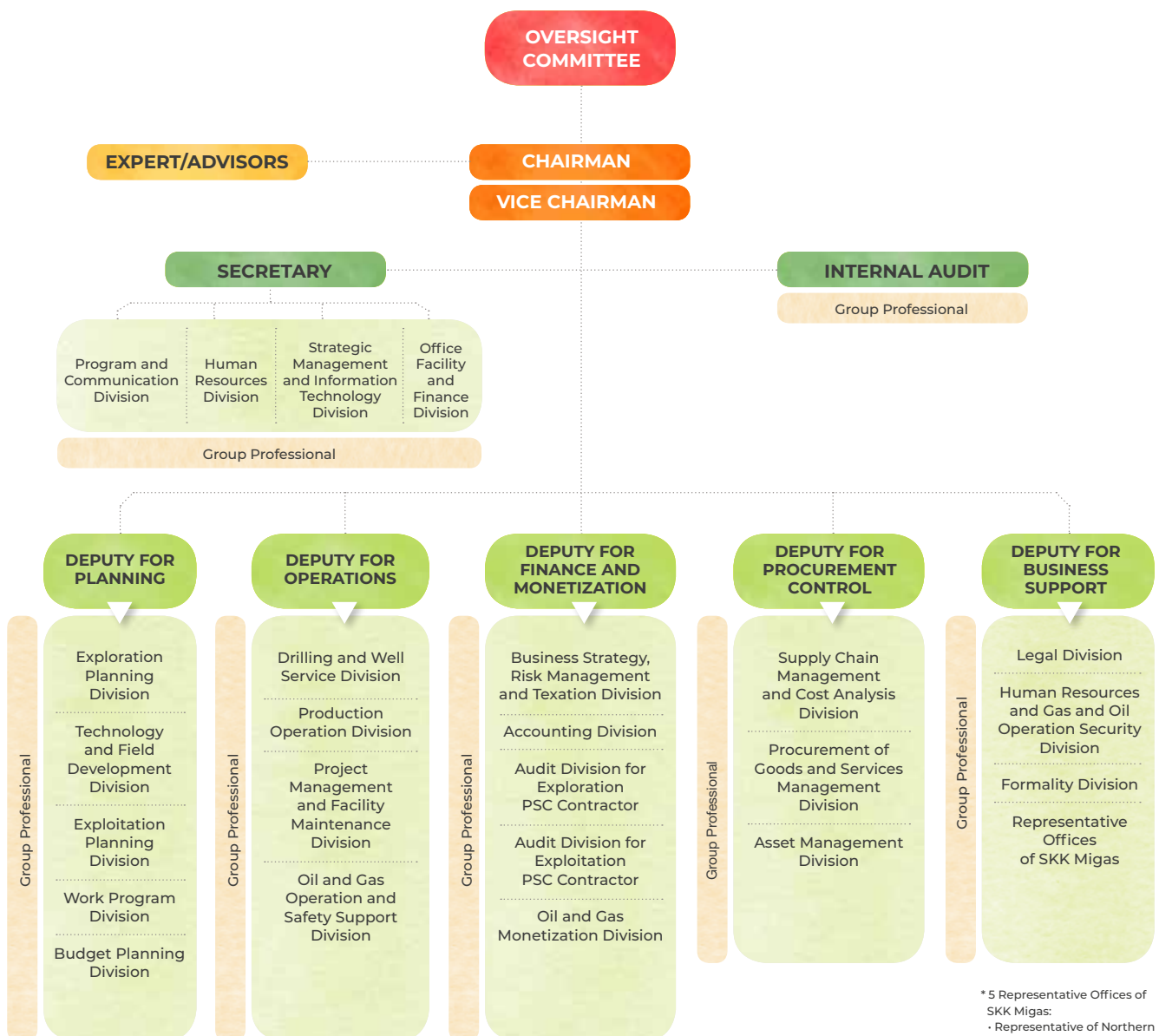
SKK Migas Internal Controller

Murdo Gantoro was appointed as SKK Migas Internal Controller on February 1, 2021, after serving as SKK Migas's secretary since April 2019. He served as Inspector 5 at the Inspectorate of the Ministry of Energy and Mineral Resources for the 2016-2019 period and previously served as Investigator at the Deputy for Enforcement at the Corruption Eradication Commission (KPK) for the 2007-2016 period. Born in 1964, he completed his accounting education at the State College of Accounting (STAN) in 1986, followed by an accountant degree from Warmadewa University, and graduated in 1997. He was active for 20 years at the State Supervisory and Financial Agency from 1987-2007.

SKK MIGAS ORGANIZATION STRUCTURE

ORGANIZATION STRUCTURE OF SPECIAL TASK FORCE FOR UPSTREAM OIL AND GAS BUSINESS ACTIVITIES

- Pursuant to the Regulations of the Minister of Energy and Mineral Resources Number 17 and 53 in 2017
- Letters of Decision of the Head of SKK Migas Number 70 and 108 in 2017



* 5 Representative Offices of SKK Migas:
 • Representative of Northern Sumatera
 • Representative of Southern Sumatera
 • Representative of Java, Bali, Nusa Tenggara
 • Representative of Kalimantan and Sulawesi
 • Representative of Papua and Maluku

EXECUTIVE SUMMARY OF THE 2021 ANNUAL REPORT

The SKK Migas transformation process, which began in 2019, faced a severe test in 2020. The optimism of the national upstream oil and gas industry in early 2020 was affected as the Covid-19 outbreak began to enter the country. In the following year, 2021, the upstream oil and gas industry still felt the effects of the Covid-19 pandemic.

No industry in the world has not been affected by the Covid-19 pandemic. However, this pandemic is gradually improving with reasonably good handling by governments in all countries. The Indonesian Government is running a very intensive Covid-19 vaccination program. SKK Migas supports the acceleration of the Government's program by providing vaccines for all workers and their families.

Upstream oil and gas activities are global businesses inseparable from the influence of global conditions, global markets, and global politics. One of the examples is the increase in world oil supply (from Non-OPEC countries) because the United States boosted its oil shale production. This condition affects the market and presses prices. Of course, the downward trend in prices will ultimately affect the operational activities of Indonesia's upstream oil and gas industry. However, this did not last long. Oil prices rose again, along with the conflict in Afghanistan, followed by China's attitude that began to approach Afghanistan and impacted market sentiment.

The global movement towards net zero emissions and the support of 197 countries for the Paris Agreement has more or less influenced the multinational oil companies' investment decisions. Several international oil companies started looking to increase investment in renewable energy. However, Indonesia's upstream oil and gas industry does not take the opposite position. Instead, the upstream oil and gas industry takes the opportunity to synergize. This approach is in line with SKK Migas's Strategic Plans (Renstra) stated in Indonesia Oil and Gas 4.0 (IOG 4), one of which is to create a sustainable environment.

The upstream oil and gas industry has designed several programs to support the net-zero-emission target. One of them is reforestation, which reached 1.2 million trees in 2021 and is expected to impact 11.4 thousand tons of CO₂ annually. In 2022, the industry targets planting more, or 1.6 million trees.

SKK Migas also encourages PSC Contractors to include the Carbon Capture and Storage/Carbon Capture Utilization and Storage (CCS/CCUS) project in their programs. Several contractors are planning to implement this project; one of them is BP Indonesia which is preparing for the Vorwata Enhanced Gas Recovery-Carbon Capture, Utilization and Storage (Vorwata EGR-CCUS) project in Papua. The project will re-inject CO₂ into the Vorwata reservoir to help increase gas production. The project, expected to start operating in 2026 or 2027, is planned to save 4 million tons of CO₂ gas

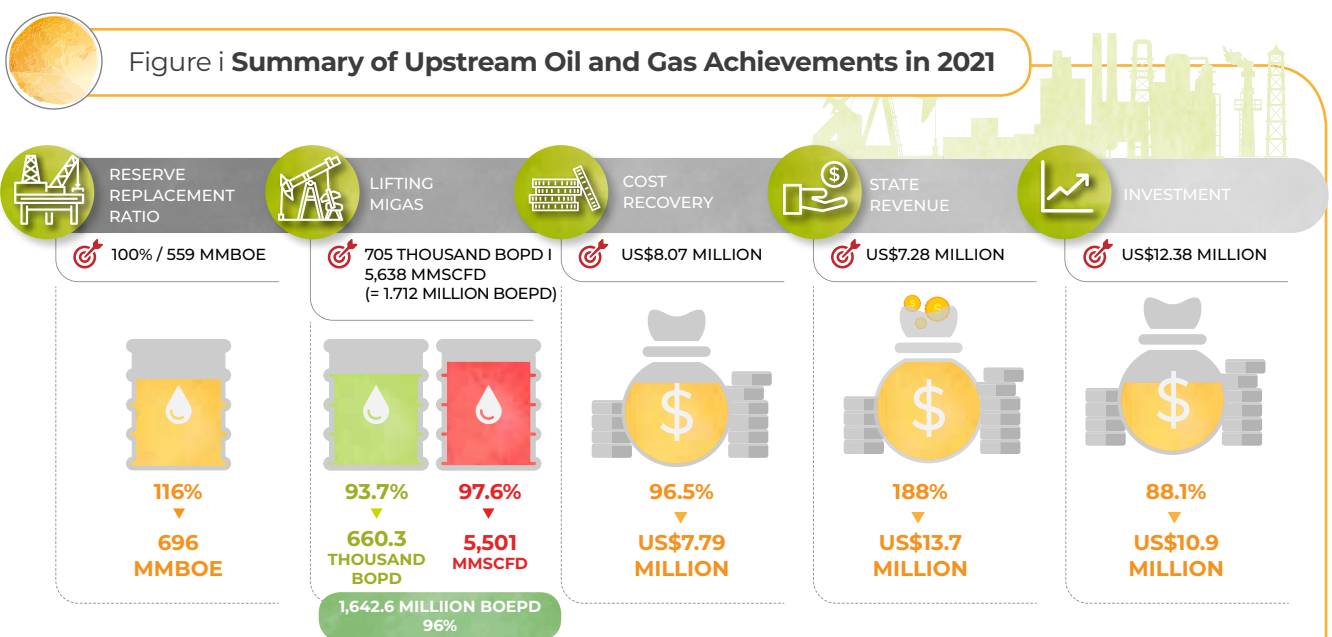
annually. The gas can be re-injected into the reservoir every year. The amount of CO2 injected will reach 25 million tons in 2035 and 33 million tons in 2045.

Another PSC Contractor designing the project is Pertamina, preparing the project in the Gundih Contract Area to store ±3 million tons of CO2 for 10 years of operation and in the Sukowati Contract Area to store ±15 million tons of CO2 for 25 years of operation.

Many existing challenges did not hamper SKK Migas's determination to strive continuously, remain optimistic, and work smart with massive, aggressive, and efficient passion.

During the challenging situation, SKK Migas still managed to exceed the impressive target for the state revenue. Part of it is due to the world oil prices, but the cost recovery efficiency plays a crucial role. In 2021, SKK Migas reduced the cost recovery to below the target. The Government initially estimated the cost recovery at US\$ 8.7 billion, but SKK Migas can control it to be at US\$ 7.79 billion. State revenue in 2021 reached US\$13.71 billion, or 188% of the target set at US\$7.28 billion. State revenues from oil and gas have exceeded the targets for two consecutive years.

SKK Migas recorded the realization of oil lifting in 2021 at 660.3 thousand bopd or 93.7% of the target set in the Revised State Revenue and Expenditure Budget (APBN-P) of 705 thousand bopd. Meanwhile, the natural gas lifting reached 5,501 MMscfd or 982.3 thousand barrels of oil equivalent per day (boepd), which was still below the APBN-P target of 1,007 thousand boepd or reached 97.6%.



Notes:

Data of cost recovery, state revenue, and investment based on Preliminary Quarter IV FQR recapitulation in 2021 per February 10, 2022 (unaudited)

In 2021, SKK Migas completed 15 of the 12 targeted onstream projects or reached 125%. The 15 projects contributed potential additional production of oil and gas of 18,468 bopd and 746 MMscfd, respectively.

SKK Migas also maintained the RRR at 116% with additional reserves of 696 million barrels of oil equivalent (MMboe). This achievement results from SKK Migas's success in accelerating the Plan of Development (POD). The performance also came from the Government's support by approving field development incentives so it can meet the economic feasibility.

Throughout 2021, 34 PODs have been processed and approved, accompanied by optimization of field development to achieve the targets of 1 million bopd of oil and 12 thousand MMscfd of gas in 2030.

In addition to field development, exploration is essential to maintain the future availability of oil and gas reserves and sustainable production. One of the exploration programs to support additional data for further exploration activities is the Full Tensor Gravity Survey (FTG).

This survey is the latest method utilizing a new survey technology conducted by the aircraft. The technology performs surveys from the sky to acquire data that is difficult to reach or in frontier areas that were initially almost impossible to access. This technology gives hope that the initial survey will lead to oil and gas reserve discovery for future production.

SKK Migas's key performance achievement requires good governance as support and ensuring that the organization runs its business processes properly, effectively, and efficiently. Through the programs announced in the IOG 4.0 in 2021, SKK Migas will continue to optimize 17 program charters. One of the charter programs that are important and directly affects operations is licensing.

One Door Service Policy (ODSP) is a charter program that has existed since 2020. In 2021, SKK Migas improved the program's capacity and quality to make the licensing process faster. Licensing arrangements within SKK Migas are currently completed on average in 1.5 working days, more quickly than the initial target of 3 working days.

No less important, to support operations, SKK Migas has developed a monitoring tool for operational activities with the Integrated Operation Center (IOC) system. It enables monitoring of all on-the-field operation activities, from well activities, production, and shipping to oil and gas lifting. Moreover, in more detail, the system allows for the supervision of oil and gas movement from wells, through production facilities, to temporary shelters up to drainage to the ship or lifting through the pipelines. In 2021, SKK Migas further developed the IOC for inventory and warehouse management and gas commercialization monitoring.

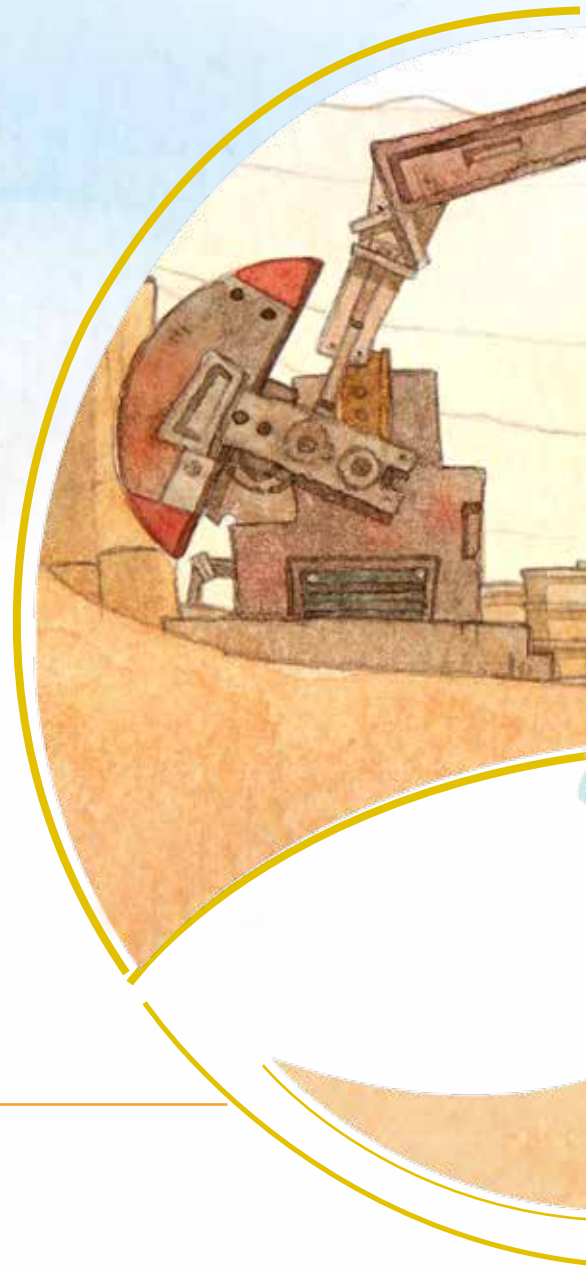
On the other hand, upstream oil and gas operational activities must prioritize health, safety, and the environment. SKK Migas takes this matter seriously and must ensure that operations in the field guarantee environmental protection and work safety. The incident rate in Indonesia's upstream oil and gas industry is already outstanding. By getting a value of less than 0.18, the incident rate is still below the initial estimate of 0.9.

SKK Migas' whole processes and activities are certified to ensure the quality of work and are free from bribery. In 2021, SKK Migas again secured an Anti-bribery Management System (SMAP) certificate based on SNI ISO 9001, ISO 20000-1, ISO 27001, and ISO 37001.

SKK Migas also confirms good governance in terms of the financial aspect. In 2021, SKK Migas received an unqualified opinion (WTM) for the 2020 financial statements.

Another outstanding achievement of the upstream oil and gas industry is in the local content rate or TKDN. The sector's use of goods and services reached the TKDN of 58.8% in 2021, well above the target of 57%. This accomplishment shows that the value of the domestic component within the upstream oil and gas business continues to increase.

- A. Oil & Gas Contract Area
- B. Oil And Gas Resources and Reserves
- C. Health, Safety, and Environment (HSE)
- D. Activities and Performance of Production and Lifting
- E. Licensing and One-Door-Service Policy (ODSP)
- F. Optimization in Asset Utilization
- G. Upstream Oil and Gas Business Investment
- H. Efficiency in Cost Recoverable
- I. Gas Revenue Distribution



CHAPTER

01

OPERATIONS
AND PERFORMANCE



A. OIL & GAS CONTRACT AREA

Oil and Gas Contract Areas (CA) refer to the contract areas approved by the Energy and Mineral Resources Ministry (ESDM) to be operated by Production Sharing Contract Contractors (PSC Contractors). In 2021, SKK Migas controlled and supervised 173 CAs.

Compared to those in 2020, the number of CAs in 2021 increased. The change is due to 2 additional new CS--South CPP CA and Liman CA-- and the termination of 13 CAs as follows:

- 9 Conventional CAs: Sebatik CA, Telen CA, East Jabung CA, Bawean CA, Anugerah CA, Kualakurun CA, Garung CA, Kisaran CA, and Bengara I CA
- 4 Non-conventional CAs: GMB Kutai CA, GMB Kutai II CA, GMB Tanjung II CA, and MNK Sakakemang CA.

The Government seeks to increase reserves, oil and gas production, and lifting by adding new CAs. There is a change in the status of CA from exploration to exploitation, reflecting the discovery of oil and gas resources that are ready to be produced.

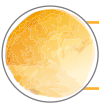
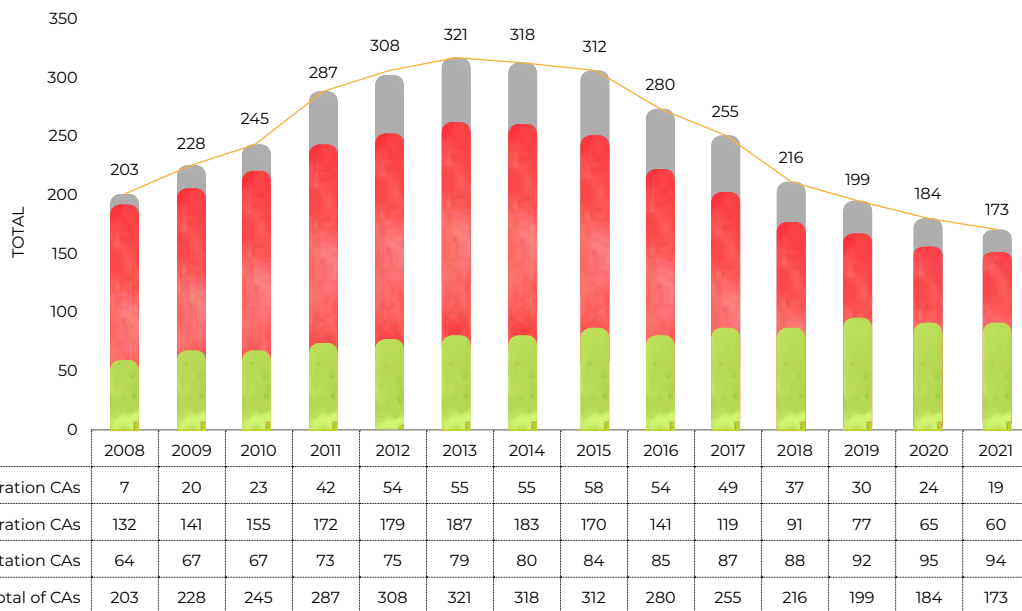


Chart 1.1 Oil and Gas Contract Areas (2008-2021)



CAs comprise two groups of CAs based on their phases: exploration CAs and exploitation CAs. The exploitation CAs are further divided into two groups based on their stages: Development CAs and Production CAs. As for the exploration CAs, the CAs comprise three categories: conventional CAs, Coal Methane Gas (CBM) CAs, and non-Conventional CAs.

Besides being categorized based on the phases, CAs are also grouped based on how they are managed or whether they use cost recovery contracts or gross split contracts. In a matrix table, the CAs categorization appears as follows:

Table 1.1 Classification of Contract Areas

	CONTRACT AREAS BASED ON PHASES AND CONTRACT TYPES			CONTRACT AREAS BASED ON PHASES AND FIELD TYPES			
	Exploration CAs	Exploitation CAs	Total	Exploration CAs	Exploitation CAs	Total	
PSC Cost Recovery	62	22	84	Conventional	65	94	159
PSC Gross Split	17	72	89	GMB	11	0	11
				MNK	3	0	3
Total	79	94	173	Total	79	94	173

A EXPLORATION CONTRACT AREAS

By the end of 2021, SKK Migas managed 79 exploration CAs, consisting of 65 conventional CAs and 14 non-conventional CAs. Of the 65 CAs, 45 are active exploration CAs, 18 are in the process of termination, and 2 CAs are waiting for Government's decision.

Each year, SKK Migas regularly assesses PSC Contractors that have entered the third year of exploration contracts. The assessment includes a minimum evaluation a basic or mandatory assessment and a hydrocarbon discovery evaluation or an advanced assessment.

Basic Category - Fulfillment of Firm Commitment, Financial, and Environmental Baseline Assessment (EBA) obligations

BLACK (<66%) not yet fulfilling, entirely or partially, their Firm Commitments, Financial Commitments, and or only conducted exploration activities in the form of G&G studies or have not done anything.

RED (66-82%) implementing a small part of their Firm Commitments.

PINK (82-99%) implementing most of their Firm Commitments.

BLUE (100%) implementing the entire Firm Commitments, Financial Commitments, and EBA.

Advanced Category - Hydrocarbon Discovery

GREEN reaching the Blue zone and having Technical Discovery.

GOLD reaching the Blue zone and having possible Economic Discovery.

Of the 79 Exploration CAs, 70 CAs have entered a 3-year working period, consisting of 54 Conventional Exploration CAs and 16 Non-conventional Exploration CAs. The following are the results of the assessment.



Chart 1.2 **Assessment of Conventional Exploration CAs**

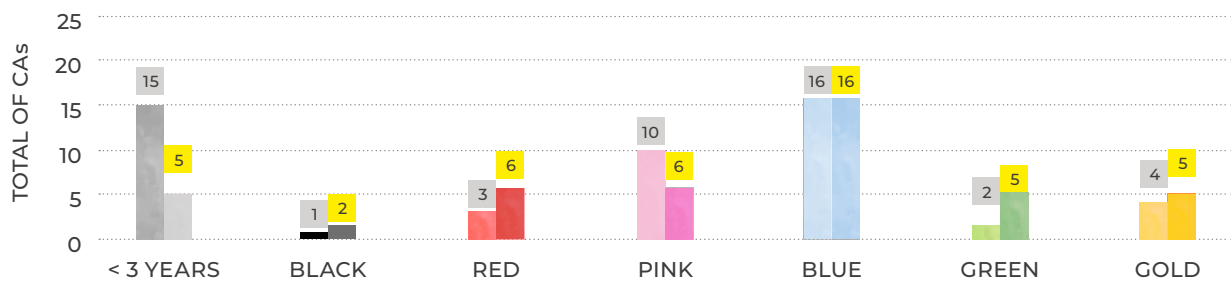
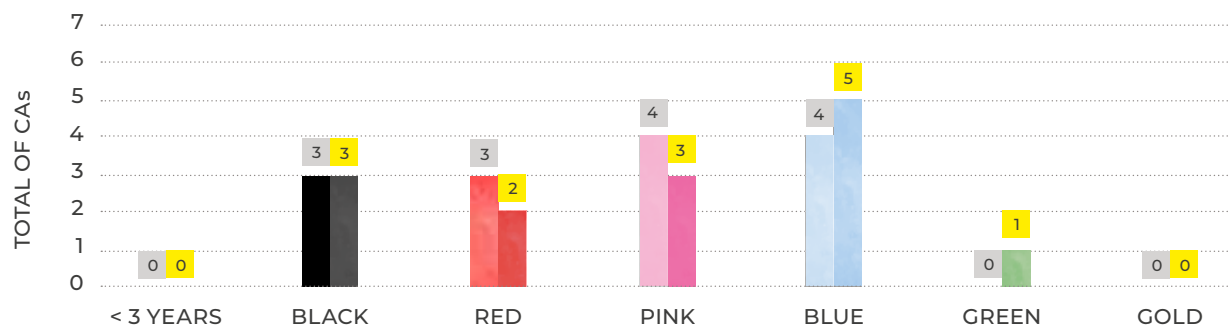


Chart 1.3 **Assessment of Non-Conventional Exploration CAs**



ASSESSMENT OF DECEMBER 2019

ASSESSMENT OF DECEMBER 2020

SKK Migas always makes efforts to boost exploration activities. One of them is by mitigating sleeping areas in exploitation CAs, providing support for non-conventional oil and gas business governance in Indonesia, as well as data room opening and exposure for potential investors.

In 2021, SKK Migas gave a presentation and opened a data room for potential investors from multinational companies, among others Zn Asia (Russia), EOG (United States), Cosmik (Kazakhstan), OMV (Austria), Marathon (United States), KNOC (South Korea), POSCO (South Korea), PTTEP (Thailand), Eni (Spain), Petrochina (China) and Mubadala (United Arab Emirates). The presentation includes technical data on potential oil and gas exploration, investment procedures, and oil and gas industry regulations in Indonesia.

SKK Migas also support the Government's efforts to encourage exploration activities for non-conventional oil and gas reserves by drafting the revision of the Energy and Mineral Resources Ministerial Regulation Number 5/2012 on Non-Conventional Oil and Gas Concession.

SKK Migas is mitigating potential from sleeping areas and evaluating some areas that have not been developed to be returned to the Government following the existing laws and regulations. The sleeping area mitigation began in 2020 and continued in 2021 for Muturi CA, Cepu CA, Corridor CA, and Indonesia CA (PT Pertamina EP). Several sleeping areas indicate potential, so based on the evaluation results, a strategy for exploration and development will be prepared to optimize the CAs.

B EXPLOITATION CONTRACT AREAS

As many as 94 exploitation CAs are still active by the end of 2021. Of them, 75 exploitation CAs are actively producing, and 19 exploitation CAs are in the development phase.

The Energy and Mineral Resources Minister approved 2 first Plans of Development (POD I) in 2021, as follows:

1. POD I for Pauman Field in South Betung Contract Area, approved by the Energy and Mineral Resources Minister through a letter Number: T-222/MG.04/MEM.M/2021 dated May 18, 2021; and
2. POD I for Tanjung Enim Field in Tanjung Enim GMB Contract Area, approved by the Energy and Mineral Resources Minister through a letter Number: T-291/MG.04/MEM.M/2021 dated June 17, 2021.

When the two combined with the entire PODs finalized in 2021, SKK Migas recorded 34 approvals for PODs/Puts on Production (POPs)/Field Development Optimization (OPL)/Fields Development Optimization (OPLs). In addition to the 2 PODs I mentioned above, there were also 9 PODs/POPs, 20 OPLs, and 3 data updates.

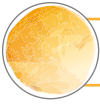
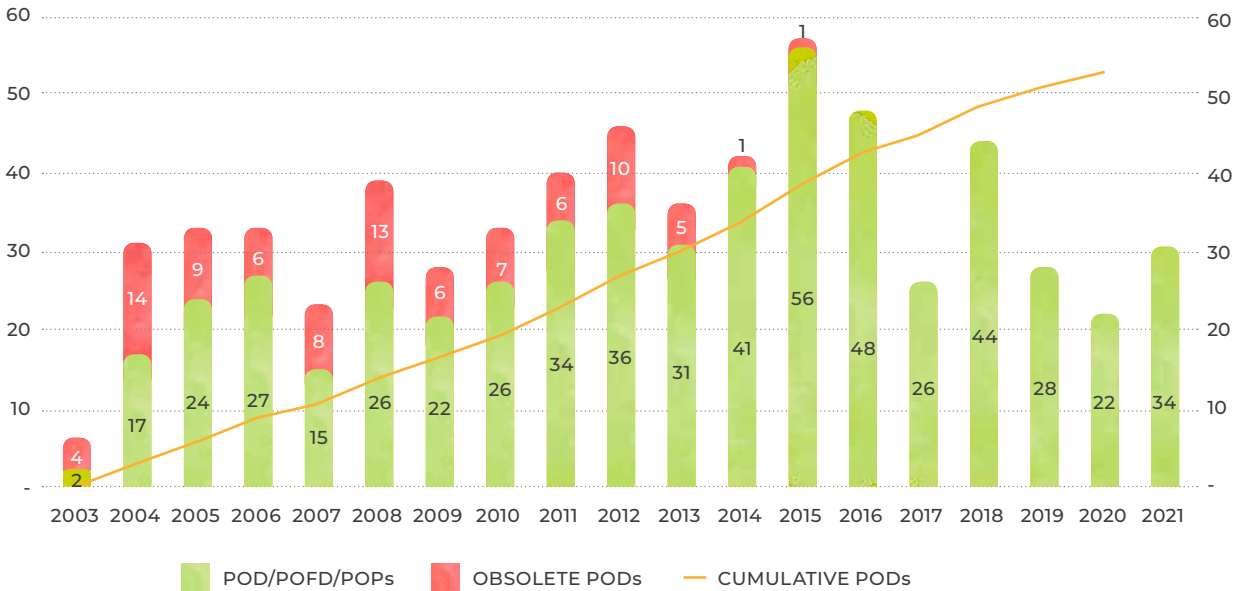


Chart 1.4 **PODs/POPs/OPLs/OPLLs and Data Update Approvals (2003-2021)**



From 2003 to 2021, SKK Migas approved 646 PODs/POPs/OPLs/OPLLs. Of this total approval, 100 PODs/POPs/OPLs/OPLLs are inactive because of some POD revisions and changing from POP to POD in others. Some PODs were confirmed cannot be executed due to some obstacles in the field, such as land overlapping.

Thus, by the end of 2021, the total of active PODs/POPs/OPLs/OPLLs was 546 PODs/POPs/OPLs/OPLLs, with an estimated cumulative total oil and gas production of 3,718.30 million barrels of oil (MMbbl) and 65,160.47 thousand cubic feet of gas (Bscf). Natural gas PODs are more dominant than petroleum PODs, with a ratio of 76% of natural gas and 24% of oil.

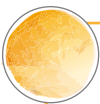


Chart 1.5 **Distribution by POD/POP/OPL/OPLL Type (2003-2021)**

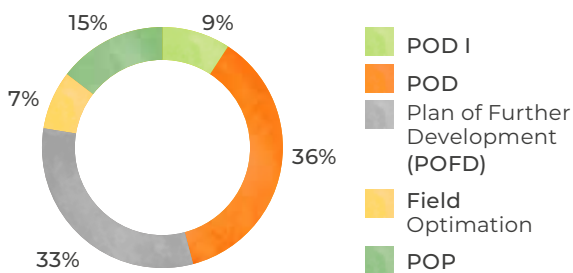


Chart 1.6 **Distribution by Oil and Gas Production Types (2003-2021)**

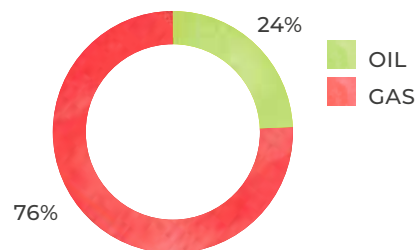




Chart 1.7 **Profile of Additional Oil and Condensate Production Based on POD Approval (2003-2021)**

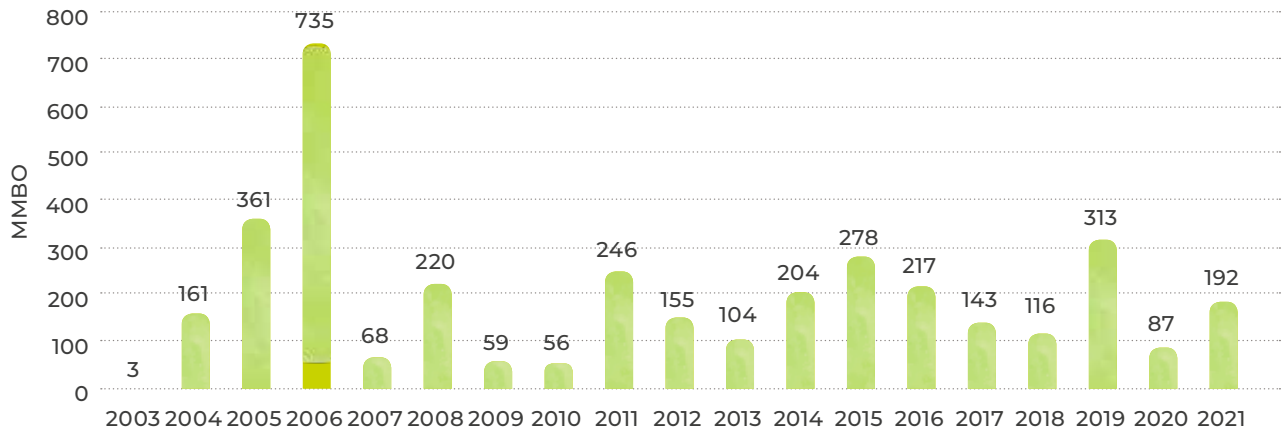
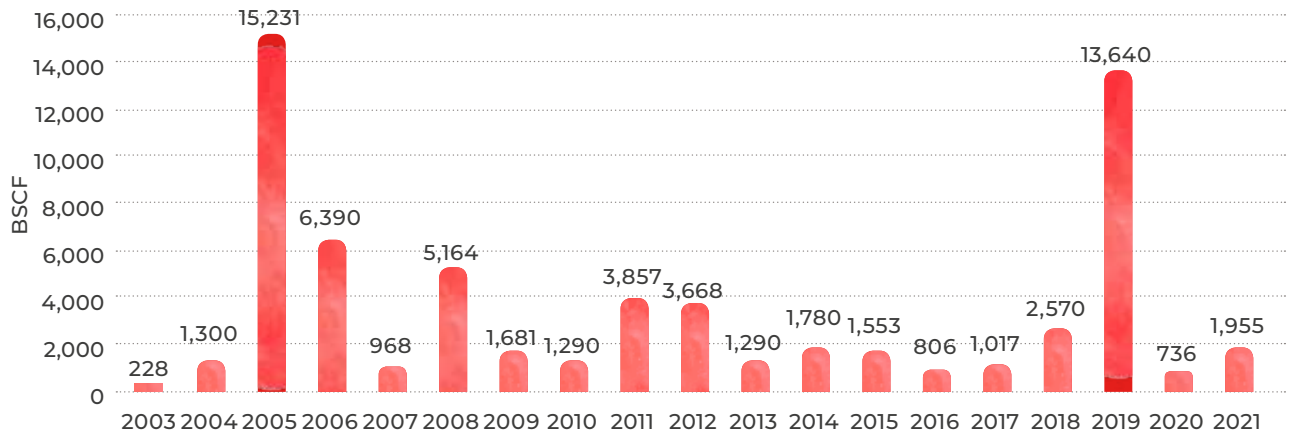


Chart 1.8 **Profile of Additional Gas Production Based on POD Approval (2003-2021)**



The POD approval brought consequences for increasing production, investment, and costs, including Abandonment and Site Restoration (ASR) investment. The following table shows them.

Table 1.2 Summary of PODs in 2021

CUMULATIVE PRODUCTION IN 2021



OIL
87.07 MMBO

GAS
735.75 BSCF

Note: to meet the economic limit

COSTS (US\$ MILLION)

INVESTMENT
1,896.73

OPERATION
2,012.65

ASR
596.89

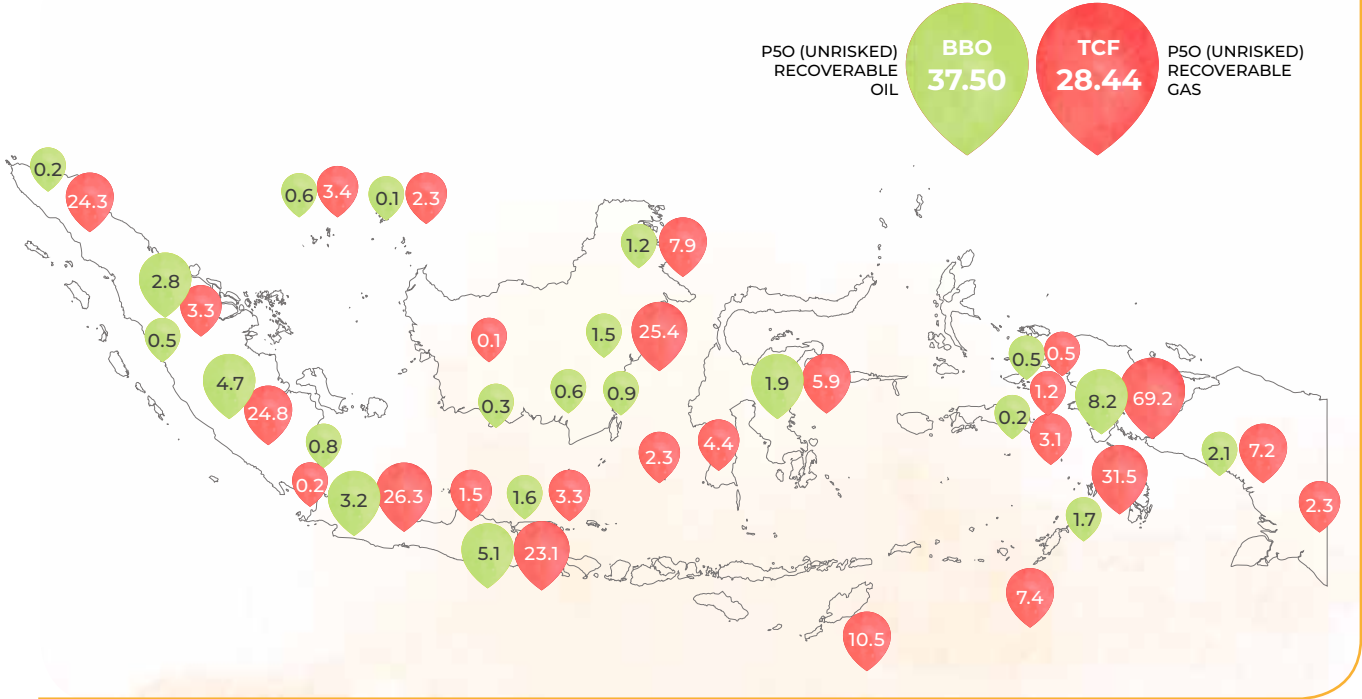


B. OIL AND GAS RESOURCES AND RESERVES

Based on the Energy and Mineral Resources Ministry evaluation, Indonesia still has significant oil and gas resources. The current proven reserves reach 2.36 million barrels of oil (Bbo) for oil and 42.93 trillion cubic feet (Tcf) for gas.

Geological and geophysical studies confirm that Indonesia still has considerable potential. Indonesia is estimated to hold petroleum resources (P50) of 37.6 Bbo and natural gas of 285.3 Tcf. These figures do not include resources from Contract Areas under the supervision of Aceh Oil and Gas Management Agency (BPMA).

Figure 1.1 **Map of Distribution of Oil & Gas Resources in Indonesia**



Upgrading the status from resources to proven resources requires a massive exploration program, starting with the fulfillment of the oil equivalent program or the Reserves Replacement Ratio (RRR).

All oil and gas production must be replaced immediately, at least in an equivalent amount. It is expected that the RRR will remain higher than 100% in the coming years to support the achievement of the targets of 1 million barrels of oil per day (bopd) and 12 thousand cubic feet of gas per day (MMscfd) in 2030.

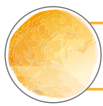
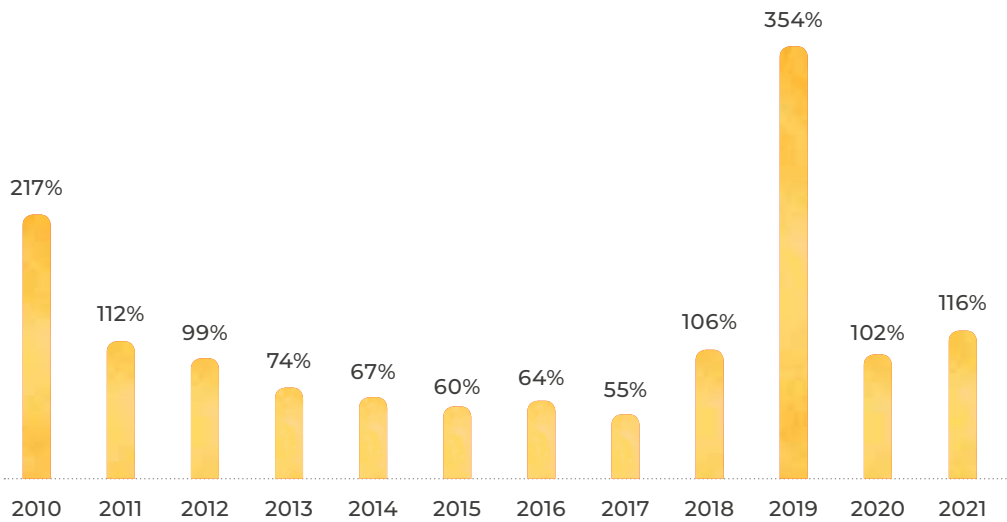


Chart 1.9 **Data of RRR Achievements in 2010-2021**



In 2021, SKK Migas achieved an RRR of 116% resulting from 2 PODs I, 9 PODs/POPs, 20 OPLs, and 3 data updates; All of them contributed additional new reserves of 696 million barrels of oil equivalent (MMBo).

Table 1.3 List of PODs/POPs/OPLs/OPLs

NO	PSC CONTRACTOR	CONTRACT AREA	TYPE	FIELD
1	Pertamina EP	Pertamina EP	POD	POD Suko Barat
2	Pertamina EP	Pertamina EP	OPL	OPL Bambu Besar
3	Sele Raya Merangin Dua	Merangin Dua	POD	POD Belato
4	EMP Malacca Strait	Malacca Strait	OPL	OPL Melibur
5	PHM	Mahakam	OPLL	OPL 2B (4 Fields)
6	Pertamina EP	Pertamina EP	OPL	OPL Bentayan
7	PT CPI	Rokan	OPLL	OPLL Rokan Phase 2 (2 Fields)
8	Medco EP Natuna	Natuna Sea Block B	Reserve Update	Melong Belida Reserve Update
9	Pertamina EP	Pertamina EP	OPLL	OPLL Asasia Bagus - Gantar (2 Fields)
10	Medco EP Natuna	Natuna Sea Block B	POD	POD Forel Bronang
11	Techwin	South Betung	POD I	POD I Pauman
12	PHM	Mahakam	POD	POD Handil WF
13	PHE Siak	Siak	POP	OPL Kumis-02
14	Dart Energy	GMB Tanjung Enim	POD I	POD I Tanjung Enim
15	HCML	Madura Strait	POD	POD MBF
16	Genting Oil	Kasuri	Reserve Update	AKM Reserve Update
17	Pertamina EP	Pertamina EP	OPL	OPL Mangunjaya
18	BP	Berau, Muturi dan Wiriagar	POD	POD Ubadari and Vorwata EGR
19	Pertamina EP	Pertamina EP	POD	POD Gajah Besar
20	EMP Malacca Strait	Malacca Strait	OPL	OPL Ringggit
21	PHR Rokan	Rokan	OPL	OPL Duri Area 01-13 Phase-1
22	EMCL	Cepu	OPL	OPL Banyu Urip
23	Surat Edaran SKK Migas		Circular Letter Implementation	Implementation of SKK Migas Circular Letter
24	Pertamina EP	Pertamina EP	OPL	OPL Pasir Jadinaik
25	EMP Gebang	Gebang	POD	POD Central Secanggang
26	Medco Natuna	Natuna Sea Block B	OPL	OPL Bronang
27	PHM	Mahakam	OPLL	OPLL Mahakan OPLL 2C (7 Fields)
28	PHR Rokan	Rokan	OPL	OPL Duri Area 01-13 Phase-2
29	Petrochina Jabung	Jabung	OPL	OPL Panen
30	PHR Rokan	Rokan	OPLL	OPLL SLO Phase 1 (5 fields)
31	PHE ONWJ	ONWJ	OPL	OPL ONWJ (B-11)
32	Pertamina EP	Pertamina EP	OPL	OPL Ketaling Timur
33	Pertamina EP	Pertamina EP	OPLL	OPLL Limau
34	Pertamina EP	Pertamina EP	OPL	OPL Pantai Pakam Timur

C. HEALTH, SAFETY, AND ENVIRONMENT (HSE)

SKK Migas puts Health, Safety, and Environment (HSE) as one of the essential procedures. HSE monitoring and evaluation, including its assessments, are periodically carried out by SKK Migas.

PSC Contractors must go through the following two HSE performance compliance assessments:

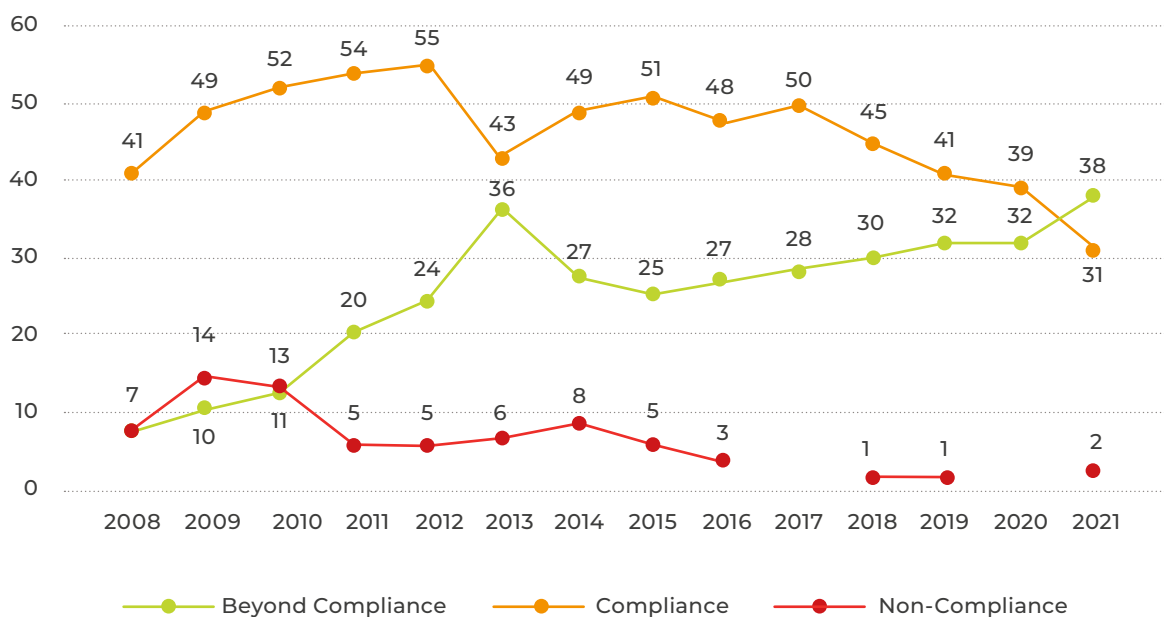
- Environmental Performance Rating Program (Proper) based on the target and rehabilitation of watershed.
- The second HSE activities assessment carried out by the Minister of Environment and Forestry (LHK).

In 2021, the target was that 90% of PSC Contractors would receive the Compliance criteria (blue), and 40% of PSC Contractors would receive the Beyond Compliance criteria (green and gold).

Based on an assessment by the end of 2021, the number of PSC Contractors receiving the Compliance criteria (blue) was 97.1%, or 31 PSC Contractors, while the number of PSC Contractors receiving the Beyond Compliance criteria (green and Gold) was 55.1% or 38 PSC Contractors.

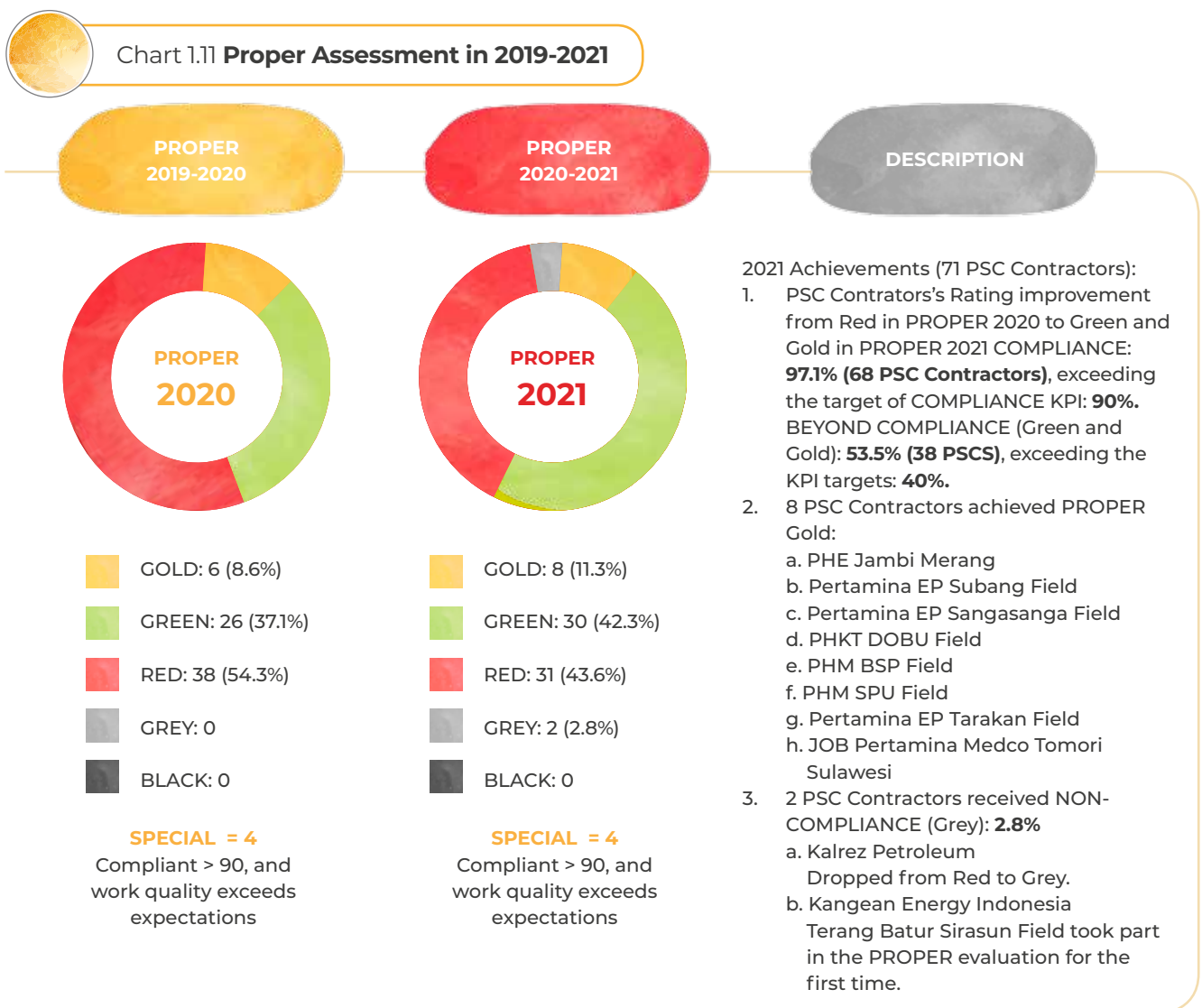


Chart 1.10 **Assessment of Proper in 2021**



When compared between the 2019-2020 Proper period and the 2020-2021 Period, there appears to be an additional 1 participant. Participants in 2019-2020 were 70 PSC Contractors, while for the 2020-2021 period, there were 71 PSC Contractors.

There was an improvement in the ranking in 2021 compared to 2020. Gold Proper recipient increased by 2 PSC Contractors, from 6 to 8 PSC Contractors. Likewise, the recipient of the Green Proper also increased by 4 PSC Contractors, from 26 PSC Contractors to 30 PSC Contractors. Meanwhile, PSC Contractors with Blue predicate decreased because some have moved to Green Proper, and one dropped to Red Proper rank. Another contractor receiving the Red Proper was Kangean Energy for Terang Sirasun Batur Field.



As for the watershed rehabilitation program--an obligation for forest area usage stipulated under the Forest Area Utilization Permit/Forest Area Use and Land Rehabilitation Approval, SKK Migas was deemed to achieve the 100 % of the target determined based on watershed rehabilitation phases by successfully planting 1.2 million trees in 1,838-hectare area.

Table 1.4 Watershed Rehabilitation Activities in 2021

No	PSC Contractors	2021		2022
		Area (Ha)	Tree Total	Tree Total
1	BOB PT BSP	420	349,140	
2	PHM	760	262,658	
3	Pertamina EP	250	245,000	
4	BOB PT BSP	193	173,580	
5	PHM	71	78,100	
6	Petrogas Basin	110	62,227	
7	PCJL	34	52,360	
TOTAL		1,838	1,223,065	1,650,000

2021
CO₂ Absorption*
11.4 Thousand Tons
per year



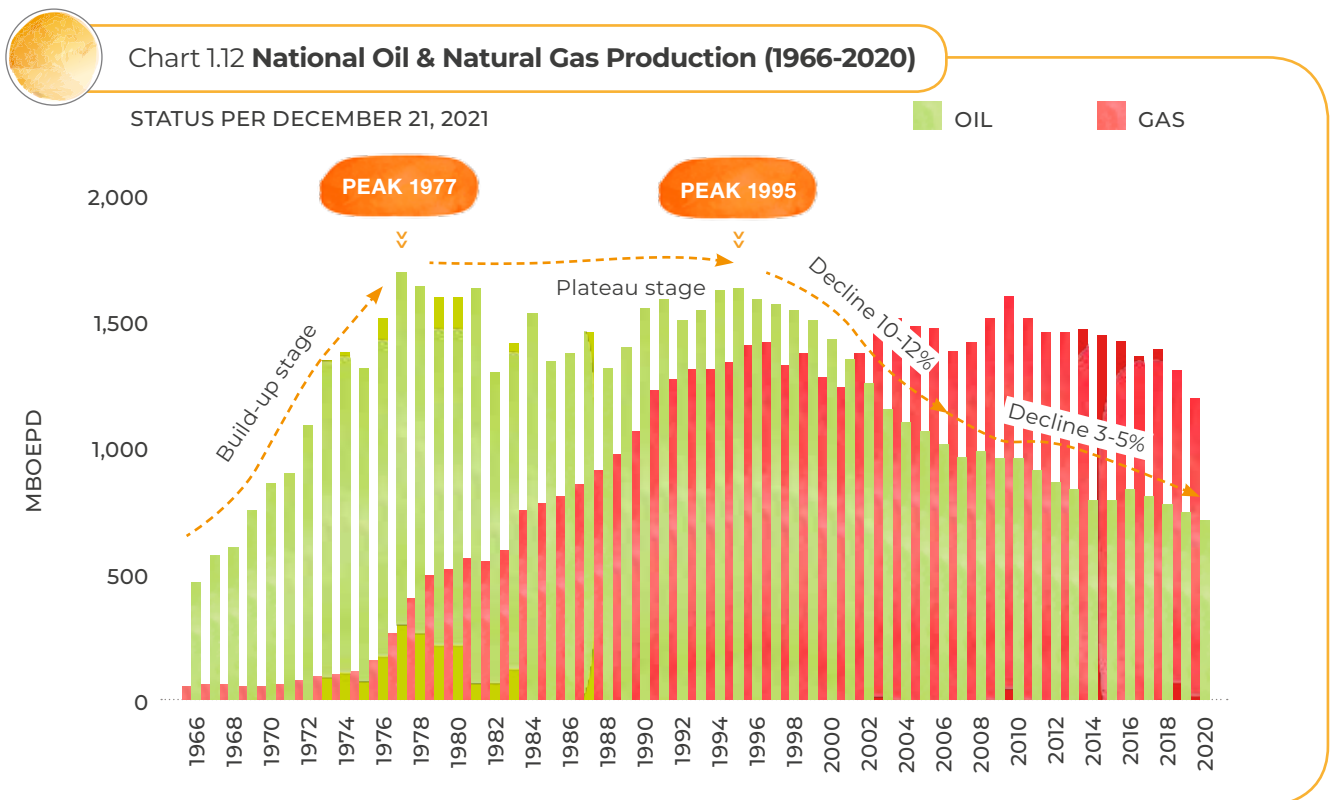
Besides monitoring the tree planting coverage area to support the low-carbon program, SKK Migas also includes a series of different programs aiming to reduce carbon emissions in the upstream oil and gas contract areas into SKK Migas's strategic plan (Renstra). In 2021, SKK Migas included activities initiated to reduce carbon emissions in the strategic plan to monitor the implementation closely.

To ensure the implementation of work safety, in 2021, SKK Migas has set an assessment target 10% higher than in the previous years, lowering the maximum incident rate in production PSC Contractors from 1 to 0.9. The achievement of the work safety performance is quite encouraging because it obtained an index of 0.18. This achievement is the lowest in the last ten years.

D. ACTIVITIES AND PERFORMANCE OF PRODUCTION AND LIFTING

Since 2002, natural gas production has been more dominant than oil production. From year to year, oil production has experienced a sharper decline compared to natural gas.

After the peak of oil production in 1995, Indonesia's oil production experienced a relatively high decline rate, ranging between 10 to 12%. This trend occurred until 2005. From 2006 to 2016, the decline became flattered at 5%. As for the next period until 2021, the declining rate can be held at between 3 to 7%.



Crucial activities determining oil and gas production rate are development-well drilling, workover, and well service. Efforts to increase these main activities require breakthroughs. SKK Migas encourages the use of new technology with a No-Cure-No-Pay business scheme.

In addition, SKK Migas continues the previous initiatives by developing the Filling the Gap (FTG) program. The FTG program includes managing decline in existing fields, additional work plans outside the work program and budget (WP&B), and optimization of artificial lift programs, including implementing production enhancement technology and debottlenecking programs.

1 OIL AND GAS PRODUCTION ACTIVITIES

Based on operational figures, the national oil and condensate production reached 658.5 thousand bopd in 2021, a decrease of 49.9 thousand bopd from the production achievement in 2020 of 708.3 thousand bopd. Meanwhile, the national gas production reached 6,662 MMscfd, or lower by 3 MMscfd than the production in 2020 of 6,665 MMscfd. In total, Indonesia's oil and gas production in 2021 was 1,848 thousand bopd, slightly lower by 50 thousand bopd, compared to 2020, which reached a production level of 1,898 thousand bopd.

Chart 1.13 Oil Production Rate in the Last 10 Years

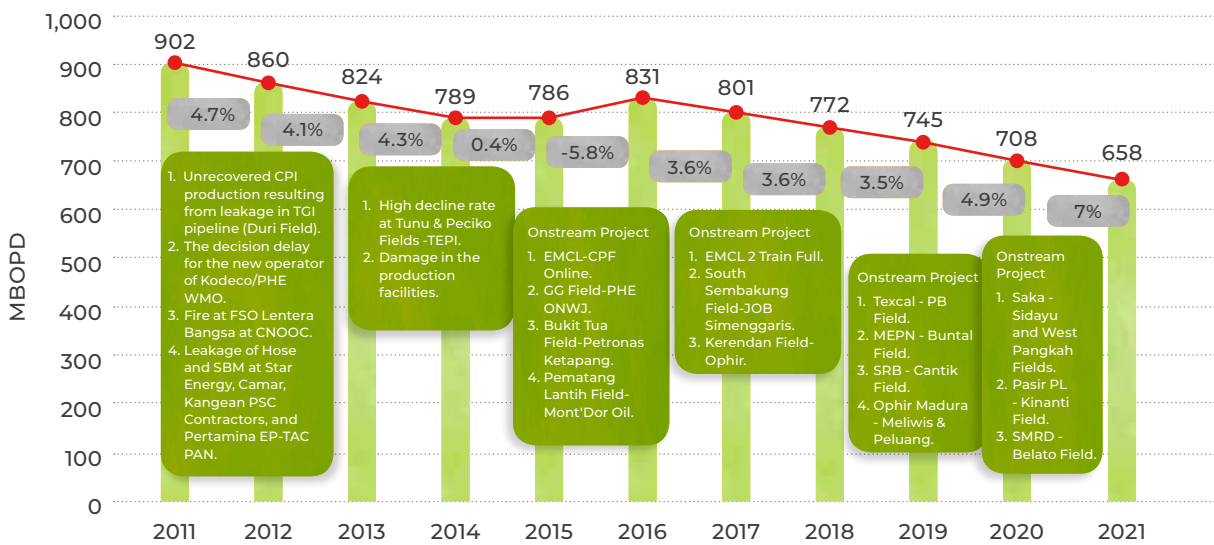
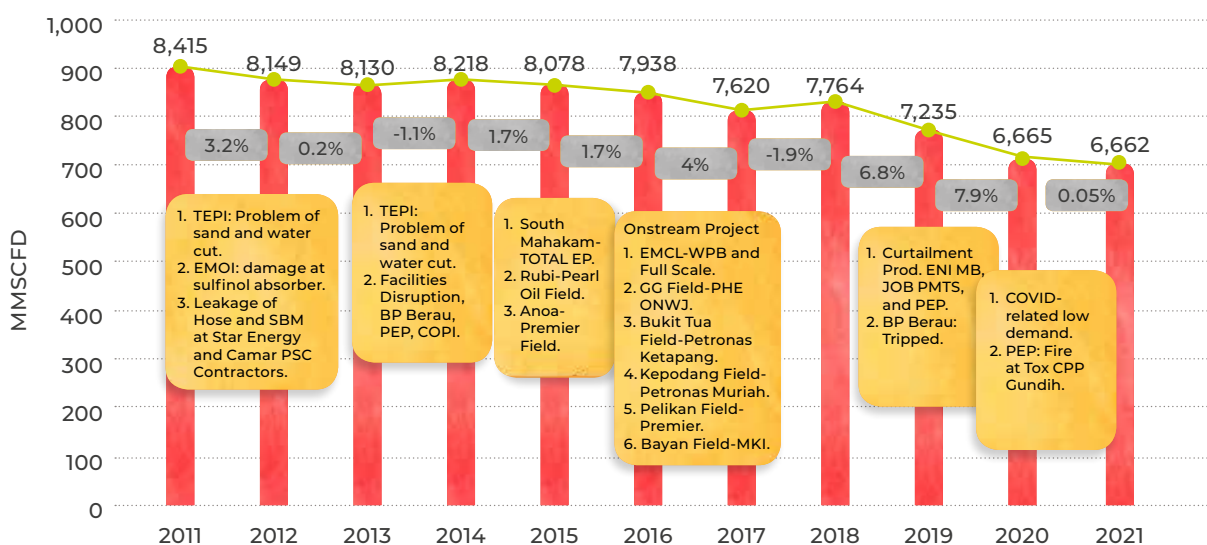




Chart 1.14 **Natural Gas Production Rate in the Last 10 Years**



As many as 15 oil and gas projects were onstream to support the production in 2021. Six of them are Belato Field (PT Seleraya Merangin Dua), Kinanti Field (Pasir Petroleum Resources Ltd.), Sidayu and West Pangkah Fields (Saka Indonesia Pangkah Ltd.) KLD Field (PHE ONWJ), Hari Field, and Geger Kalong (Jindi South Jambi B Co.Ltd.); the last two are the reactivation fields.

On the other hand, 805 production disruptions (including those caused by consumer and external factors) occurred in 2021, which caused losses in opportunities to produce 9,099 bopd of oil and 234 MMscfd of gas.

Despite operational constraints affecting the achievement of production in 2021, maximum efforts were still made to lift all existing production results and even exceed them. Through stock draining efforts, the realization of operational oil and condensate lifting figures for January to December 2021 was at 241 million barrels (MMbbls), equivalent to 660.3 thousand bopd, which managed to exceed the production achievement for that year. During this period, the national oil stock was successfully suppressed to 2.72 million Bbls, the lowest final oil stock ever reached. Through optimum, effective, and efficient operational supervision of lifting activities, it is expected that these will provide maximum state revenue for the greatest prosperity of the people.

Oil and condensate lifting is carried out through a seller's appointment by SKK Migas under the Election-Not-To-Take-In-Kind (ENTIK) commercialization scheme and the Election-In-Kind commercialization schemes. The scheme selection is based on financial and operational aspects, including maintaining production continuity, considering state revenues and national security, and operating cost efficiency. In one contract area, two different commercialization schemes can be applied, considering that one contract area can produce more than one type of crude oil or condensate with its characteristics or specifications.

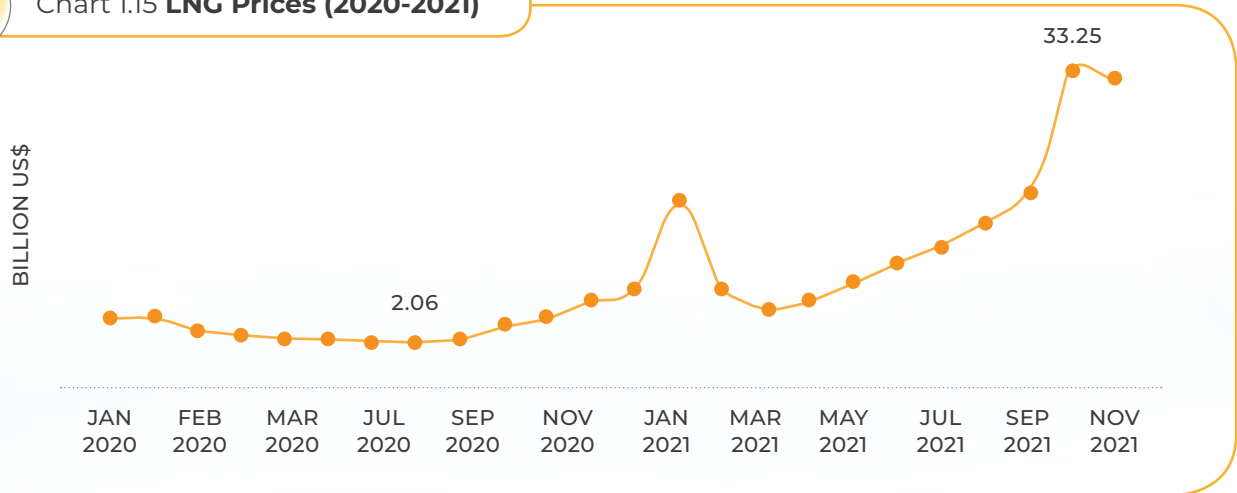
- a. The ENTIK scheme is a commercialization scheme whose sales operations are carried out by contractors. All the oil and gas produced, both the Government's and the contractor's share, is stored in the area of the Oil and Gas Contract Areas. With the approval of SKK Migas, the contractor will sell oil and gas, which consist of the collective oil. This method is often also called joint lifting. The arrangement of rights and obligations between SKK Migas and PSC Contractors is stated in the ENTIK Procedure. As many as 45 Contract Areas producing crude oil and/or condensate in 2021 adopted the ENTIK commercialization scheme.
- b. Election In Kind scheme is a sales procedure carried out individually by each party. SKK Migas decides to take the state's shares in kind and sell them by itself. Likewise, the contractors will take their shares and sell them by themselves. This procedure is also often called individual lift. Crude oil and/or condensate produced by 27 Contract Areas in 2021 were commercialized under the Election in Kind commercialization scheme.

Meanwhile, the realization of natural gas lifting from January to December 2021 was 5,734.43 billion standard cubic feet per day (Bbtud). Since 2003, gas supply for domestic demand has continued to show an increasing trend. In 2021, gas utilization for domestic needs reached 64% of the total supply of gas, on average reaching 3,687 Bbtud, above the export volume value of 2,046 Bbtud. This fact is a manifestation of SKK Migas and the Government's commitment to prioritizing natural gas allocation for the domestic market while still optimizing the state revenue.

The global LNG market was very volatile in 2020 and 2021. Spot LNG prices in Asia (Japan Korea Marker/JKM) touched US\$2.06 per million British thermal unit (MMbtu) in July 2020, then jumped to US\$33.25 per MMBtu in November 2021.



Chart 1.15 **LNG Prices (2020-2021)**



Indonesia felt the impact of high spot LNG prices in 2021. SKK Migas, in collaboration with Pertamina acting as Mahakam LNG Seller, succeeded in optimizing state revenue from the sale of 4 Uncommitted Cargos (UCs) from the Bontang LNG Plant in October and November 2021 with an average LNG price of US\$27.32 per MMBtu, generating state revenue of US\$346.9 million.



E. LICENSING AND ONE-DOOR-SERVICE POLICY (ODSP)

Production and operational activities in the field are strongly influenced by permit processing and completion speed. For this purpose, the ODSP was established, developed, and continuously improved.

The ODSP team, which has been working since 2020, has four main tasks and functions as follows:

- Consultation, PSC Contractors coordinate with SKK Migas in terms of the type and number of permits required for their activities;
- Facilitation, the ODSP provides assistance and advocacy on licensing regulations;
- Permit Management Services, the ODSP serves the administration of application letters and recommendations needed by PSC Contractors for permits from ministries and institutions; and
- Operational Management, the ODSP monitors and supervises all permits referring to activities approved in the WP&B to be carried out by the PSC Contractors.

The ODSP team coordinates with PSC Contractors on the permits for operational field activities approved in the WP&B. The ODSP team assists PSC Contractors in every licensing phase and ensures they have obtained licenses before the activities begin. If an application letter for licensing processing is required, including a recommendation from SKK Migas, the system allows it to be completed in no more than 3 working days. From the previous 3.4 working days in 2020, permits were completed in just 1.55 working days in 2021.

In 2021, with the enactment of the Omnibus Law and followed by the issuance of Government Regulation Number 05 of 2021 on Implementation of Risk-Based Business Licensing, nine permits were active and further grouped into two:

- (i) Basic Requirements for Business Activities Licensing; and
- (ii) Main Activity Permits.

Basic Requirements for Business Activities Licensing consisted of 3 permits:

- Conformity of Space Utilization Activities (land/sea)*
- Environmental Approval (including Technical Approval)*
- Building and Operation Certificates

Main Activities consist of 6 permits:

- Forest Area Utilization Permits
- Explosives Permit**
- Offshore Facility Development Permit
- Private Marine Terminal Permit/TUKS

- Recommendation of Foreign Flag Vessel Operational Acceptance
- Tug and Pilotage Facilities and Infrastructure Permit

* Currently, points 1 and 2 of the Basic Requirements for Licensing Business Activities are listed as parts of the very influential licensing for upstream oil and gas business activities readiness.

** Explosives Permit is currently being carried out in coordination with the SKK Migas Representative Offices.

The following is the achievement in Licensing Completion for Upstream Oil and Gas Business Activities in 2021

Table 1.15 Completion of Licensing for Upstream Oil and Gas Business Activities in 2021

MINISTRY	NAME OF PERMIT/ APPROVAL	SERVICE COMPLETED	DESCRIPTION	ODSP SERVICES
	Conformity of Sea-Areas Utilization Activities/ Determination of Location	7	A Prerequisite for Environmental Permits from the Environment and Forestry	
	Environmental Permits (Environmental Impact Analysis(Amdal)/ Environmental Management Scheme (UKL)/and Environmental Monitoring Scheme (UPL)	15	For 184 producing wells and 3 exploration wells, and FTG Activities (Survey)	<ol style="list-style-type: none"> 1. Konsultasi Jenis dan Jumlah Perizinan 2. Pengurusan Dokumen 3. Fasilitas, Pendampingan dan Advokasi Perizinan 4. Manajemen Operasional Seluruh Perizinan SKK Migas
	Environmental Technical Approval	11	For 39 Offshore Wells Permit	
	Forest Area Utilization	17	17 Producing and Exploration Wells	
	Conformity for Spatial Utilization Activities (OSS)	7	A Prerequisite for Environmental Permit Application at the Environment and Forestry Ministry	
	Approval for Foreign Flag Vessel Operation	31	Supporting Drilling and Construction Projects	Notes: Permit documents on behalf of SKK Migas are completed within 1.55 working days.
	Pilotage Facilities and Infrastructure Permit	25	Private Terminal Operational Activities	
	Underwater Pipeline Deployment Permit	6	Offshore Construction Activities	
	Private Terminal Permit	7	Adjustment of permits to OSS	

F. OPTIMIZATION IN ASSET UTILIZATION

To support the efficiency of cost recovery and maintain the continuity of upstream oil and gas operations and consider project acceleration throughout 2021, SKK Migas optimized asset utilization among PSC Contractors through transfer mechanism, lending, and facility sharing agreement (FSA). These efforts as a whole contributed to the saving of costs of about ± US\$52 million.

Through asset transfer and lending, PSC Contractors can save in cost avoidance for purchasing any new material and expedite lead time for the required materials. Thus, the benefits to upstream oil and gas operations are confirmed.

Transfer and lending mechanisms are possible for the following assets: capital assets (equipment, production facilities, and capital goods), material supplies (drilling, maintenance, repairment, and operation materials), inventory objects (i.e., office equipment), and ex-used materials that still have benefits. The diagram below lists details of transferred asset types. Apart from these measures, production can be carried out earlier through the Facility Sharing Agreement (the FSA) because other PSC Contractors can utilize the excess capacity in a PSC Contractor. Hence, there is no need for new investment in the construction of production facilities and supporting facilities.

Table 1.6 **Transfer, Lending, and Facility Sharing Agreement**

Transfer, Lending, and Facility Sharing Agreement (in USD)	
Transfer of Capital Assets	434,839.93
Transfer of Inventory Assets	-
Transfer of Ex-Used Inventory Materials	4,358,790.20
Transfer of New Inventory Materials	25,044,868.49
Lending	3,236,139.87
Utilization of Shared Assets among PSC Contractors	19,400,000.00
Total Savings	52,474,638.49

SKK Migas also contributed to Non-Tax State Revenue (PNBP) in 2021 by utilizing upstream oil and gas State Property (BMN) for other parties outside the upstream oil and gas industry. The assets were the gas measuring system used for gas distribution to PT Fajar Surya Wisesa Tbk by PT Perusahaan Gas Negara (PGN) at PT Pertamina EP; the metering system and pipe tapping used by PT Energi Prima ElektriKA and PT Multidaya Prima Elektrindo at PT Pertamina; and pipeline by PT Nusantara Regas at PT PHE ONWJ. The total PNBP from these measures reached Rp12,071,773,000.

Additionally, SKK Migas also played an active role in completing permits from the Ministry of Energy and Mineral Resources to utilize Pertamina Hulu East Kalimantan's former assets to be used as office buildings and official residences of SKK Migas Representative Offices of Kalimantan-Sulawesi Region. This effort resulted in SKK Migas's operational saving of ± Rp4.2 billion per year or equivalent to US\$300 thousand per year.

G. UPSTREAM OIL AND GAS BUSINESS INVESTMENT

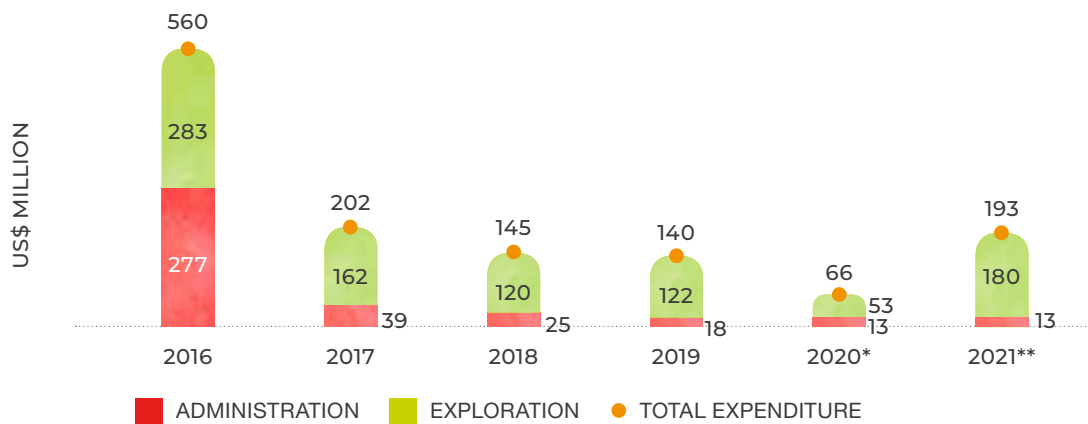
In 2021, investment in the upstream oil and gas sector reached US\$10.9 billion, an increase of 4% compared to 2020. The more manageable Covid-19 pandemic and rising oil prices affected the investment realization in 2021.

The industry allocated the 2021 investment to finance exploration activities of US\$0.7 billion (6%), development well activities of US\$1.5 billion (13%), production activities of US\$8.1 billion (74%), and administration of US\$0.7 billion (7%). This composition shows that most of the investment spending in the upstream oil and gas sector was for production and development activities, which reached US\$9.6 billion or 87% of the total investment in upstream oil and gas business activities in 2021.

1 INVESTMENT IN EXPLORATION CAs

Based on data for the last few years, from 2006 to 2020, investment in Exploration CAs experienced a downward trend and only increased in 2021. The cumulative value of the investment in Exploration CAs in 2021 reached US\$193 million, or an increase of US\$66 million, compared to 2020, which only reached US\$127 million. One of the reasons is the massive exploration activities in Tuna and West Galal CAs.

Chart 1.16 Investment in Exploration CA in 2021



NOTES:

*) Data based on PSC Contractors' Joint Financial Report – Revision of 2020

**) Data based on Preliminary Quarter IV FQR recapitulation of 2021 and FMR 2021 per February 10, 2022

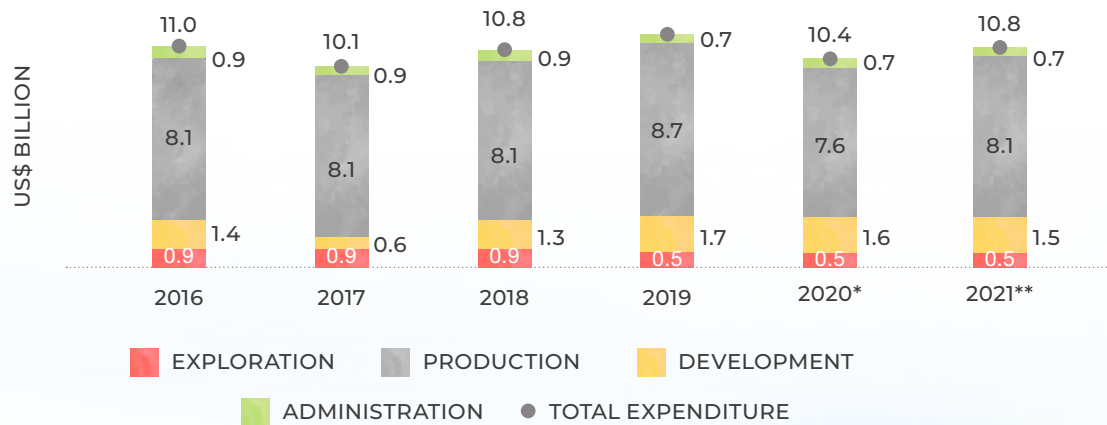
2

INVESTMENT IN EXPLOITATION CAs

To maintain the sustainable production and portfolio of oil and gas reserves in Indonesia, investment in field development and asset maintenance is crucial. The industry demonstrated enthusiasm to keep the production through the 2021 investment value, which increased by 3% from 2020.



Chart 1.17 Investment in Exploitation CAs in 2021



NOTES:

*) Data based on PSC Contractors' Joint Financial Report – Revision of 2020

**) Data based on Preliminary Quarter IV FQR recapitulation of 2021 and FMR 2021 per February 10, 2022



H. EFFICIENCY IN COST RECOVERABLE

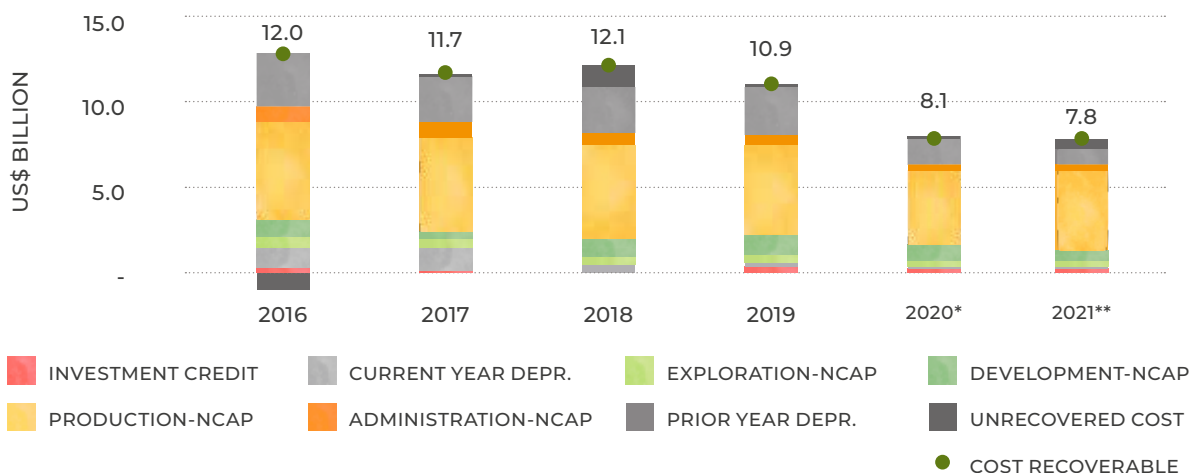
SKK Migas controls operating costs and evaluates them to reach the most effective and efficient level, considering the optimal contribution to achieving production, lifting, and state revenues.

In 2021, the realization of investment to support projects and operational activities reached US\$10.9 billion. Meanwhile, operating costs calculated as a form of recovery or cost recoverable amounted to US\$7.79 billion.

Investment budgeting and spending set priority to support production activities. Priority was given to workover, well-service activities, and maintenance of production facilities. Development drilling activities and the addition of production facilities were conducted more selectively and efficiently, considering the project's economics; the industry even postponed some development drilling activities to the next fiscal period.

Throughout 2021, the industry carried out various saving measures to maintain the sustainability of upstream oil and gas operations in facing the challenges of low world oil prices, especially at the beginning of the year. These savings measures included a joint procurement strategy, optimizing asset sharing--especially for PSC Contractors with adjacent operating areas--negotiating prices with goods and/or service providers, and re-evaluating projects whose economies were affected by oil prices.

Graph 1.18 Efficiency in Cost Recoverable in 2021



NOTES:

*) Data based on PSC Contractors' Joint Financial Report – Revision of 2020

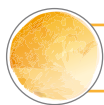
***) Data based on Preliminary Quarter IV FQR recapitulation of 2021 and FMR 2021 per February 10, 2022

I. GAS REVENUE DISTRIBUTION

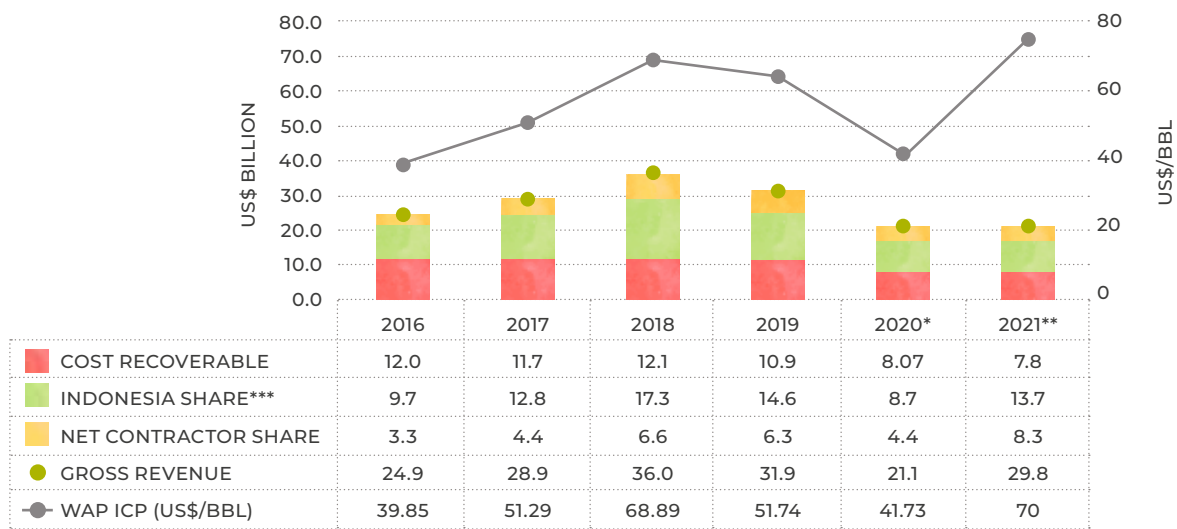
State revenues from the upstream oil and gas sector from January 1 to December 31, 2021, reached US\$13.7 billion. Of this amount, as much as US\$8.9 billion was from oil sales and US\$4.8 billion from natural gas sales.

The revenue in 2021 exceeded the target, achieving 188% of the revenue target of US\$7.28 billion as set in the 2021 Revised State Budget (APBN-P). The revenue achievement resulted, among others, from increasing oil prices and success in cost recovery control.

The weighted average oil price reached US\$70 per barrel in 2021, or higher than the 2020 price, which was only US\$43 per barrel. As for the cost recovery, SKK Migas managed to control it at US\$7.79 billion, or lower than the initial plan in the State Budget (APBN), which was US\$8.07 billion.



Graph 1.19 Revenue Distribution in 2021



NOTES:

*) Data based on PSC Contractors' Joint Financial Report – Revision of 2020

**) Data based on Preliminary Quarter IV FQR recapitulation of 2021 and FMR 2021 per February 10, 2022

In 2021, the Government issued various regulations followed by adjustments for Government's split as stipulated in some following regulations:

- Presidential Regulation Number 121 of 2020 on Amendment to Presidential Regulation Number 40 of 2016 on Natural Gas Pricing,
- Regulation of the Minister of Energy and Mineral Resources Number 8 of 2020 on Procedure for Determining Certain Natural Gas Users and Prices in Industry,
- Regulation of the Minister of Energy and Mineral Resources Number 10 of 2020 on Amendment to the Regulation of the Minister of Energy and Mineral Resources Number 45 of 2017 on Utilization of Natural Gas for Power Plants, and
- Decree of the Minister of Energy and Mineral Resources Number 118.K/MG.04/MEM.M/2021 dated June 30, 2021, on Certain Natural Gas Prices in Power Plants (Plant Gate) as amended with the Decree of the Minister of Energy and Mineral Resources Number 135.K/HK.02/MEM.M/2021 dated August 2, 2021, revoking the Decree of the Minister of Energy and Mineral Resources Number 91K/12/MEM/2020 dated April 22, 2020, on Utilization of Natural Gas for Power Plants, and the Decree of the Minister Energy and Mineral Resources Number 134.K/HK.02/ MEM.M/2021 dated July 30, 2021, on Users and Certain Natural Gas Prices in Industry revoking the Decree of the Minister of Energy and Mineral Resources Number 89K/10/MEM/2020 dated April 13, 2020, on Users and Certain Natural Gas Prices in Industry, which in principle regulates the natural gas pricing for power plants and particular industries.



CHAPTER

02

EFFORTS TO INCREASE PRODUCTION AND RESERVES





- A. Main Upstream Oil and Gas Activities
- B. Exploration Firm Commitments and Firm Working Commitments
- C. Planned & Unplanned Shutdown
- D. Stimulus and Fiscal Incentives for The Upstream Oil and Gas Industry

A. MAIN UPSTREAM OIL AND GAS ACTIVITIES

Exploration and exploitation are the main activities in the upstream oil and gas business. The exploration aims to find new and increase the existing reserves that will later boost production. The exploration can be carried out both in exploration Contract Areas (CAs) and exploitation CAs. Meanwhile, exploitation is upstream oil and gas activities related to efforts to increase production through the optimization of wells, and maintenance of production facilities, including the construction or addition of new facilities. These activities are expected to substitute every extracted oil barrel with at least one new barrel.

1 EXPLORATION AND EXPLOITATION ACTIVITIES

SKK Migas and Cooperation Contract Contractors (PSC Contractors) tried their best to carry out all activities in 2021 as planned in the previous year. Although the effects of the Covid-19 Pandemic were still being felt and posed a severe challenge to field operations, the activities at the head offices and in the field continued with various strategies. SKK Migas's management emphasized that the upstream oil and gas industry should adapt to the pandemic, and the PSC Contractors must ensure the operations keep running.

Table 2.1 Realization of 2D, 3D Seismic and Tensor Gravity Surveys in 2021



The seismic surveys planned in 2021 were 4,569 km for the 2D Seismic Survey and 1,549 km² for the 3D Seismic Survey. The actual realization reached 2,635 km or 58% for the 2D Seismic Survey and 1,190 km² or 77% for the 3D Seismic Survey. As many as 19 seismic surveys, which consist of 1,422 km of 2D Seismic Survey and 674 km² of 3D Seismic Survey, cannot be executed in 2021.

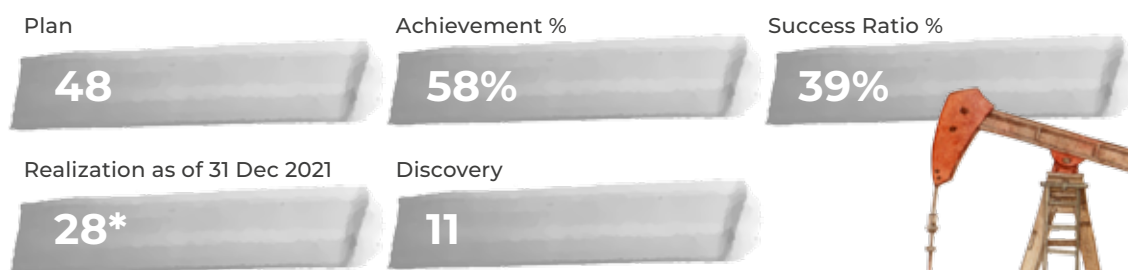
Some constraints came from the PSC Contractor's internal issues, including the financial aspect, as the Covid-19 pandemic has affected the business climate and investor decisions. Several PSC Contractors sent letters informing that they had to postpone survey activities to 2022 and 2023.

Besides 2D and 3D seismic survey activities, the Full Tensor Gravity (FTG) Survey, an aircraft survey technology, was conducted in 2021. The FTG surveyed the Kepala Burung and Akimeugah areas, with a total survey realization of 101,918 km².

The gravity data collection completed in 2021 still requires topographic data (Lidar Survey) to calibrate the gravity data. The lidar survey uses aircraft, similar to the processes and activities for obtaining gravity data.

In 2021, the plan for exploration drilling was 48 wells, consisting of 45 conventional wells and three non-conventional wells. However, the actual realization in 2021 was only 28 wells. Of the exploration wells drilled in 2021, 11 showed results with the presence of hydrocarbons. Therefore, it can be concluded that the exploration success ratio in 2021 reached 39%.

Table 2.2 Realization of Exploration Drillings in 2021



Meanwhile, of the 616 development wells targeted in 2021, the realization reached 480 wells or 78% of the plan. In general, the development well activities faced challenges from land acquisition. Until now land acquisition is still a scourge for upstream oil and gas activities due to timing uncertainty, which sometimes takes longer than expected. The project delays impact the cost increase, so some fields or well development need incentives from the Government to maintain the field's economic scale.

Another problem is associated with the termination of contract areas. Some field development works are in the CAs approaching the termination period. Therefore, the PSC Contractors delay and become reluctant to incur the costs because the well development does not benefit them.

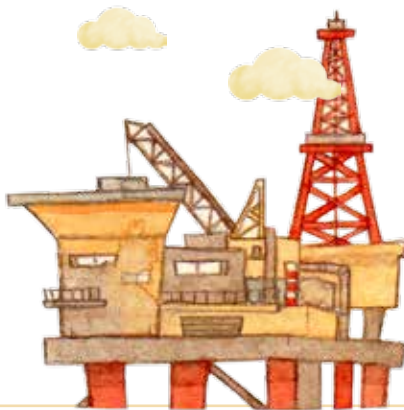
Table 2.3 Realization of Development Drilling Activities in 2021



Dua kegiatan lain yang mendukung peningkatan produksi adalah kegiatan *workover* dan *well services*. Secara berturut-turut, direncanakan tahun 2021 sebanyak 615 sumur *workover* dan sebanyak 26.431 kegiatan *well services*, masing-masing diselesaikan 566 sumur atau terselesaikan 92% dan 22.790 kegiatan *well services* rampung atau mencapai 86% dari target.

Tabel 2.4 Realisasi Kegiatan *Workover* dan *Well Services* Tahun 2021

WORKOVER



WELL SERVICES



Chart 2.1 Monthly Realization of Workover Activities in 2021

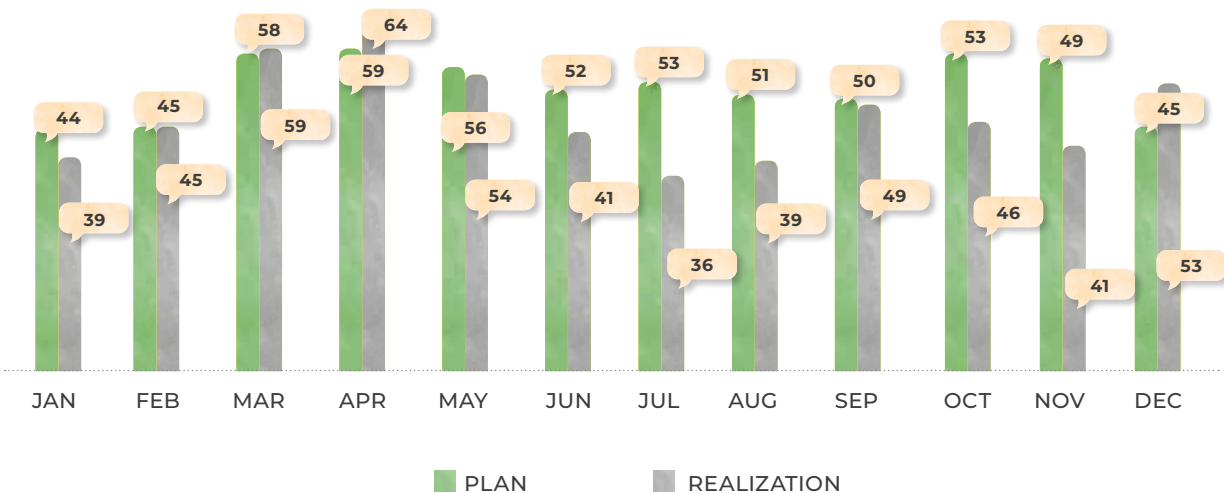
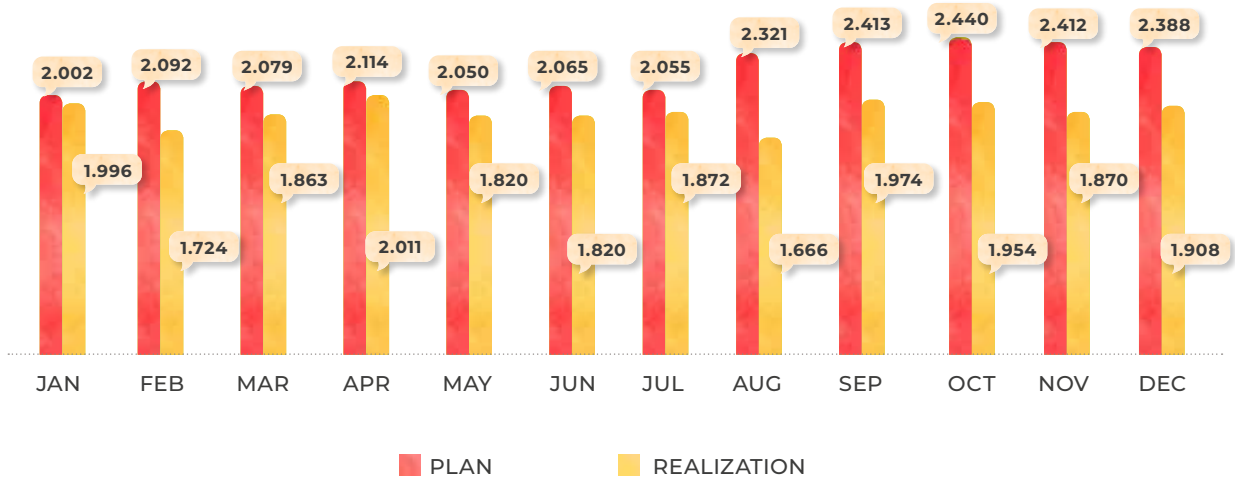




Chart 2.2 **Monthly Realization of Well Services in 2021**



The workover activities increased at the beginning of 2021 and then decreased quite drastically until the end of the year. Internal issues, especially those related to finance, were still a dominant issue or problems faced by the PSC Contractors in realizing workover activities and well services.

Several PSC Contractors were also waiting for approval of incentives which will affect the amount of work to be carried out. Workover wells and well service activities are operational activities carried out by producing PSC Contractors, so many will rank prioritized activities that can provide higher gains in production. Some of them delayed several workover activities to focus on well service activities that are estimated to provide higher production gain.

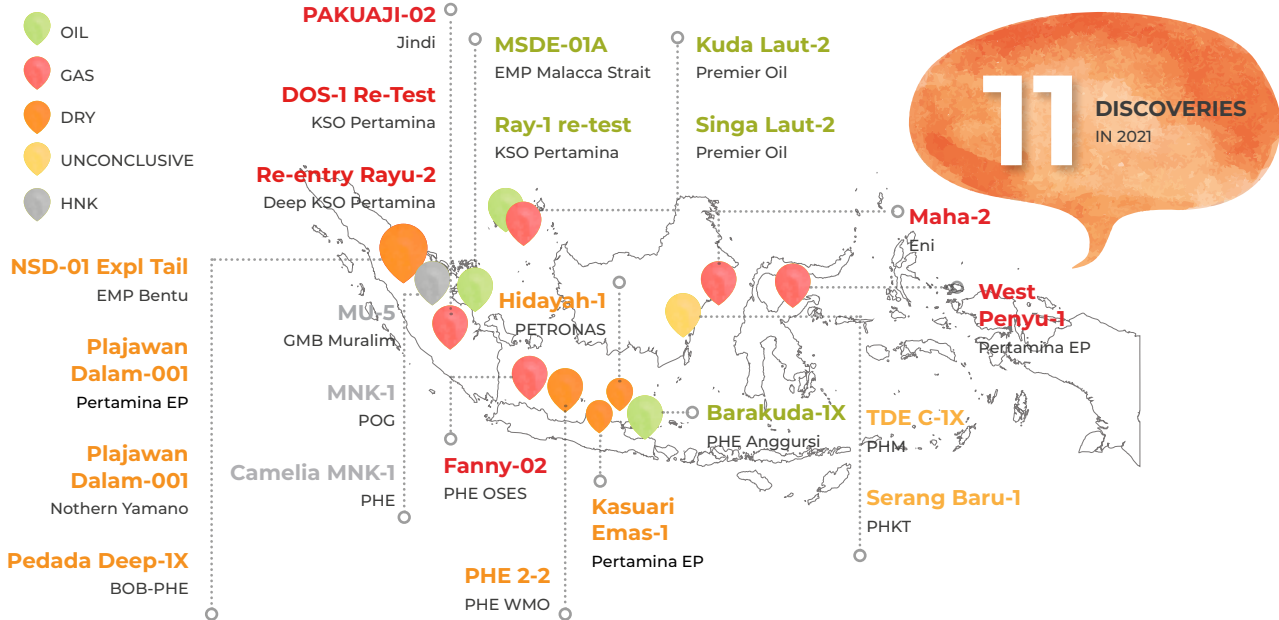


DISCOVERIES OF OIL AND GAS RESERVES

From the drilling of 20 exploration wells in 2021, 11 exploration wells confirmed discoveries with additional resources of approximately 224 million barrels of oil equivalent (MMboe). The following is a map of the distribution of exploration discoveries in Indonesia in 2021:



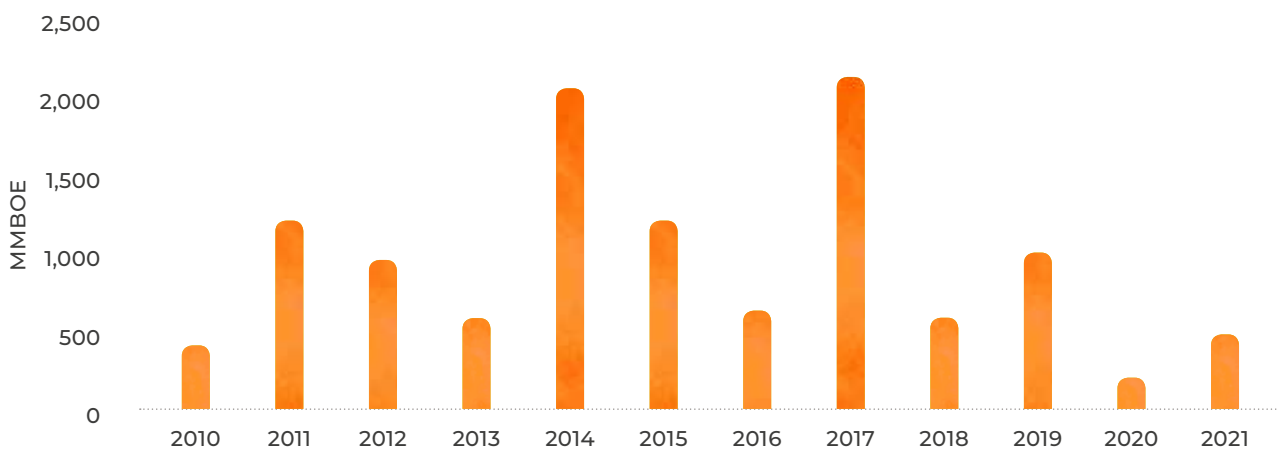
Figure 2.1 Indonesia's Discoveries of Oil & Gas in 2021



From these data, the percentage of geological success ratio is 39%. Compared to 2020, the success rate of exploration discoveries is lower, but in total, the discovered resources have a higher value than the discoveries in 2020.



Chart 2.3 Resource Discoveries in 2010-2021



In 2021, 19 structures completed the Exploration Status Determination (PSE) evaluation and will further undergo an assessment to achieve the Plan of Development Status (POD). The total resource submitted for further evaluation amounted to 490 MMboe (recoverable resources). The following are PSEs submitted in the last ten years.

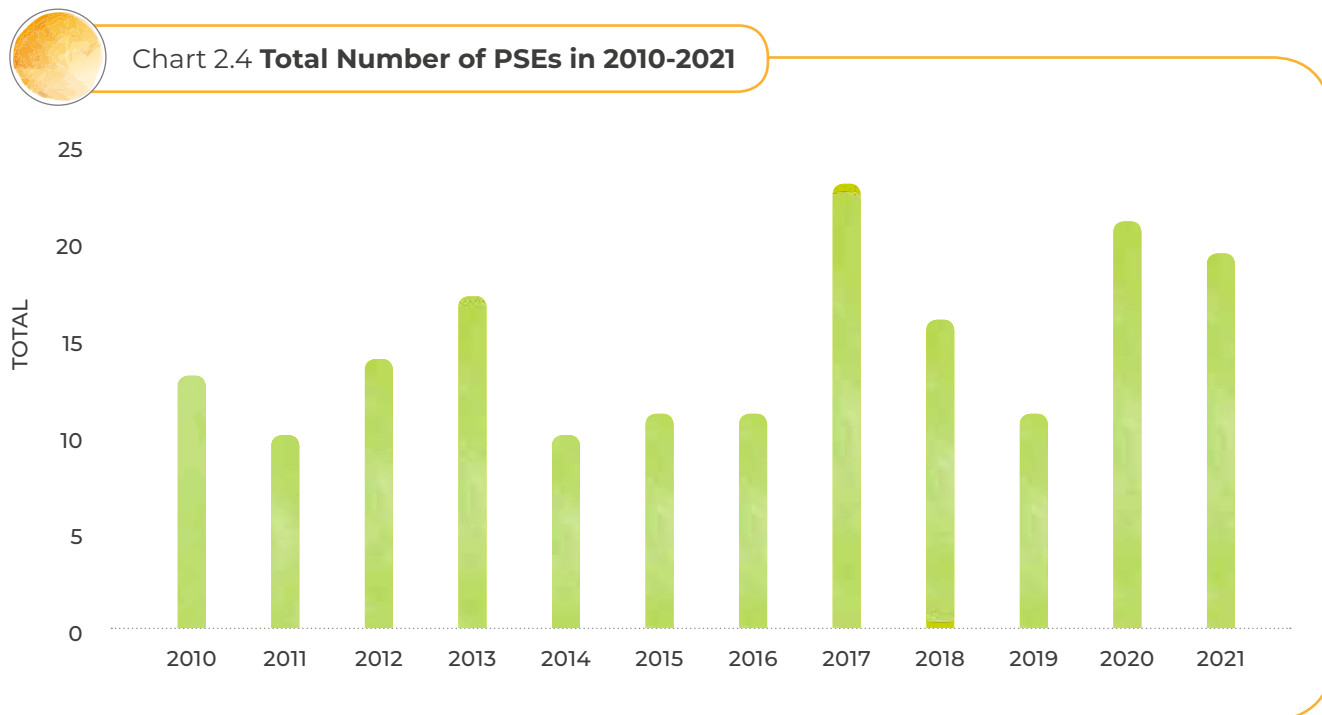


Table 2.5 List of PSEs in 2021

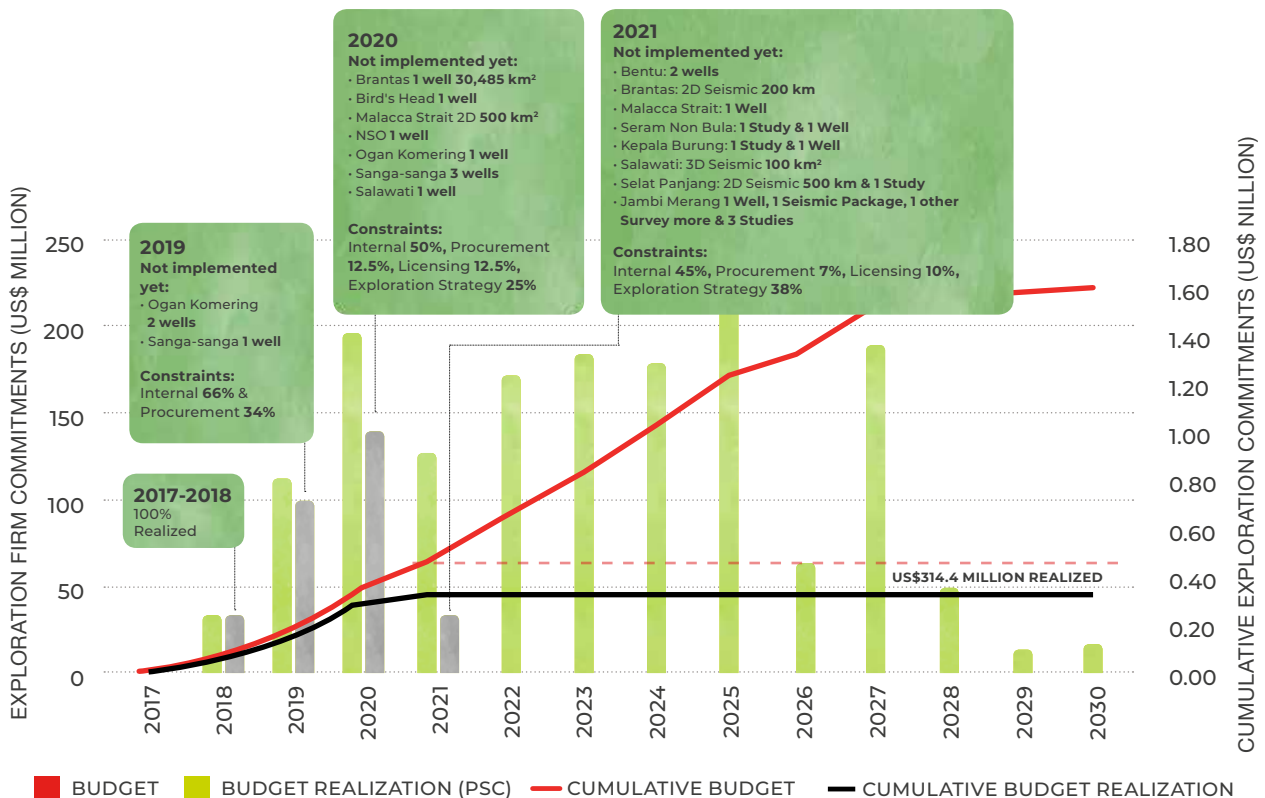
NO	PSC CONTRACTOR	CONTRACT AREA	PSE	MONTH OF DELIVERY	RESOURCES		
					MMBO	BCFG	MMBOE
1.	PT Pertamina EP	Pertamina EP	Akasia Besar	26 Mar 2021		149	26
2.	PT Pertamina EP	Pertamina EP	Gambarsari	11 Nov 2021	5	53	14
3.	PT Pertamina EP	Pertamina EP	Pinus Harum	11 Nov 2021		9	1
4.	PetroChina Internasional Jabung Limited	Jabung	Tiung	30 Apr 2021	4		4
5.	PetroChina Internasional Jabung Limited	Jabung	West Betara - South Betara (WB-SB)	30 Apr 2021	3		3
6.	EMP Gebang	Gebang	Secanggang Central	18 Feb 2021	18	293	68
7.	Medco E&P Natuna Ltd	South Natuna Sea Blok B	Terubuk	24 Feb 2021		14	2
8.	Medco E&P Natuna Ltd	South Natuna Sea Blok B	West Belut	6 Mar 2021		99	17
9.	EMP Malacca Strait SA	Malacca Strait	TQ	25 Mar 2021		229	39
10.	TIS PETROLEUM EP Blora Pte. Ltd	Blora	Rembang Blok-1	16 Apr 2021	87		87
11.	PT Medco energy Natuna Timur	North Sokang	Dara Timur Bagian Timur	16 Apr 2021	4	2	4
12.	PC North Madura II	North Madura II	Hidayah	4 Jun 2021	10	7	11
13.	PHE ONWJ	ONWJ	OU-OV-OY-OQ	4 Jun 2021	4		4
14.	PHE ONWJ	ONWJ	UD	7 Jun 2021	10	177	40
15.	EMP Malacca Strait SA	Malacca Strait	MSDE	28 Jun 2021		121	21
16.	PHE Nunukan Co	Nunukan	Parang	4 Aug 2021		533	92
17.	PT. Medco E&P Natuna	South Natuna Sea Blok B	Kaci	4 Nov 2021	3		3
18.	Eni West Ganai	West Ganai	Maha	10 Nov 2021		13	2
19.	Tately N. V.	Palmerah	Budi Deep	16 Dec 2021		301	52

B. B. EXPLORATION FIRM COMMITMENTS AND FIRM WORKING COMMITMENTS

As many as 27 oil and gas Contract Areas (CAs) have had Exploration Firm Commitments and Firm Working Commitments in 2017 to invest US\$477.5 million until 2030. Until now, the realization has reached US\$314.4 million.

Chart 2.5 Exploration Firm Commitments and Firm Working Commitments

From 2017 to 2021, 27* CAs set a target to invest **US\$477.5 Million** for Exploration Firm Commitments and Firm Working Commitments



Annual data based on Year of Commitment

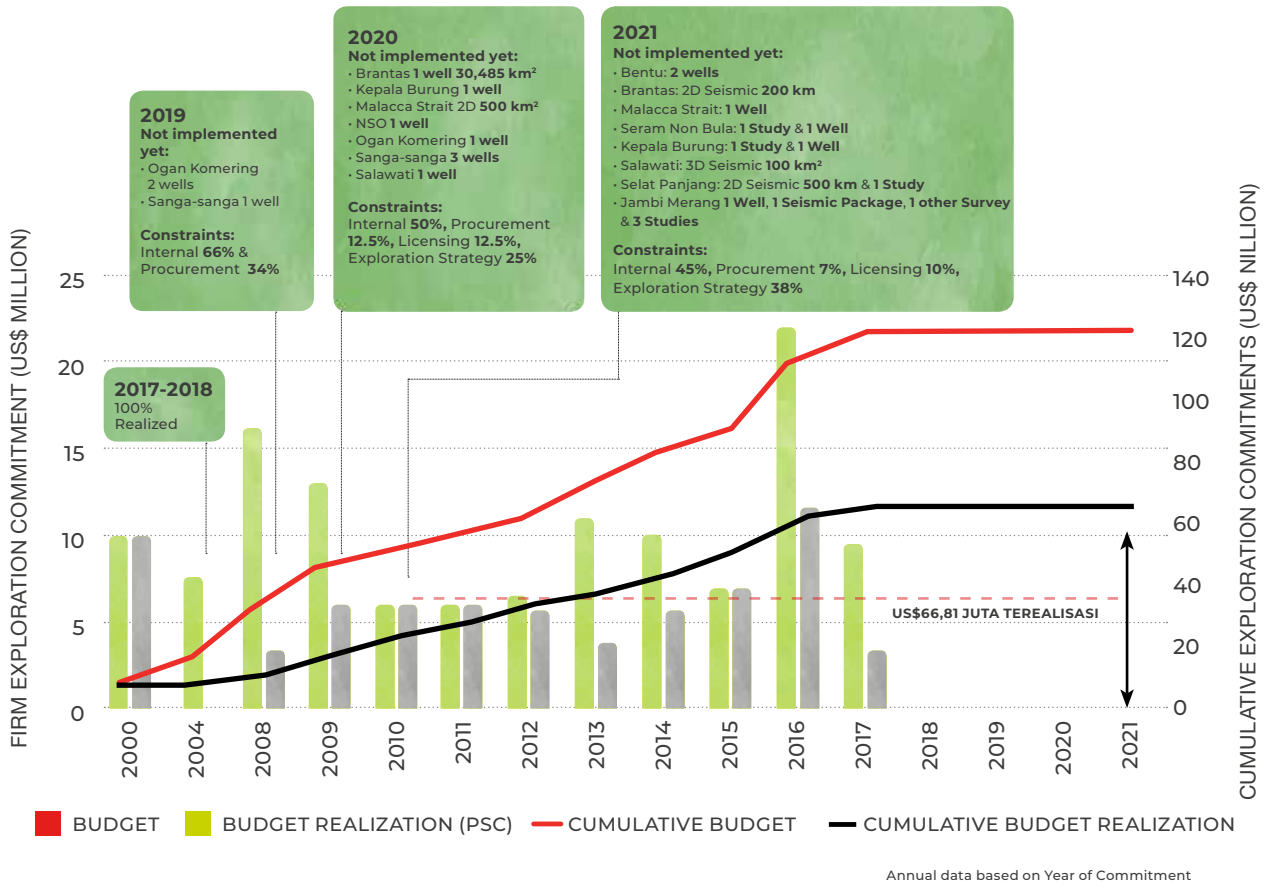
Notes:

There is an additional 1 CA (Jabung CA)

In 2021, the remaining outstanding Exploration Firm Commitment that has yet to be implemented was US\$29.09 million. Meanwhile, the remaining Exploration Firm Commitment constituting the Exploration Firm Commitment from the CAs extension was US\$27.85 million.



Chart 2.6 Firm Exploration Commitment Outside the 27 CAs



C. PLANNED - UNPLANNED SHUTDOWN

Maintenance of production facilities generally requires a temporary shutdown. Hence, facility maintenance will lead to the loss of production opportunities (LPOs). However, facility maintenance is essential to maintain the reliability of the facilities.

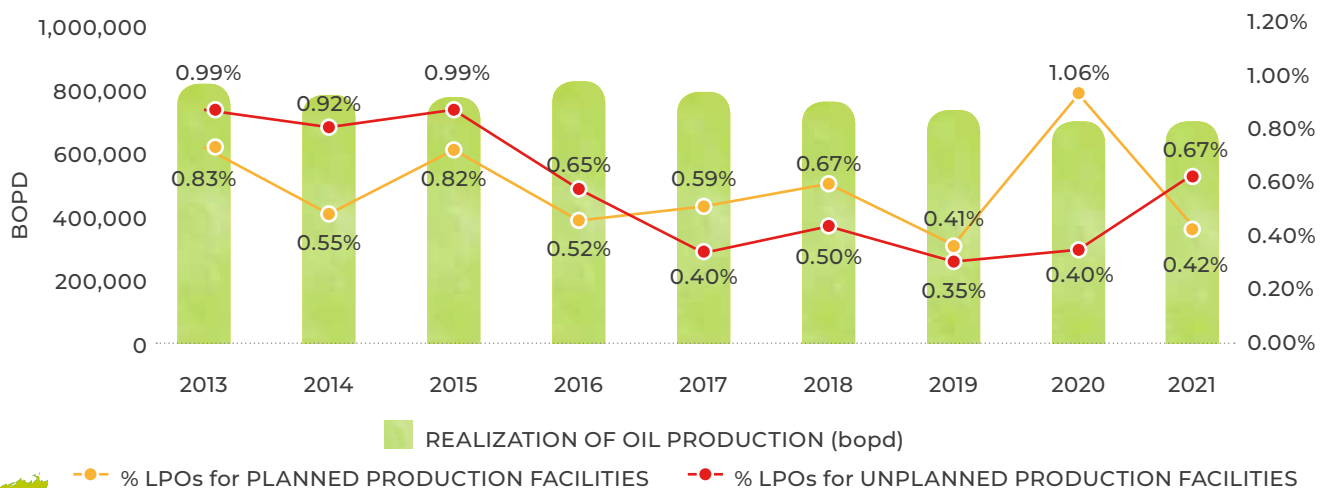
Therefore, maintenance must be planned so that the production facility shutdown is also planned. Thus, LPOs are planned, calculated, and anticipated.

However, in field operation activities, unexpected conditions often occur. Production equipment and facilities can suddenly have a breakdown and require maintenance. The cause can vary, ranging from damage to facility failure, theft of equipment components, and damage to the power cords.

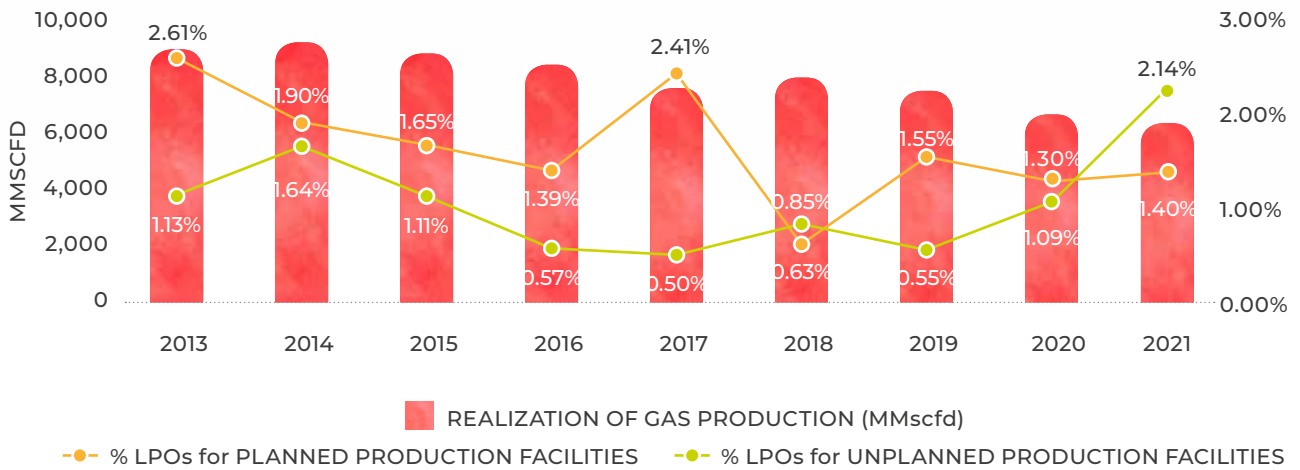
In 2021, there was an increase in the ratio of LPOs from unplanned downtime to oil and gas production. Although the percentage of oil LPOs stood below 1%, which is only 0.67%, for gas, it increased by 2.14%.

Unplanned maintenance was becoming more difficult because conducting maintenance during the Covid-19 Pandemic is particularly challenging. Some affected aspects included personal limitations in the field, quarantine requirements before entering the site, procedures to prevent the spread of Covid-19, restrictions on the equipment and materials mobilization for maintenance operations, and vendor supports in the field. All of these factors caused response time and made production disruption handling longer, especially when it occurred at offshore facilities that require large marine spreads and resources.

Graph 2.7 **Percentage of LPOs for Planned & Unplanned Production Facilities To Oil Production**



Graph 2.8 **Percentage of LPOs for Planned & Unplanned Production Facilities To Natural Gas Production**



The LPOs caused by the production process disruptions in 2021 reached 4,437 barrels of oil per day (bopd) of oil and 143 million cubic feet per day (MMscfd) of gas.

Bad actor facilities in 2021 were offshore pipeline leaks at Mubadala Petroleum, PHE OSES, and PHE ONWJ. The repair process required a longer time due to the limited availability of ships, so the repair was impossible in parallel. With the old and depleted condition of the pipeline, in addition to solving the leak problems, the PSC Contractors also carried out pipeline repair and replacement programs. Another bad actor facility was a failure in the electrical system equipment at bp, which caused a blackout in Trains 1 and 2. It required three days of recovery to return to production.

The trouble with electrical equipment also occurred at PHR at the end of 2021, resulting from a lighting arrester that had decreased performance, causing disruption in production in the North Duri area.

Another incident that contributed to the LPOs in 2021 was the malfunction of the Amine Medium Heater at ConocoPhillips Grissik Ltd. In general, production disruptions were handled by focusing on recovery actions so that the facility resumed operations, identifying the cause of the damage and conducting Root Cause Failure Analysis (RCFA), as well as making efforts to eliminate the damage (Defect Elimination).

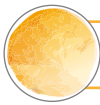


Chart 2.9 Oil and Natural Gas LPOs in Unplanned Shutdown in 2021

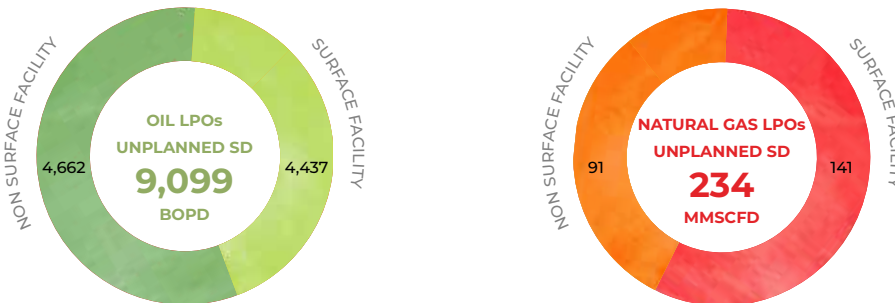


Table 2.6 LPOs and Recovery Actions

PIPELINE	ELECTRICAL	COMPRESSOR	PIPING & VALVE	HEAT EXCHANGER
LPO	LPO	LPO	LPO	LPO
OIL 1,821 BOPD	OIL 880 BOPD	OIL 881 BOPD	OIL 274 BOPD	OIL 191 BOPD
GAS 1.3 MMSCFD	GAS 56 MMSCFD	GAS 6.7 MMSCFD	GAS 38.1 MMSCFD	GAS 27.5 MMSCFD
90 EVENTS	148 EVENTS	175 EVENTS	38 EVENTS	3 EVENTS
EVENT	EVENT	EVENT	EVENT	EVENT
<ul style="list-style-type: none"> Offshore Pipeline & Roser leak Pipeline Plugging 	<ul style="list-style-type: none"> Circuit breaker failure Feeder problem Cable power problem Trafo problem Lightning Arrester problem 	<ul style="list-style-type: none"> Fouling & Vibration rotor Leaking Sealing system failure 	<ul style="list-style-type: none"> Hydraulic Line Leaking Valve Passing Valve Blocking & stuck 	<ul style="list-style-type: none"> Leaking Trigger catastrophic failure Blocking reduce performance process
RECOVERY ACTION	RECOVERY ACTION	RECOVERY ACTION	RECOVERY ACTION	RECOVERY ACTION
<ul style="list-style-type: none"> Clamping Reroute of fluid flow Adjust operating pressure 	<ul style="list-style-type: none"> Repair/Replacement of electrical equipment Subsea cable repair Troubleshooting to immediately back online 	<ul style="list-style-type: none"> Overhead Cleaning Anti-foul injection Replacement of DCS 	<ul style="list-style-type: none"> Replacement of valve Cleaning 	<ul style="list-style-type: none"> Replacement of tube bundle Cleaning & tube plug

In 2021, the industry performed 41 maintenance works categorized as Major Planned Shutdowns and 1,987 planned maintenance activities. All of them contributed to improving LPOs. Due to the realization of planned maintenance activities until December 2021, the LPOs realization was 2,838 bopd, or 45.1% of the initial estimate of 6,287 bopd, for oil, and 96 MMscfd, or 57.5% of the initial estimate of 167 MMscfd, for gas.

Chart 2.10 LPO Estimation vs Realization for Planned Maintenance Activities in 2021

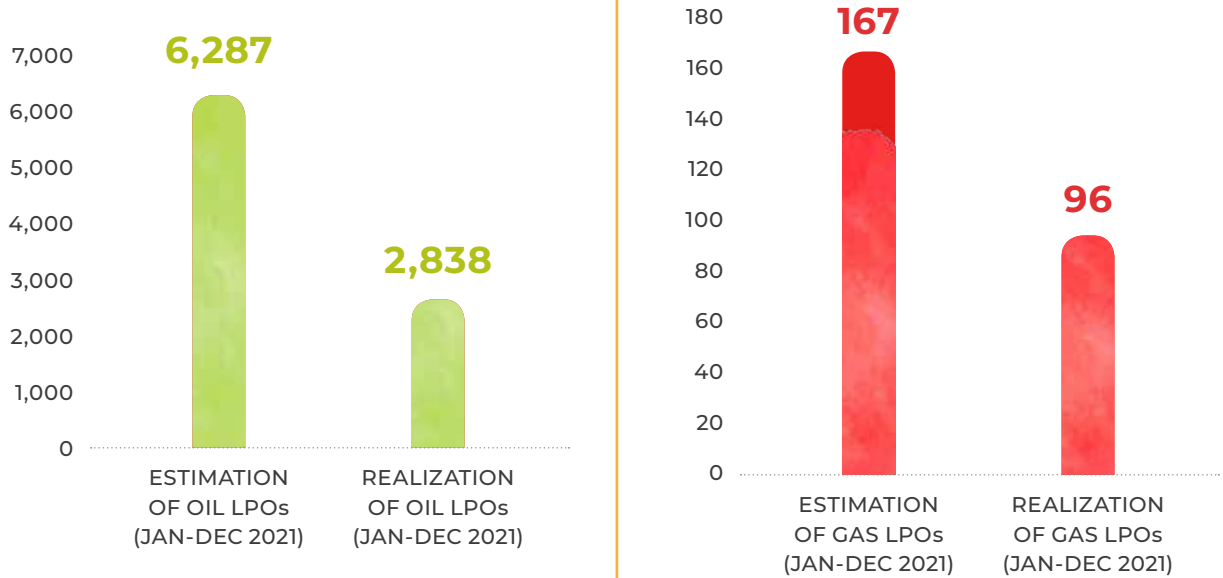


Table 2.7 Major Planned Shutdown

PSC CONTRACTOR	ACTIVITY	DURATION (DAYS)		LPO (PLAN)		LPO (ACTUAL)	
		PLAN	ACTUAL	BBLS	MMSCF	BBLS	MMSCF
ENI MB	Jangkrik Turnaround & Merakes Tie-In	18	17	13,256	6,492	13,256	6,492
HCML	GTU Absorder Packing Replacement	9	7	50,659	873	34,892	603
PHM	TEK Engine Exchange	10	10	13,421	142.72	21,000	70
PCKL	Deck Extension & Tie-In Phase 2	6	6	47,339	304	41,690	108
EMCL	1Y Function Test	2	2	440,000	0	0	0
JOBPMTS	TAR CPP Senoro	21	21	154,900	6,735	154,900	6,735

Some of the reasons that PSC Contractors cannot run the maintenance in 2021 included delays in material procurement and delivery, restrictions in the number of personnel in the fields due to policies during Covid-19, and changes in maintenance strategies to support the fulfillment of production targets.

These matters have passed work reprioritization study and mitigation efforts to prevent damage. The optimization of planned shutdown LPOs in 2021 was 252 bopd and 11.6 MMscfd. These achievements were optimal results based on technical discussions, shutdown readiness meetings, closed & daily monitoring meetings, and the implementation of lessons learned from other similar activities to ensure that the works fit with the scope and can resolve the obstacles immediately. In addition, the planned shutdown schedule has been aligned with other functional activities, such as customer/buyer maintenance activities, projects, subsurface, rig moves, and other aspects.

D. STIMULUS AND FISCAL INCENTIVES FOR THE UPSTREAM OIL AND GAS INDUSTRY

SKK Migas continues efforts to halt the natural decline and increase in oil and gas production to achieve the Long Term Plan (LTP) target for upstream oil and gas, which is 1 million bopd and 12 thousand MMscfd in 2030. All of these require increased exploration, exploitation activities, and investment.

SKK Migas, within its authority, consistently strives to create a favorable investment climate for the growth of the upstream oil and gas industry. One of them is to encourage stimulus and incentives to boost investment. SKK Migas has recommended several stimuli and incentives as follows:

Table 2.8 SKK Migas's Recommendation for Stimulus and Incentives To Improve Investment Climate

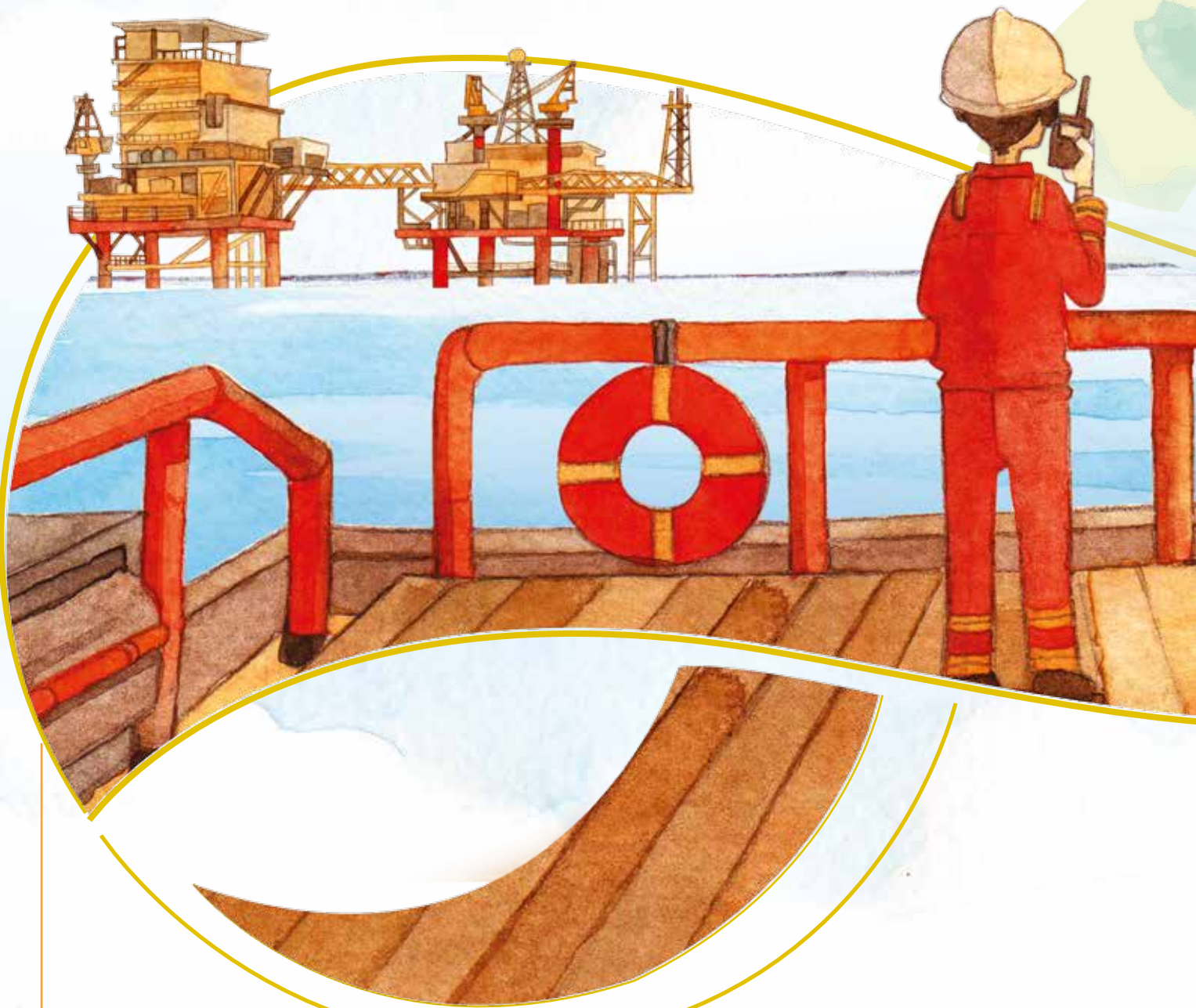
- | | |
|--|---|
| <p>1 Postponement in the allocation of post-operation cost or the Abandonment and Site Restoration (ASR) funds.</p> | <p>6 PSC Contractors are allowed to sell gas at market prices when the price is above Take or Pay (TOP) and Daily Contract Quantity (DCQ).</p> |
| <p>2 Postponement or elimination of LNG VAT (Delivery of Certain Strategic Taxable Goods Exempted from VAT Imposition).</p> | <p>7 Eliminating the cost of utilizing the Badak LNG plant of US\$0.22/MMBT. (Update: Discussion is still ongoing).</p> |
| <p>3 Exemption of Fee for Utilization of State Properties (SOE) as long as used for upstream oil and gas business activities.</p> | <p>8 Exemption from Branch Profit Tax (BRT) if the contractors reinvest their profit (dividend) in Indonesia (Update: This was stated in the Annex of the Speech of the President of the Republic of Indonesia on 16 August 2021).</p> |
| <p>4 Postponement or reduction of up to 100% of non-direct taxes.</p> | <p>9 Support from ministries supervising upstream oil and gas supporting industries (steel industry, rigs, and services) for the supporting industries. (Update: Discussion is still ongoing).</p> |
| <p>5 Provision of upstream oil and gas incentives, including accelerated depreciation, improved split for PSC Contractors, and better DMO price (DMO Full Price).</p> | |



Meanwhile, the following stimulus and incentives proposed by SKK Migas have been approved and stated in the annex of the President of the Republic of Indonesia's speech on 16 August 2021:

1. Improvement of Tax Facilities;
2. Improvement of Domestic Market Obligation (DMO) price of up to 100% for PSC Contractors using the cost recovery scheme; and
3. Exemption or reduction of the Branch Profit Tax (BPT), for example, tax exemption if they reinvest their profits (dividend) in Indonesia and/or tax rate based on tax treaties.





A. National Strategic Projects

1. Jambaran Tiung-Biru Project
2. Tangguh Train 3 Project
3. Abadi Project
4. Indonesia Deepwater Development Project

B. Onstream Projects



CHAPTER

03

**NATIONAL STRATEGIC
PROJECTS &
MAJOR PROJECTS**

A. NATIONAL STRATEGIC PROJECTS

Completing upstream oil and gas projects is one of SKK Migas's Key Performance Indicators (KPI) monitored by the SKK Migas Oversight Committee. The scope of SKK Migas's KPI includes national strategic projects and other major projects. The national strategic projects comprise four projects, as follows:

- Jambaran Tiung Biru project in East Java,
- Tangguh Train III project in West Papua,
- Abadi Masela project in Maluku,
- Indonesia Deep Water Development (IDD) project in East Kalimantan.

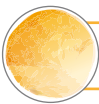
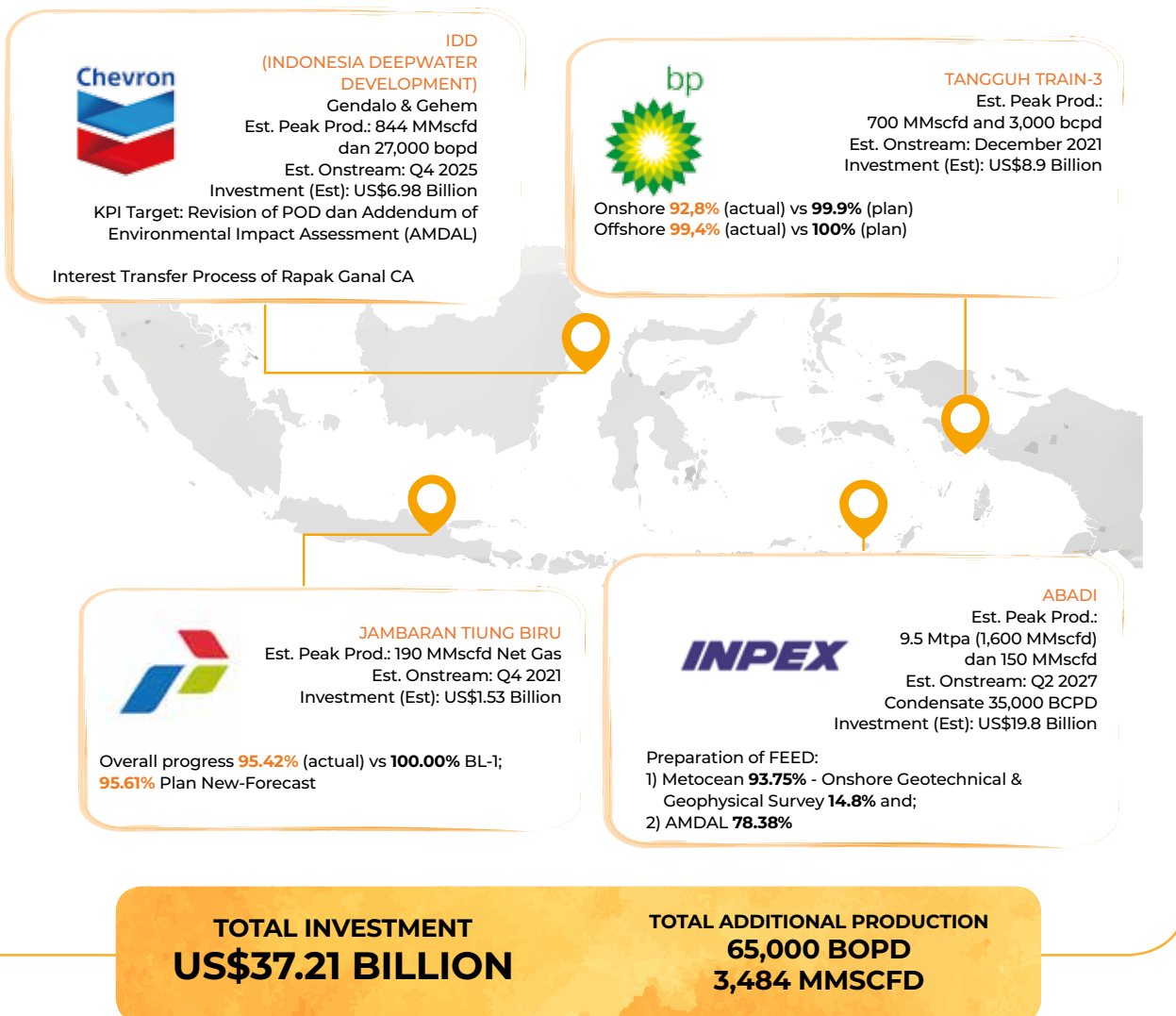


Figure 3.1 **National Strategic Projects**

per 31 December 2021





1

PT Pertamina EP Cepu

JAMBARAN TIUNG BIRU FIELD DEVELOPMENT PROJECT

PT Pertamina EP Cepu is the operator for the Jambaran Tiung Biru (JTB) field development project. The project requires around US\$1.53 billion in investment for the construction of gas and condensate production facilities with a capacity of about 330 million cubic feet per day (MMscfd) for gas and around 3,000 barrels of oil per day (bopd) for oil.

This project was initially estimated to be onstream at the end of the fourth quarter of 2021. However, the Covid-19 pandemic entering the country in early 2020 has also affected the completion of the upstream oil and gas projects, including the JTB Project. The Covid-19 pandemic impacted the movement of personnel and materials, so the progress of completing work slowed down. JTB's work had breakdowns when several workers tested positive for Covid-19.

In addition, the project completion process also faced disruption due to the subcontractors' or vendors' financial difficulties.

SKK Migas and PT Pertamina EP Cepu made various efforts and breakthroughs, yet the project cannot be onstream on time. However, by the end of 2021, activities' progress reached 95.42%. The project is estimated to be completed in 2022.





2

BP Berau Ltd.

TANGGUH TRAIN-3 PROJECT

Tangguh Train III Liquefied Natural Gas (LNG) Refinery construction project is a project to add a new LNG processing plant. Previously, BP Berau Ltd., as the operator, ran 2 LNG processing plants: Tangguh Train I and II. Adding one new refinery is intended to support additional natural gas and condensate productions of around 700 MMscfd and 3,000 bpd, respectively.

Like other projects, the Covid-19 Pandemic also impacted the implementation of refinery construction because the movement of personnel and materials slowed down. BP Berau Ltd. followed strict protocols to prevent the spread of Covid-19. However, the project was locked down when several onshore workers tested positive for Covid-19. To prevent the spread of the virus, BP Berau Ltd. mobilized around 8,000 workers from the project site to isolation sites in several areas in Indonesia.

The project set a completion target of 99% for onshore facilities and 100% for offshore facilities by the end of 2021. Progress reached 92.8% for onshore facilities and 99.4% for offshore facilities. The offshore work completion is better because it is relatively unaffected by the Covid-19 pandemic. Initially, the entire project was estimated to be onstream in the fourth quarter of 2021, but considering the current conditions, it will likely get delayed.



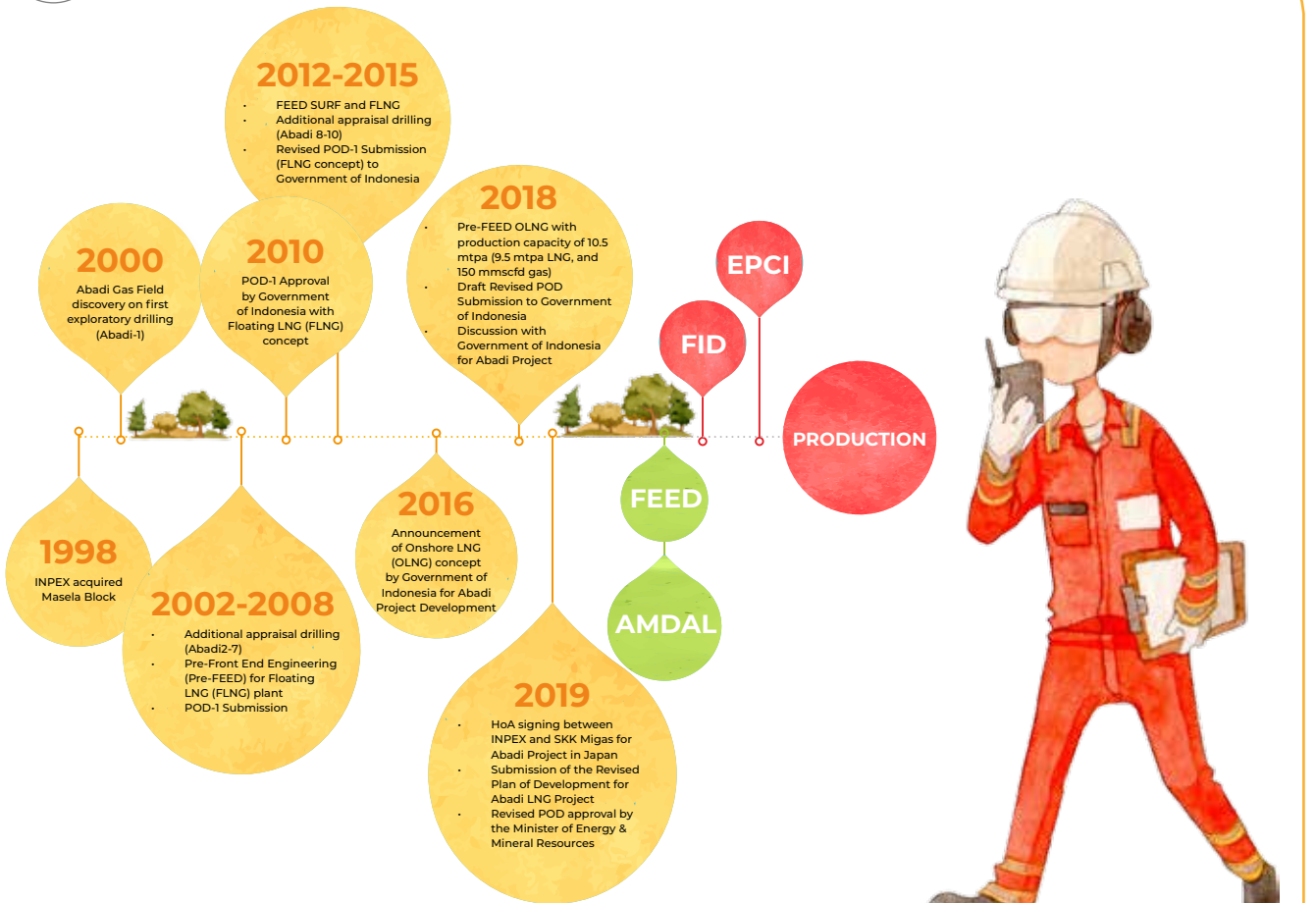
ABADI FIELD PROJECT

The first well in the Abadi Field, namely Abadi-1 Well, was discovered by Inpex in 2000. After this discovery, Inpex immediately drafted a field development plan. Several times, both parties have changed the Plan of Development (POD) to get the most favorable development scenario.

A series of studies and preparation of development activities have been carried out, including land acquisition, surveys, and submission of ANDAL (Environmental Impact Analysis) documents. However, the Covid-19 pandemic has hampered the implementation of surveys and other activities in the field. The project's development has slowed further as Inpex's partner, Shell, planned to leave. Until the end of 2021, Inpex has yet to find a partner to replace Shell.

Meanwhile, considering the tendency of the world's energy business to focus more on the environment and support net zero emissions, Inpex re-evaluated the field development plan by incorporating programs relevant to that goal.

Figure 3.2 Abadi Field Development History





4

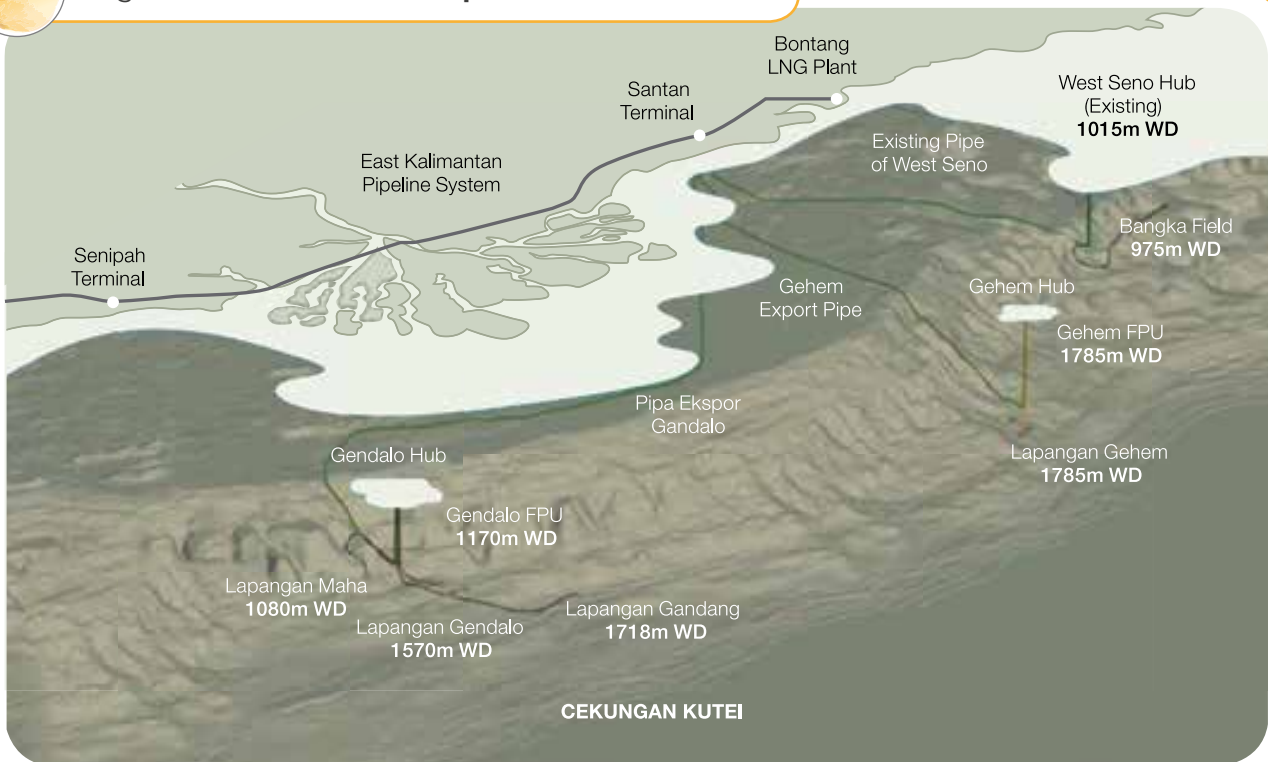
Chevron Makassar Ltd.

INDONESIA DEEPWATER DEVELOPMENT (IDD) PROJECT

The IDD project is a project in the Gendalo and Gehen fields. The two fields are within two oil and gas Contract Areas (CAs)--Rapak CA and Ganal CA-- operated by Chevron Pacific Indonesia (CPI). The IDD project is expected to produce 844 MMscfd of natural gas and 27 thousand bopd of oil.

The current IDD project is relatively not moving forward because CPI intends to relinquish its operatorship rights, but it has yet to obtain a replacement. In this regard, SKK Migas has sent a letter to CPI, requesting the operator to complete the operatorship transfer by the first quarter of 2022 at the latest.

Figure 3.3 IDD Field Development Illustration



B. ONSTREAM PROJECTS

In 2021, SKK Migas completed 15 onstream projects with a total investment of US\$1.57 billion, equivalent to Rp22.8 trillion. This achievement shows a good performance, considering that in 2021, the upstream oil and gas industry was, without exception, dealing with the Covid-19 Pandemic.

The following is a list and locations of 15 onstream projects in 2021.

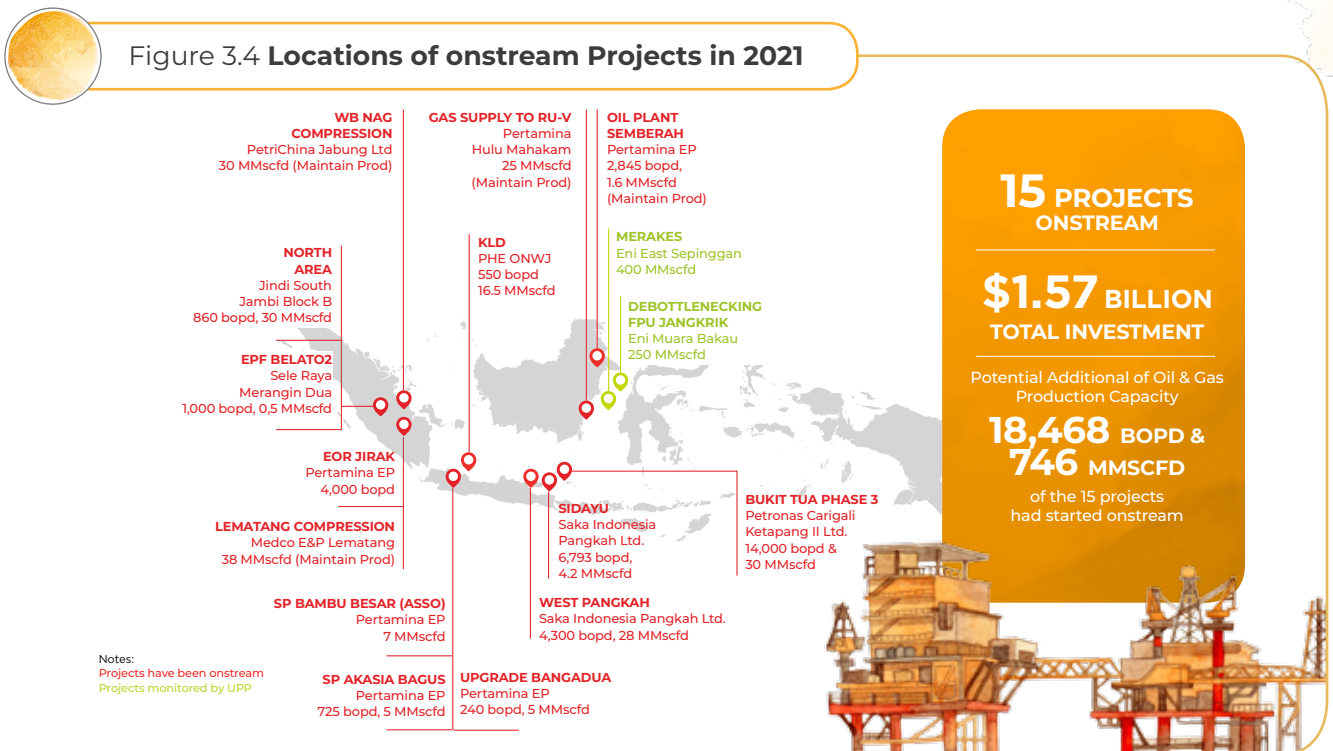


Table 3.1 List of Onstream Projects in 2021

NO.	PSC CONTRACTOR / OPERATOR	PROJECT	ONSTREAM	MAXIMUM FACILITY CAPACITY		DESCRIPTION
				OIL (BOPD)	GAS (MMSCFD)	
1.	PT PHE ONWJ	KLD	8 Jan 2021	550	16.5	Increase of Production
2.	PT Pertamina Hulu Mahakam	Gas Supply to RU-V	17 Jan 2021		25	Maintain Production
3.	Eni Muara Bakau	Debottlenecking FPU Jangkrik	29 Jan 2021		250	Increase Production
4.	Saka Indonesia Pangkah Ltd	West Pangkah	25 Feb 2021	4,300	28	Increase Production
5.	PT Seleraya Merangin Dua	EPF Belato-2	29 Mar 2021	1,000	0.5	Increase Production
6.	ENI East Sepinggan Ltd	Merakes	26 Apr 2021		400	Increase Production
7.	PT Pertamina EP	Jirak	First Injection 29 May 2021	4,000		Increase Production
8.	Jindi South Jambi Block B	North Area	First Gas In 24 Jun 2021	860	30	Increase Production
9.	PT Pertamina EP	Upgrade Bangadua	13 Aug 2021	240	5	Increase Production
10.	PetroChina Jabung Ltd	WB NAG Compression	18 Aug 2021	1,500	30	Maintain Production
11.	Saka Indonesia Pangkah Ltd	Sidayu	24 Aug 2021	6,793	4.2	Increase Production
12.	PT Pertamina EP	SP Akasia Bagus	5 Sep 2021	725	5	Increase Production
13.	Medco E&P Lematang	Lematang Compression	26 Sept 2021		38	Maintain Production
14.	PT. Pertamina EP	Construction of Oil Plant in Area	28 Sep 2021	2,845	1.6	Increase Production
15.	PT Pertamina EP	SP Bambu Besar (Asso)	25 Nov 2021		7	Increase Production

1

KLD PROJECT - PT PHE OFFSHORE NORTH WEST JAVA (ONWJ)

The KLD project, located off the north coast of West Java, is carried out by PHE ONWJ. The KLD project consists of constructing a monopod platform and installing a 3.5 km 10" pipeline connecting the KLD platform to the KLB platform. The required investment is around US\$33 million.

The completion of this project gives optimism to lift oil reserves of 1.67 MMbo and natural gas of 30.7 Bscf. KLD project started onstream on 8 January 2021 with an initial production rate of 500 bopd and 15 MMscfd.



2

GAS SUPPLY TO RU-V PROJECT - PT PERTAMINA HULU MAHAKAM



The gas supply to the RU-V project is intended to flow natural gas from the South Mahakam Field, using PT Pertamina Hulu Mahakam's facilities, to the Pertamina Refinery Unit (RU)V of Balikpapan Refinery.

The gas supply to RU-V project aims to maintain the gas supply from the upstream business, in this case by Pertamina Hulu Mahakam (PHM) and Pertamina Hulu East Kalimantan (PHKT), which supply gas through a joint supply scheme, to RU V of Balikpapan.

This project will allow natural gas to flow from the JM-1 platform, operated by PHM, to the SPG-P platform, operated by PHKT, using a 10" pipeline of 6.5 km long to a receiving facility with a capacity of 28 MMscfd. 3 MMscfd is for own use, while 25 MMscfd is for Balikpapan RU-V gas inlet.

The completion of this project ensures the reliability of the gas distribution system, supports gas absorption, and improves gas distribution connectivity from producers to consumers. In the long term, it is hoped to increase the reliability of the natural gas distribution system nationally and support the development of natural gas fields in East Kalimantan and its surroundings.

3 JANGKRIK FPU DEBOTTLENECKING PROJECT – ENI MUARA BAKAU

The Debottlenecking project, located at the Floating Production Unit (FPU) of Jangkrik, will start onstream on 29 January 2021. This project is located in Muara Bakau CA, constituting a modification of Jangkrik FPU. The required investment is US\$12.5 million.

This project aims to support the production operations of above 700 MMscfd. This project is carried out before the onstream of the Merakes Project, consisting of the installation of a Thermowell (TW), Pressure Safety Valves (PSV), and Pressure Control Valve (PCV) at Jangkrik FPU.

Figure 3.5 Facility Equipment in FPU Jangkrik



Thermowells Replacement



PCV Installation



PSV Installation

4

WEST PANGKAH PROJECT – SAKA INDONESIA PANGKAH LTD

SKK Migas approved the POD of the West Pangkah Project on 10 January 2018, including the construction of an onshore wellpad facility, modification of WHP-B of Ujung Pangkah Field and installation of a 16" pipeline along 6 km between the wellpad and WHP-B. This project has a design capacity of 4,300 bopd of oil, 28 MMscfd of natural gas and 28,000 barrels of water per day (bwpd). The project costs US\$45 million and will be onstream on 25 February 2021.



5

EPF BELATO-2 PROJECT – PT SELERAYA MERANGIN DUA

The Belato-2 Early Production Facility (EPF) project is an early development, the first phase of the Belato Field. SKK Migas approved the POD for the Belato field development on 12 March 2021 with a design for production capacities of 1,000 bopd and 0.5 MMscfd produced from the Belato-2 well. The produced oil will then be sent to the Tempino Unloading Facility and SPPP Tempino owned by PT Pertamina EP Asset 1 of Jambi Field under a Facility Sharing Agreement (FSA) system. This US\$6.6 million project started onstream on 29 March 2021.



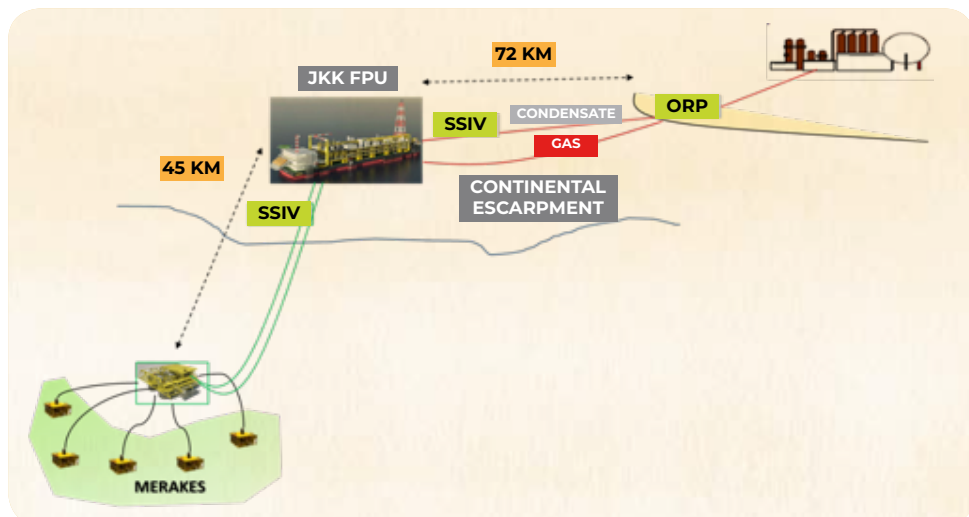
6

MERAKES PROJECT – ENI EAST SEPINGGAN LTD

The Merakes project includes several works: the construction of a subsea well, 2-off rigid pipelines of 45 km, 15" and 11.5", flexible risers and flowlines, subsea control umbilical and distribution system, subsea structure, manifold and SSIV at a sea depth of 1,400 meters, FPU topside upgrading including slug catcher and topside control system.

The Revised POD of the Merakes Field was approved on 13 December 2018. With a total investment of US\$1.37 million, this project has a production capacity of 400 MMscfd and started onstream on 26 April 2021.

Figure 3.6 Merakes Project Development Illustration



7

JIRAK PROJECT – PT PERTAMINA EP

The Jirak structure locates about 60 km west of Prabumulih, South Sumatra. This project comprises the construction of a production facility consisting of a Water Treatment & Injection Plant (WTIP) facility. The objective is to increase the maximum capacity up to 30,000 bwpd and optimize the water and oil injection. With an investment value of US\$29.5 million, this project successfully carried out its first injection on 29 May 2021, with an initial rate of 10,000 bwpd.

8

NORTH AREA PROJECT – JINDI SOUTH JAMBI BLOCK B

The North Area Project is located in Batanghari and Muaro Jambi Regencies, Jambi Province and Musi Banyuasin Regency, South Sumatera Province. Based on the POD approved by SKK Migas on 19 October 2020, this project aims to reactivate the Teluk Rendah Gas Plant (TRGP) Production Facility. With a production capacity of 30 MMscfd of natural gas and 860 bopd of oil, this project can restore the natural gas production from Teluk Rendah Field and Geger Kalong Field. The natural gas is supplied to PT Energasindo Heksa Karya through a pipeline owned by PT Transportasi Gas Indonesia. This project costs US\$11.6 million and started onstream on 24 June 2021.



9

UPGRADE BANGADUA PROJECT – PT PERTAMINA EP

The SP Bangadua Production Facility is located in Sukagumiwang Village, Indramayu Regency, West Java, in Jatibarang Field, constituting a part of PT Pertamina EP Zone 7.

The SP BDA production facilities consist of a flowline, HP separator with a capacity of 10 MMscfd/3,000 barrels of liquid per day (blpd), LP separator with a capacity of 5 MMscfd/3,000 blpd, Dehydration Unit

(DHU) with a capacity of 5 MMscfd, 2 Storage Tank units with a capacity of 1,500 BBls each, 2 Transfer Pump units with a capacity of 45 m³/H each, 2 150-Kw GEG units and other utility facilities.

The project, onstream on 13 August 2021, aims to produce oil with a gross liquid capacity of 3,000 blpd and natural gas of 10 MMscfd. Completing this project will improve the quality of gas with a maximum water dew point of 10 lb/MMscf as a fulfillment of consumers in the West Java region.

10

WB NAG COMPRESSION & CONDENSATE PUMPING SYSTEM PROJECT – PETROCHINA INTERNATIONAL JABUNG LTD.

Production of Non-Associated Gas (NAG) in the West Betara (WB) & South Betara (SB) fields requires equipment to increase the well pressure. Therefore, the WB NAG project comprises the installation and rental of 3 gas compressor units with a capacity of 15 MMScfd each and 2 condensate pump units with 1,500 bpd each.

With this project becoming onstream on 18 August 2021, the South Sumatra region's gas and condensate supply to consumers will not be disrupted.





SKK Migas approved the POD for the development of the Sidayu Field on 20 October 2017. The Sidayu project comprises the installation of WHPs (WHP-C and WHP-D), modification of the existing WHP-B and installation of a 4.6 km pipeline, connecting WHP-C, WHP-D, and WHP-B consisting of 12" oil production line and 6" gas lift. The project, with a total investment of US\$47.7 million, is a liquid process and handling facility with a capacity of 10,400 blpd. The project was onstream on 24 August 2021.

The Akasia Bagus structure, located in Terisi District, Indramayu Regency, West Java, is a structure in Jatibarang Cemara Field Area – Zone 7 Regional 2. The Akasia Bagus project is a production facility construction project to accommodate additional production from drilling new wells and replacing the EPF rented so far. The SP projects comprise the construction of LP production separators, MP production separators, LP scrubbers, test separators, oil tanks, test tanks, gas compressor stations, liquid transfer pumps, and liquid trunklines. SP Acacia Bagus started onstream on 5 September 2021 and has contributed to the increase in the capacities of production facilities by 725 bopd and 5 MMScfd.



13

**LEMATANG COMPRESSION PROJECT –
PT MEDCO E&P LEMATANG**

The Lematang Compression project is located in Singa CPP in Sukamenanti Hamlet, Bangunsari Village, Muara Enim Regency, South Sumatra Province. The project aims to maintain gas distribution from the Lematang CA by installing an ex-Vico gas turbine compressor unit and anticipate any decrease in reservoir pressure at Singa Wells. The compressor, which has a capacity of 38 MMscfd, can reduce the CPP operating pressure from 1,100 psig to 350 psig, thereby increasing recoverable reserves from Singa Field. It is hoped that it will maintain the stability of gas distribution to PT PGN, PT PLN Sumatera Selatan, and PT Meppo-Gen following the Gas Sale and Purchase Agreement (PJBG). The project, with a total investment of US\$9 million, started onstream on 26 September 2021.



PEMBANGUNAN OIL PLANT DI AREA SEMBERAH PROJECT – PT PERTAMINA EP

Semberah Oil Plant is an oil production facility operated by PT Pertamina EP. The construction of a production facility in Sangatta District, East Kutai Regency, Semberah area, will replace the EPF rental facility. With the Semberah Oil Plant, oil can be directly flowed (flowline) to Semberah Plant 14 and then to the Santan terminal. This new facility ends the oil delivery method with tanker trucks (road tanks). The storage capacity of the New Semberah Oil Plant can accommodate the Final Investment Decision (FID) target to drill 27 wells.

The New Semberah Oil Plant project, which has a capacity of 6,000 barrels of crude oil, started onstream on 28 September 2021. It is hoped that it will support the production of the Semberah area with a production target of 3,000 bopd of oil and 1.8 MMscfd of natural gas.



The Bambu Besar Structure is located in Rawamerta, Plawad and East Karawang, Karawang Regency (Subang Field). The SP Bambu Besar project is the second phase of the development phase of the Bambu Besar Field. This project comprises additional CO₂ Removal and DHU Facilities aimed at processing natural gas carried by liquid from the well to meet the specifications for natural gas sales. Since this project became onstream on 25 November 2021, gas from the Bambu Besar Field has been able to flow to consumers through the West Java gas pipeline network following the specifications and with a maximum capacity of 7 MMScfd.



CHAPTER

04

NATIONAL CAPACITY EMPOWERMENT

The presence of the upstream oil and gas industry with SKK Migas as the controller aims to optimize state revenues from upstream oil and gas business activities. The state revenue will then be utilized for the maximum welfare of the people through development programs.

However, it is often forgotten that the presence of SKK Migas and the upstream oil and gas industry is also expected to optimize the multiplier impact. Upstream oil and gas operational activities are expected to impact the national, regional, and local economies positively.



- A. Crude Oil for Domestic Refineries
- B. Natural Gas Supply for Domestic Needs
- C. Adjustment of Upstream Natural Gas Price for Consumers of Certain Industry Sectors and The Electricity Sector
- D. Local Content (TKDN) and Supply Chain Management
- E. Indonesian and Local Workers



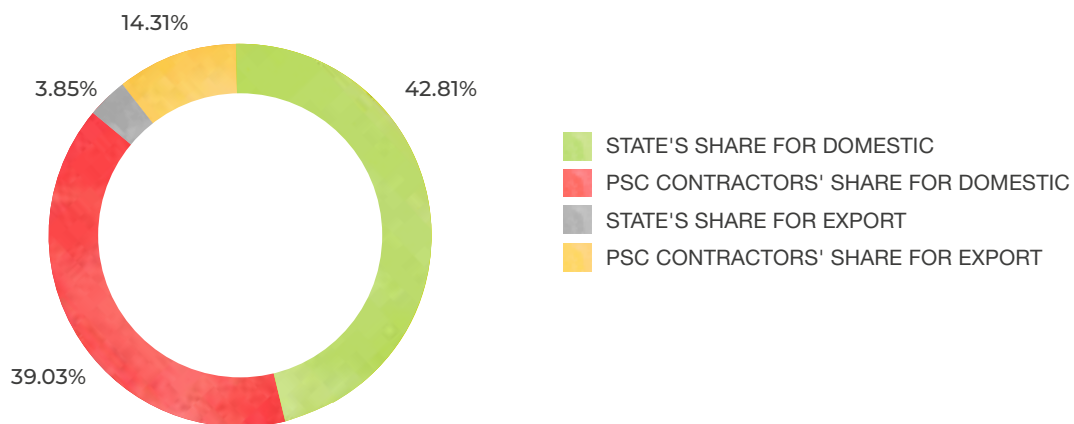
A. CRUDE OIL FOR DOMESTIC REFINERIES

1 OIL AND CONDENSATE LIFTING

The realization of oil and condensate lifting in 2021 was 241.08 million barrels (MMbbls), or the equivalent of 660.29 thousand barrels of oil per day (Mbopd).

Chart 4.1 **Composition of Crude Oil and Condensate Lifting Realization**

Period of January – December 2021



Of the total lifting in 2021, 81.84% was allocated to the domestic market. This portion comprises 42.81% oil and condensate lifting from the State's share and 39.03% from the PSC Contractors' share. Meanwhile, the allocation for export was 18.16% comprising 14.31% oil and condensate from PSC Contractors' shares and the remaining 3.85% from the State's shares.

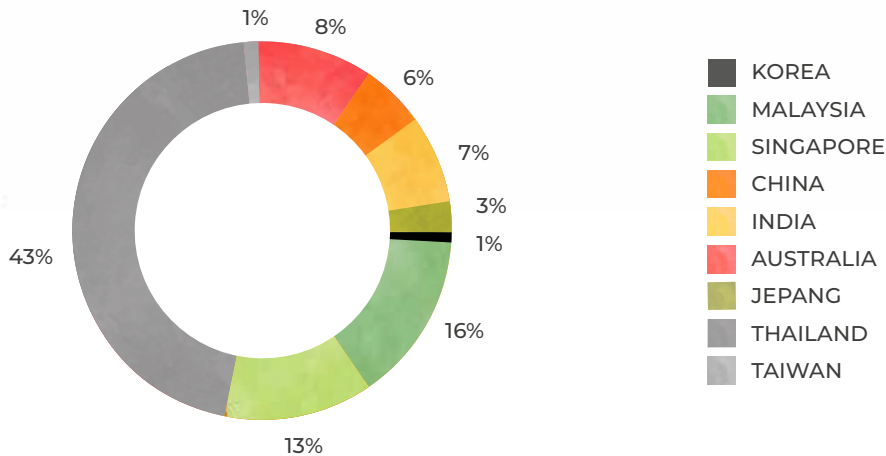
The Covid-19 pandemic, still occurring and even briefly increasing in mid-2021 due to the emergence of the Delta variant, has an impact on economic activities in the world, including Indonesia. The slowing economy led to a decline in processing at Pertamina's refineries.

Pertamina's refinery cannot receive the State's oil shares from Banyu Urip Field. After evaluating various options, the option to export will provide the best value and the lowest cost compared to the cargo storage option in floating storage. Despite this condition, it must be admitted that Pertamina has used its best efforts to maximally lift the State's share of Banyu Urip crude oil by providing a large capacity vessel (VLCC) that functions as storage.



Chart 4.2 Export Destination Countries for Crude Oil and Condensate

Period of January – December 2021



The biggest destination country for oil and condensate export is Thailand, with a total volume of 18,649 Mbbls. Other main export destinations are Malaysia at 7,033 Mbbls, Singapore at 5,617 Mbbls, Australia at 3,512 MBbls, India at 3,118 Mbbls, China at 2,764 Mbbls, Vietnam at 1,106 Mbbls, Japan at 1,094 Mbbls, Taiwan at 575 MBbls, and Korea at 300 Mbbls.



2 OPTIMIZATION OF LIFTING THROUGH PROFORMA LIFTING MECHANISM (PPL)

SKK Migas has prepared essential measures by setting up a Proforma Lifting (PPL) mechanism to achieve the lifting and state revenue targets amid the weakening economy. PPL is the sale of the State's oil shares stored at facilities before the point of delivery until the lifting implementation based on the following considerations:

1. Achievement of monthly lifting targets;
2. Maintaining the continuity of national crude oil and condensate production;
3. Pertamina's flexibility in managing domestic crude oil and/ or condensate storage capacity amid declining Pertamina Refinery intakes due to a decline in national demand for fuel oil;
4. Continuity of state revenue; and
5. Enhancing national energy resilience.

Implementation of lifting using the PPL mechanism contributes to the achievement of oil and condensate lifting in 2021, amounting to 10,165,500 BBLs or 4.40% of the total lifting using the PPL mechanism.

Table 4.1 PPL's Contribution to the Crude Oil and Condensate Lifting Achievement

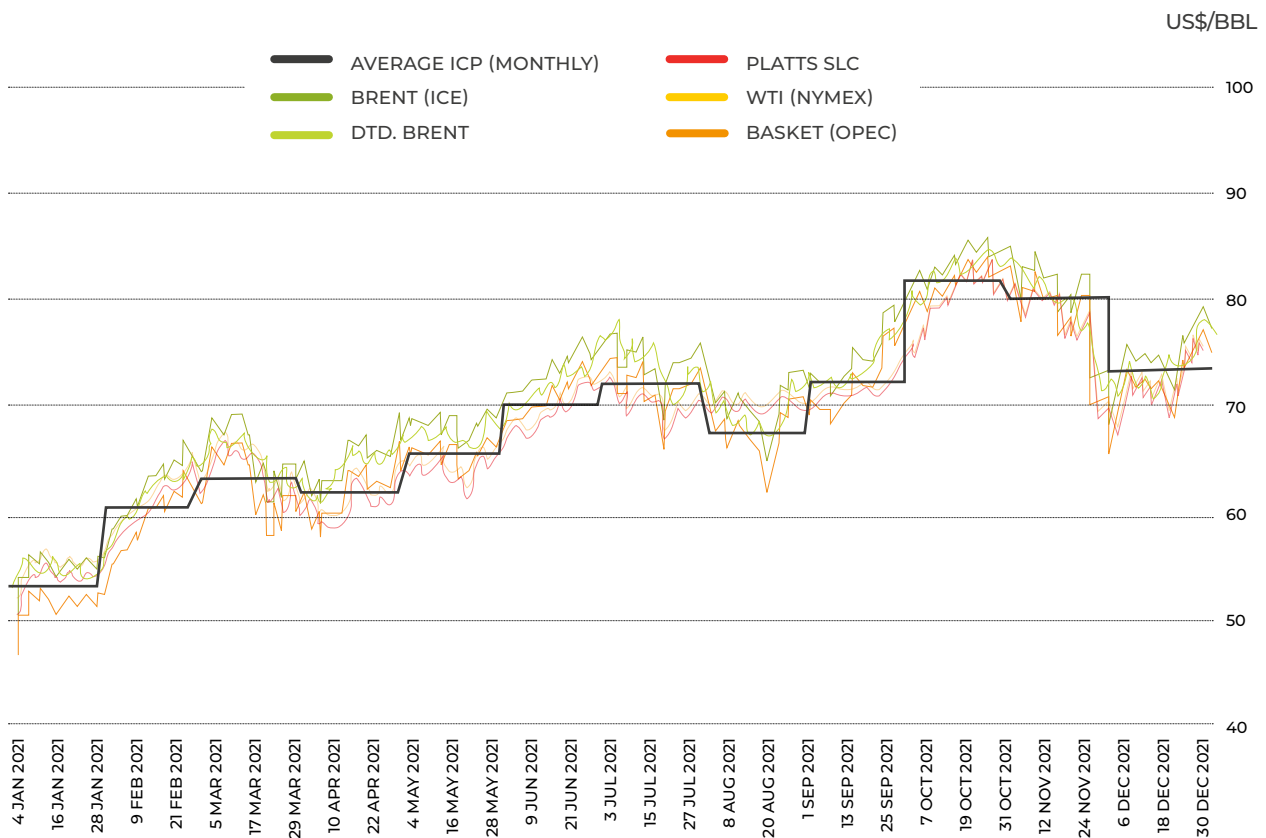
PERIOD OF JANUARY – DECEMBER 2021 (BARRELS)

Lifting in 2021 (without PPL)	PPL	Realization of Lifting in 2021 (with PPL)
230.825.975	10.451.000	258.642.595

3 INDONESIA CRUDE PRICE (ICP)

Indonesian Crude Price (ICP) used in oil and condensate sales in Indonesia influenced the PSC Contractor's decision to sell crude oil to the domestic market. The ICP formula is expected to be relatively close to world oil prices, such as West Texas Intermediate (WTI), Platts, Brent, Basket OPC, or Dated Brent.

Chart 4.3 Movements of ICP and World's Crude Oil Prices in 2021



B. NATURAL GAS SUPPLY FOR DOMESTIC NEEDS

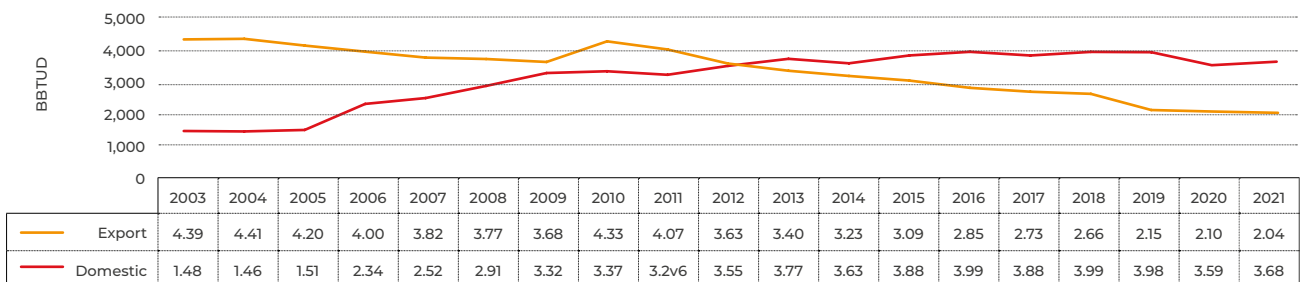
1 NATURAL GAS

For domestic demand, the supply of natural gas, including Liquefied Natural Gas (LNG) and Liquefied Petroleum Gas (LPG), shows a positive trend or tends to increase yearly. On the other hand, natural gas exports experience a downward trend. This data shows the commitment of SKK Migas and the Government to prioritizing natural gas allocation to encourage the growth of domestic industry and support regional economic growth while still taking into account the optimization of state revenues. The Government is always looking for the optimal point of natural gas allocation between the interests of national and regional industries on the one hand and its impact on state revenues on the other.

In 2021 the portion of gas allocation for the domestic market reached 64%, and the remaining 36% was for export. The volume of gas supplied to the domestic market was 3,687 thousand British Thermal Units per day (BBtud), while the export was 2,046 BBtud.

Chart 4.4 **Comparison of Export and Domestic Supply**

(in BBtud)

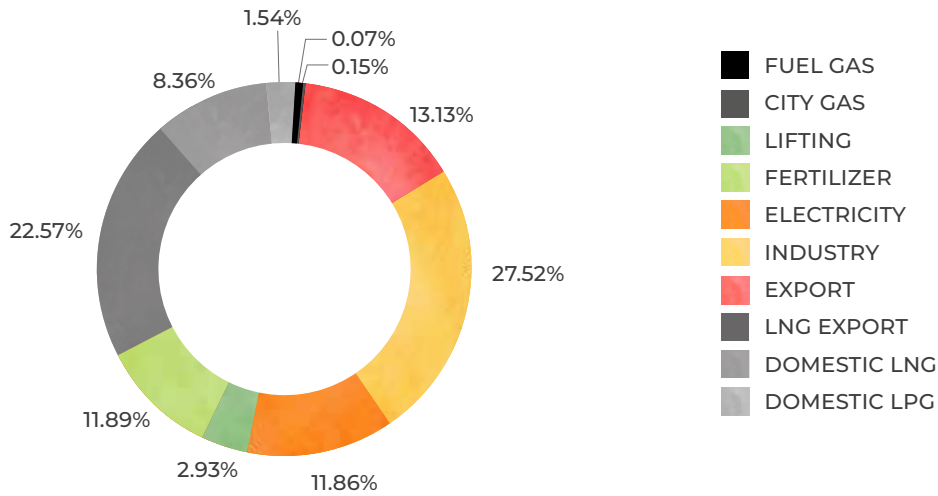


Compared to 2020, in 2021, there was an increase in domestic gas allocation. For this reason, SKK Migas must strictly supervise natural gas commercialization management. They must make decisions quickly because they often have to deal with unplanned shutdowns, which are a consequence of gas operations in Indonesia at old fields and the use of relatively old equipment.

The largest domestic natural gas is allocated to the industrial sector, followed by the electricity sector and the fertilizer industry.



Chart 4.5 **Natural Gas Utilization Percentages**

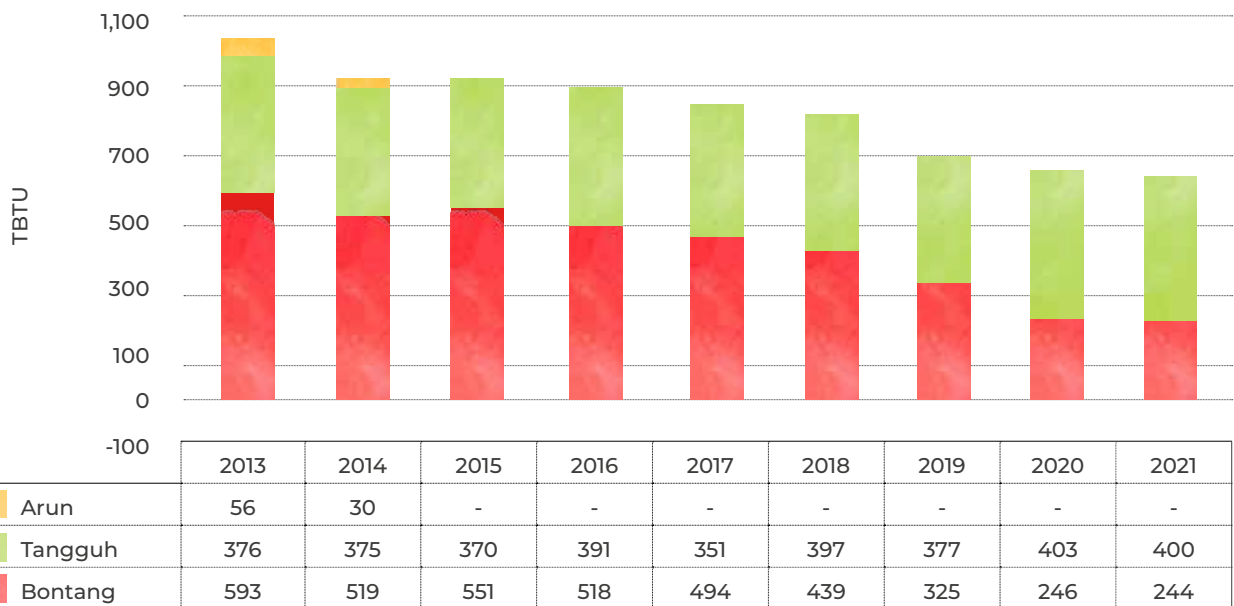


LIQUEFIED NATURAL GAS (LNG)

In 2021, the LNG lifting of 644 Trillion British Thermal Units (Tbtu) slightly decreased compared to lifting in 2020, which reached 647 Tbtu. The decrease was due to the LNG Bontang's lifting of only 244 Tbtu, down from the lifting in 2020 at 246 Tbtu. Meanwhile, LNG Tangguh's lifting of 400 Tbtu was smaller than in 2020, which reached 403 Tbtu.



Chart 4.6 **LNG Arun, Tangguh, and Bontang Lifting Data**



LNG absorption in 2021 by domestic buyers showed a fairly significant increase, almost matching the absorption volume before the Covid-19 Pandemic. It decreased from 2019 to 2020 to around 25%. Domestic absorption in 2021 was above 20%. Domestic LNG volume in 2021 reached 174.9 TBtu, an increase of more than 35 TBtu compared to the 2020 absorption of 139.6 TBtu.



Chart 4.7 LNG Arun, Tangguh, and Bontang Lifting Data



Of the total domestic LNG need, 174.9 TBtu or 97% or around 169.4 TBtu for electricity. The rest are 2.9 Tbtu for industry through isotank and 2.6 TBtu for ifertilizer factories, respectively.

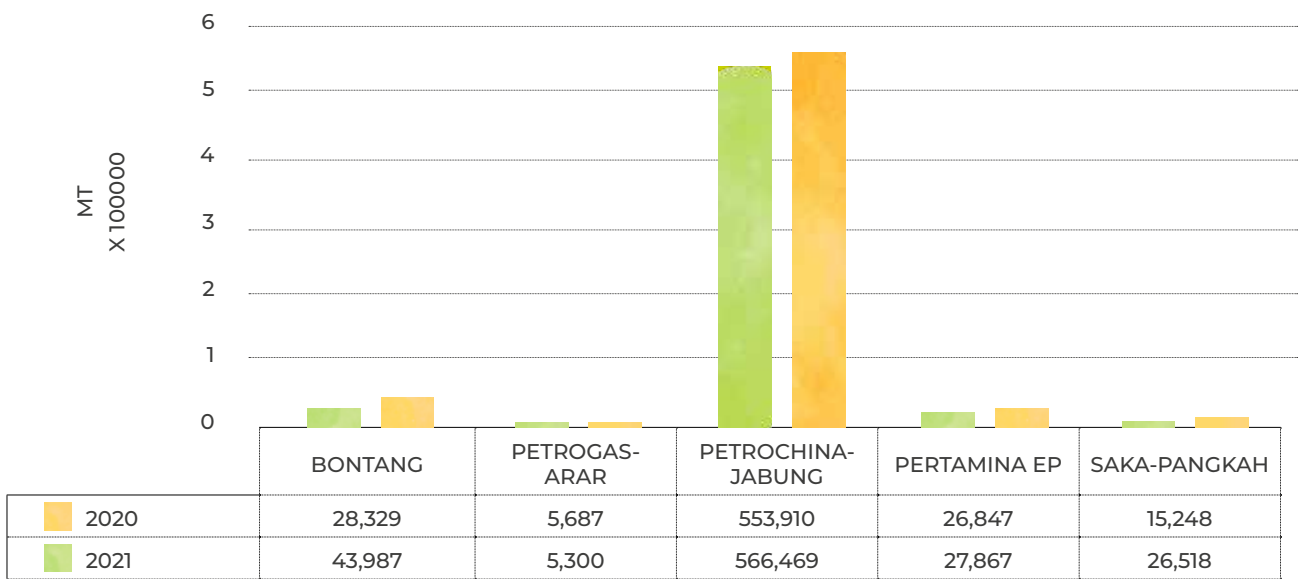
One of the factors that cause an increase in domestic LNG absorption was PT PLN (Persero)'s strategy in facing a coal supply crisis, especially in Semester I of 2021. It was recorded that in the February-July 2021 period, PLN purchased a volume of uncommitted LNG cargoes from the Bontang LNG plant at around 11.8 TBtu.

3 LIQUIFIED PETROLEUM GAS (LPG)

The upstream oil and gas industry's commitment to meeting the energy needs of the domestic market is also reflected in the commitment to producing LPG, which is entirely sold to PT. Pertamina (Persero) to meet domestic demand for LPG. In 2021, the realization of domestic LPG supply was 670 thousand metric tons (MT), an increase compared to the 2020 lifting of 630 thousand MT. The increase in production occurred in almost all upstream LPG refineries, including Bontang, PetroChina Jabung, Pertamina EP, and Saka Pangkah.

This increase in LPG supply has contributed to reducing Pertamina's LPG import during the world's rising LPG price. The average price of propane and butane in 2021 was US\$638 per MT, a significant increase compared to the 2020 price of US\$400 per MT.

Chart 4.8 Domestic LPG Supply in 2020-2021



C. ADJUSTMENT OF UPSTREAM NATURAL GAS PRICE FOR CONSUMERS OF CERTAIN INDUSTRY SECTORS AND THE ELECTRICITY SECTOR

The Government, through Presidential Regulation Number 121/2020, regulates the adjustment of gas prices for specific sectors comprising eight sectors, namely the fertilizer, petrochemical, oleochemical, steel, ceramic, glass, rubber gloves, and electricity industries. The regulation is intended to increase industrial competitiveness, increase domestic industrial productivity and boost the national economy. The affordability of natural gas prices is expected to be followed by industrial productivity growth, employment, exports, and improved balance of payments.

The Government Regulation was followed with the Decree of the Minister of Energy and Mineral Resources Number 134K/2021, which regulates the price of natural gas for specific industrial sectors. Specifically related to the electricity sector, a Decree of the Minister of Energy and Mineral Resources Number 135K of 2021 regarding the price of natural gas for the electricity sector at Plant Gate was issued.

Table 4.2 Distribution of Natural Gas for Certain Industries and Electricity Sector

CERTAIN INDUSTRIES 1,229 BBTUD				PLN POWER PLANTS 1,424 BBTUD				
842* BBTUD (65.51%)	12 BBTUD (0.98%)	329 BBTUD (26.77%)	46 BBTUD (3.74%)	336 BBTUD (23.06%)	532 BBTUD (37.36%)	235 BBTUD (16.50%)	111 BBTUD (7.79%)	170 BBTUD (11.94%)
For Fertilizer Plan	Upstream Directly for Consumers of Certain Industry	Through PGN Group	Through Other BU Niaga	Upstream Directly (Pipe Gas)	Through LNG (Upstream and Downstream)	Through PGN Group	Through Other BU Niaga	Through IPP

The total volume of Natural Gas for 2021, as listed in the Decrees of the Minister of Energy and Mineral Resources Number 134K/2021 and Number 135K/2021, was 2,653 BBtud. The volume of gas for certain industry sectors with gas price adjustment was 1,229 BBtud. It indicates an increase when compared with 1,199 Bbtud in 2020. Whereas, the volume of gas, including LNG for electricity sector in 2021, according to the Decree of the Minister of Energy and Mineral Resources Number 135K/2021, was 1,424 BBtud or experiencing an increase compared with the volume in 2020 of 1,396 BBtud.

SKK Migas fully supports the Regulation of the Minister of Energy and Mineral Resources Number 8/2020 and the Decree of the Minister of Energy and Mineral Resources Number 134K/2021, as well as the Regulation of the Minister of Energy and Mineral Resources Number 10/2020 and the Decree of the Minister of Energy and Mineral Resources Number 135K/2021. For that, SKK Migas conducted socialization and discussions with PSC Contractors, followed by delivery of instruction letters to PSC Contractors on the implementation of gas price adjustment in upstream oil and gas.

SKK Migas also push for immediate completion of draft letters of agreement for the implementation of natural gas price adjustment. For that, SKK Migas coordinate with stakeholders, including the Ministry of Finance, considering that any gas price adjustment will affect the profit sharing. Therefore, it is necessary to be further stipulated in Technical Instruction.



D. LOCAL CONTENT (TKDN) AND SUPPLY CHAIN MANAGEMENT

1 PROCUREMENT PROCESS

Procurement of goods and services is oriented towards efficiency and effectiveness without violating any applicable regulation. The procurement process must be carried out by paying attention to cost savings and consistently maintaining high productivity.

Based on the approval of the tender plan and results of tender implementation approved by SKK Migas during the period of 2021, for a tender package value of above Rp50 billion or US\$5 million, a saving of US\$275 million can be made. Savings may take place due to a careful procurement process and are ensured through the following activities:

- Announcing the PSC Contractors' needs for goods and services on the Centralized Integrated Vendor Database (CIVD) page and the budget ceiling to create transparency and competitive market conditions.
- Selection of an effective, efficient, and competitive procurement strategy.
- Joint procurement and utilization of joint assets among PSC Contractors.
- Taking into account the current market conditions in determining the Own Estimate Price (HPS) on the approval of the tender plan.
- Collaboration with relevant stakeholders, among others, the Indonesian Petroleum Association (IPA) and association of Goods/Services Providers, such as the Indonesian Iron and Steel Industry Association (IISIA), Association of Indonesian Seismic Companies (PEPSINDO), Indonesian Association of National Shipowners (INSA), and Association of Indonesian National Design Companies (GAPENRI).

SKK Migas is also improving organizational governance to accelerate the approval of tender plans. Based on 2021 data, the average approval for tender plans is six working days, whereas the average result of the tender implementation is seven working days. Both were achieved above the target set from the original 15 working days.

Table 4.3 Achievement of Procurement Process in 2021

AVERAGE TIME	ACHIEVEMENT (WORK DAYS)	TARGET (WORKDAYS)
Approval of Tender Plan	6	15
Approval of Tender Result	7	15

Good supply chain management determines smooth operations in the fields. Delays in procurement will have a real impact on the completion of upstream oil and gas projects. On the other hand, effective supply chain management will accelerate the realization of projects and work in the fields, increasing oil and gas production and ensuring cost-effective and efficient use. Of course, the final impact will be on the effectiveness and efficiency of cost recovery.

Efficiency and acceleration in procuring goods and services are in line with the Minister of Energy and Mineral Resources Regulation 17/2017, which are expected to process and implement the procurement of goods and/or services per the quantity, quality, price, time, and place, in an appropriate, effective, efficient, and accountable way.

Therefore, the management and determination of an optimal strategy for procuring goods and services will not only support the acceleration of the process but also increase oil and gas production and optimize cost recovery. However, SKK Migas has always adhered to the basic principles of effective, efficient, competitive, transparent, fair, responsible, and environmentally friendly supply chain management, considering the national interest or national capacity.

Supply chain management plays a role in increasing the role of the domestic industry in upstream oil and gas operations. It is realized that the involvement of domestic industries will be followed by an increase in productivity, which will also impact the national economy. Management of the supply chain of the upstream oil and gas industry provides a multiplier effect and attracts other industries to develop.

In supervising and controlling the PSC Contractors' procurement of goods and services, SKK Migas groups them into four commodities, namely (1) Construction; (2) Transportation and Operation Supports; (3) Surveying and Drilling; (4) Operation and Maintenance.

In addition, in every tender implementation, SKK Migas constantly supervises the fulfillment of the provisions of the applicable laws and regulations, among others:

- Obligation to use local goods and services according to the provisions;
- Provisions on health, work safety, and environmental protection (HSE) applicable to upstream oil and gas business activities;
- Customs regulations applicable at upstream oil and gas business activities; and
- The applicable laws and regulations.

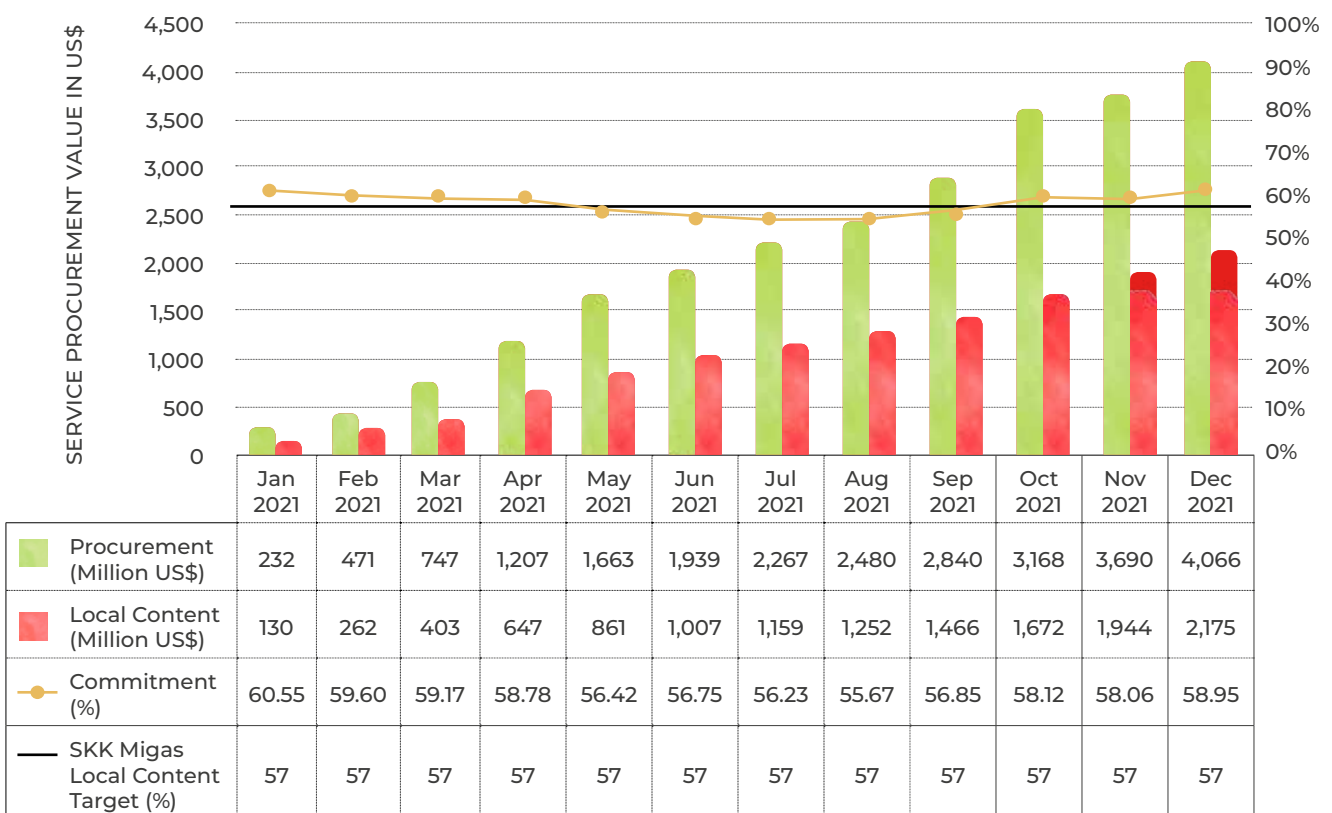
Transformation of the business process at Skk Migas in the supply chain sector has been going well and has received appreciation and acknowledgment from PSC Contractors.

2 LOCAL CONTENT (TKDN)

One way to maximize the benefits of the upstream oil and gas industry for the nation and State is by continuously increasing the use of local components in every activity carried out. Local Content commitment to the process of procuring goods and services for the upstream oil and gas industry (both carried out through SKK Migas's approval and by PSC Contractors themselves) reached 58.95% (cost basis) of the total value of procurement of goods and services of US\$4,066 million in 2021.

Strengthens the role of the upstream oil and gas industry as a driver of the national economy through its support for increasing the capacity of the national industry. In line with the effort to encourage more significant investment in upstream oil and gas to realize the shared vision of 1 million bopd of oil and 12 thousand MMscfd of natural gas in 2030, the contribution of upstream oil and gas to Local Content will continue to be carried out sustainably.

Chart 4.9 Local Content (TKDN) Data in 2021

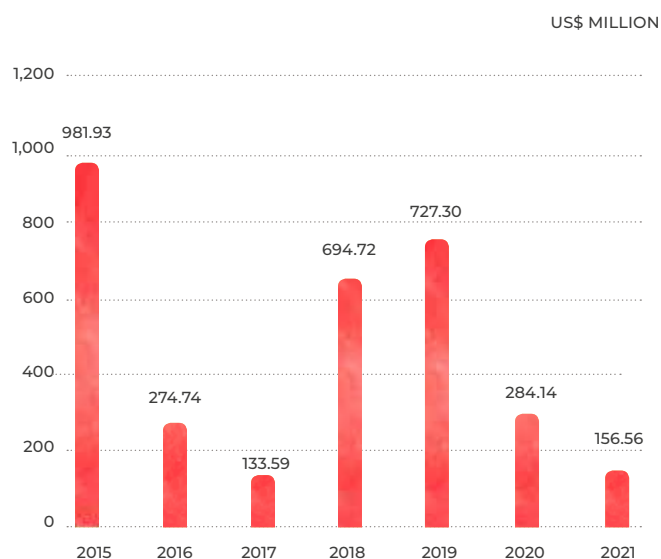


In 2021, the value of the procurement of goods and services supplied by state-owned enterprises (BUMNs) was US\$156.56 million, whereas, since 2015, the cumulative value of the procurement reached US\$3,252 billion.

Table 4.4 Accumulated Value of Procurement of Goods and Services in 2015-2021

No	BUMN	2015-2021		2021		2015-2020	
		VALUE (Million US\$)	Local Content (%)	VALUE (Million US\$)	Local Content (%)	VALUE (Million US\$)	Local Content (%)
1	Pertamina (Persero), PT	1,782.94	71.99	42.90	74.42	1,740.03	71.93
2	Elnusa Geosains Tbk, PT	966.66	55.65	79.16	58.11	887.50	55.42
3	Wijaya Karya (Persero), PT	182.81	88.34	-	-	182.81	88.34
4	Rekayasa Industri, PT	101.28	56.84	-	-	101.28	56.84
5	PAL Indonesia (Persero), PT	62.05	80.14	-	-	62.05	80.14
6	SUCOFINDO (Persero), PT	48.65	93.76	15.28	93.27	33.36	93.97
7	Surveyor Indonesia (Persero), PT	35.52	77.61	4.34	92.77	31.18	75.53
8	Hutama Karya (Persero), PT	21.56	74.64	-	-	21.56	74.64
9	Adhi Karya (Persero), PT	12.14	53.49	-	-	12.14	53.49
10	Pembangunan Perumahan Tbk, PT	10.50	28.19	-	-	10.50	28.19
11	Biro Klasifikasi Indonesia (persero), PT	10.40	63.84	5.00	84.09	5.39	46.58
12	Telekomunikasi Indonesia (Persero), PT	8.88	75.68	5.25	78.56	3.62	72.05
13	Semen Baturaja (Persero), PT	1.98	90.18	1.98	90.18	-	-
14	Amarta Karya (Persero), PT	1.95	26.32	-	-	1.95	26.32
15	Dahana (Persero), PT	1.51	60.68	1.11	76.45	0.40	21.27
16	Other BUMNs	3.91	75.35	1.23	85.82	2.67	70.00
TOTAL		3,252.73	67.98	156.48	69.07	3,096.47	67.93

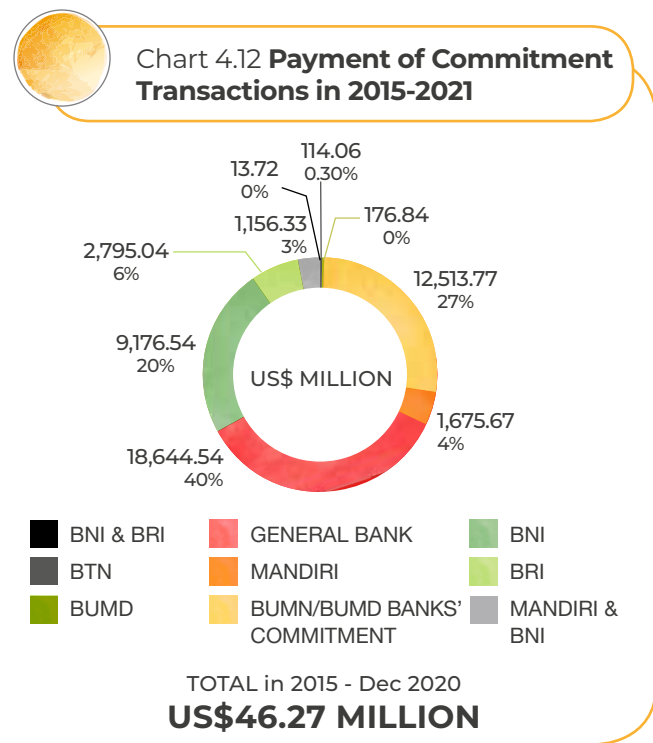
Chart 4.10 Use of BUMN Companies through 2021



3 INVOLVEMENT OF BUMN/BUMD BANKS

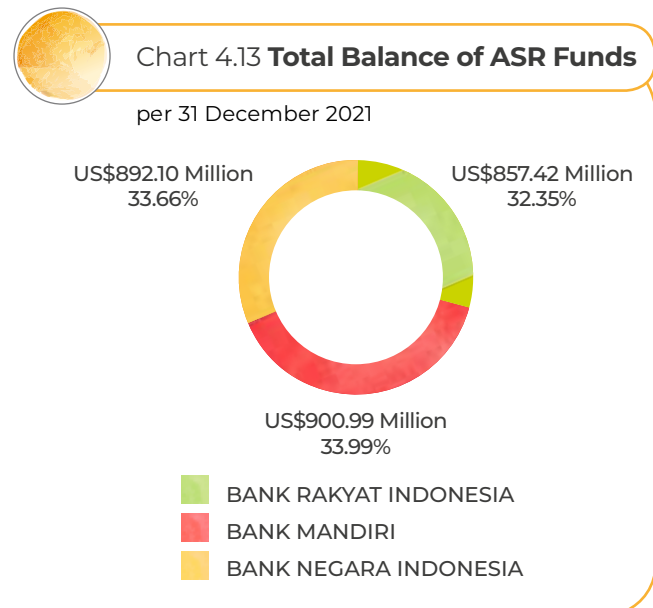
SKK Migas involves BUMN banks/Regional Owned Enterprises (BUMD) in transactions that can strengthen the banking model. Transactions through BUMN/BUMD banks are carried out for transactions connecting with the procurement of goods and services, as well as abandonment transactions and restoration (ASR).

In 2021, for transactions from the procurement of goods and services, the value of transaction commitments and payments through BUMN/BUMD Banks reached US\$4.066 billion.



ASR is a series of activities to permanently cease the operation of production facilities and other supporting facilities and eliminate their ability to be re-operated, and perform environmental restoration in the upstream oil and gas activity areas. SKK Migas also involves BUMN banks to reserve ASR funds of PSC contractors.

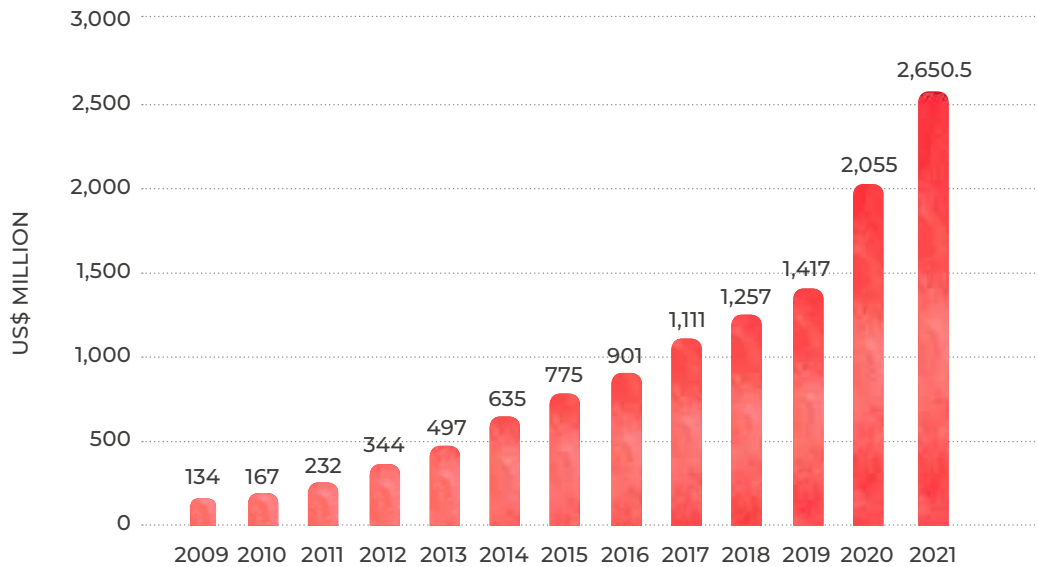
Until the end of 2021, the reserve of ASR funds in BUMN banks reached US\$2,650 billion, divided into three largest BUMN banks: BNI, Mandiri Bank, and BRI.



The following is the growth of ASR funds deposited in BUMN banks.



Chart 4.14 **Cummulative ASR Funds**



4 SYNERGY AND COOPERATION

As a form of effort to optimize domestic companies, as well as to support upstream oil and gas operations, through effective and efficient procurement of goods and services, SKK Migas and PSC Contractors perform synergies in collaboration with:

1. PT Pertamina Persero in the amount of Rp.831 billion through the benefit of the BBM discount.
2. PT Citilink Indonesia with an efficiency achievement of IDR1.2 billion through the benefit of flight ticket discounts.
3. Garuda Indonesia offers at least 3% discount through discounted flight tickets.
4. PT Surveior Indonesia and PT Sucofindo by providing a discount of at least 5% of the cost of verifying the Local Content of goods and services contracts.



5 CENTRALIZED INTEGRATED VENDOR DATABASE (CIVD)

CIVD is a system that facilitates the accelerated issuance of an Administrative Document Replacement Certificate (SPDA), which is used for providers of goods and services to participate in tender activities.

Until the end of 2021, 19,815 goods and service providers have been registered in the CIVD, with a total of 11,577 SPDAs issued.

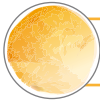
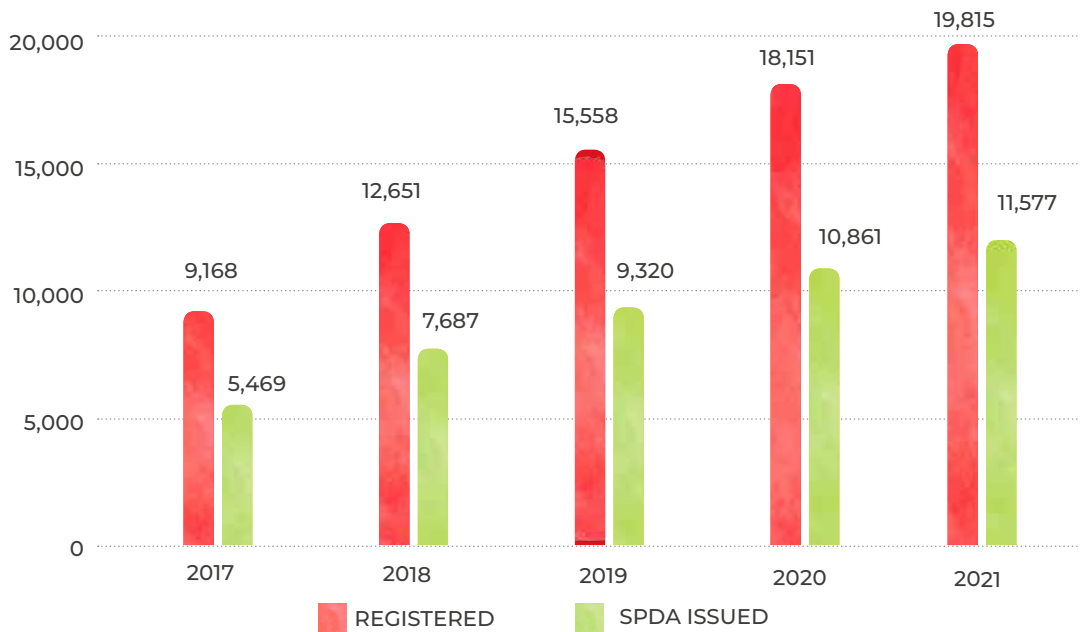


Chart 4.15 **Chart of CIVD in 2017-2021**



6 IMPLEMENTATION OF 2021 NATIONAL CAPACITY FORUM

The 2021 National Capacity Forum activities were carried out to further increase the multiplier effect on a national scale through collaboration among stakeholders. The main activities displayed are the upstream oil and gas industry and Increasing the awareness of all PSC Contractors and companies. To maximize the use of domestic goods/services to support one of the main pillars in SKK Migas's IOG Transformation vision towards achieving 1 million bopd of oil and 12 thousand MMscfd of gas in 2030 with maximum Local Content achievement.

The activities were carried out on 21-22 October 2021 at the Jakarta Convention Center (JCC) in a hybrid manner under the strict health protocols and took the theme of "Acceleration of National Capacity Building Towards 1 MBOPD of Oil & 12 BSCFD of Gas in 2030".

The concept of the event is divided into:

- **Forum Events in the Assembly Hall comprising:**

- o Seminar and Panel Discussion
Seminars and panel discussions involving policymakers and stakeholders, namely the Ministry of Energy and Mineral Resources, Ministry of Industry, Coordinating Ministry for Maritime Affairs and Investment, Coordinating Ministry for Economy, Financial and Development Supervisory Agency (BPKP), Investment Coordinating Board (BKPM), Commission VII of the House of Representatives (DPR) of RI, Regional Bank Representatives up to Micro, Small and Medium Enterprises (UMKM), digital association (PADI).
- o Giving Appreciation for the Performance of Goods and Services Companies (PBJs) and UMKMs.
- o The signing of the Cooperation Agreement and Memorandum of Understanding (MoU).

- **Display Units/Exhibitions**

Display Units/Exhibition Rooms presented assisted UMKMs from 7 PSC Contractors and 12 PBJs.

The 2021 National Capacity Forum was attended by 550 people offline, and the daily number of participants did not exceed the Hall capacity or occupancy quota per the Implementation of Level 2 Community Activity Restrictions (PPKM) regulations applicable in DKI Jakarta.



Chart 4.1 **Implementation of 2021 National Capacity Forum**



Chart 4.2 **Participants of the 2021 National Capacity Forum**



a. Guidance and Evaluation

SKK Migas always strives to increase vendors' capacity at the regional and national levels. It is in line with the IOG 4.0 SKK Migas Charter Program number 5A, Implementing the Improvement of National Supplier Competitiveness.

For this reason, SKK Migas, with PSC Contractors and the Ministry of Energy and Mineral Resources, carry out an assessment and guidance program with domestic providers of goods and/or services supporting the upstream oil and gas business activities to ensure the ability of domestic manufacturers to produce goods for upstream oil and gas operations and projects in Indonesia.

Assessment and guidance results are expected to increase the trust of product users, namely PSC Contractors, hence increasing the multiplier effect. In more detail, here are four main objectives of the program:

- o Increasing the confidence of PSC Contractors in the production capability, quality, and production facilities of domestic producers;
- o Providing opportunities for cost efficiency compared to the assessment carried out by each PSC Contractor;
- o Providing opportunities for time efficiency compared to the assessment carried out by each PSC Contractor; and
- o Assessment results can be used by all PSC Contractors through standardization of the assessment mechanism and criteria so that they can be applied to all PSC Contractors.

In 2021, 30 companies were evaluated and assessed as follows:

Table 4.5 Companies Participating in the 2021 National Capacity Assessment

No.	Commodity	Name of Manufacturer	No.	Commodity	Name of Manufacturer
1.	Chemical	PT Luas Birus Utama	17.	FTV	PT Bakrie Pipe Industries
2.	Chemical	PT Clariant Indonesia	18.	FTV	PT Indal Steel Pipe
3.	Chemical	PT Mits Duta Utama	19.	FTV	PT KHI Pipe Industries
4.	Chemical	PT Star Speciality Chemical Indonesia	20.	FTV	PT Teknologi Rekayaas Katup
5.	Electrical	PT Jembo Cable Company	21.	Rotating	PT Duraquipt Cemerlang
6.	Electrical	PT Prima Indah Lestari	22.	Rotating	PT KSB Indonesia
7.	Electrical	PT Sutra Kabel Intimandiri	23.	Rotating	PT Bumi Cahaya Unggul
8.	Electrical	PT Voksel Electric, Tbk	24.	Rotating	PT Torishima Guna Engineering
9.	Instrument	PT 3S Internasional	25.	Structure	PT Bakrie Construction
10.	Instrument	PT Karya Instrumindo Simpati	26.	Structure	PT CT Advance Technology
11.	Instrument	PT Indonusa Teknik	27.	Structure	PT South East Asia Pipe Industries (PT SEAPI)
12.	Instrument	PT Duta Firza	28.	Drilling Sub Surface	PT Astajaya Nirwighnata
13.	Instrument	PT Yamamoto Keiki Indonesia	29.	Drilling Sub Surface	PT Molden Patra Sejahtera
14.	Mechanical	PT Sanggar Sarana Baja	30.	Drilling Sub Surface	PT Sagatrade Murni
15.	Mechanical	PT Deakyung Indah Heavy Industry			
16.	Mechanical	PT Boma Bisma Indra (Persero)			

b. 2021 Market Intelligence Data and National Capabilities

The objectives of compiling market intelligence data are:

- Providing data and information on national capabilities that are complete, easy, and quickly understood by all parties;
- Capable of becoming one of the references in the planning process in stipulating the specifications for the project and operational needs; and
- Enhancing the use of domestic products and the achievement of upstream oil and gas local content.

These data include information on products with the types and specifications that could be produced by domestic industry. In the planning process, the specifications can be determined by taking into account the applicable technical standards so that the use of domestic products can be more optimal.

c. Implementation of Compliance Governance in 2021

Assessment of Performance for PSC Contractors' Supply Chain Management (SCM) is a form of supervision and control of upstream oil and gas business activities to assess and measure the scope of supply chain management at PSC Contractors by using Key Performance Indicators (KPI) comprising the performance of compliance with PSC Contractors' supply chain management guidelines and relevant guidelines as well as applicable laws and regulations, management of PSC Contractors' supply chain performance, cost efficiency and optimization of asset utilization, product empowerment, and domestic competence.

The assessment covers procurement management, national capacity, contract monitoring, CIVD, assets, and customs, referring to PTK-007. The selection process is carried out in a measurable and gradual way in which SKK Migas evaluates the self-assessment submitted by PSC Contractors with supporting documents. Then, a weighted assessment is given to determine the ranking of winners of each category based on the recapitulation of data resulting from the assessment of all PSC Contractors.

KPI SCM Award or 2021 SCM Performance Award was given to PSC Contractors in three categories: Category I - Large Production, Category II - Medium Production, and Category III - Small Production. This grouping was based on the value of the WP&B Work Plan and Budget for 2020, in which the Large Production category was valued at more than US\$250 million, the Medium Production category was valued from US\$50 million to US\$250 million, and the Small Production category was less than US\$50 million.

SKK Migas has evaluated PSC Contractors' KPI achievements in 2020 against 50 PSC Cost Recovery Contractors. This PSC Contractor's KPI assessment activity began on 1 March 2021 and was completed on 7 June 2021. Based on the assessment results, PSC Contractors with the best performance scores were obtained as follows:

1. Category I: Petronas Carigali Ketapang II Ltd.
2. Category II: Husky – CNOOC Madura Ltd.
3. Category III: PT. SPR Langgak

d. Inspection of PSC Contractors' Compliance

Referring to the Minister of Energy and Mineral Resources Regulation Number 17/2017, SKK Migas is responsible for controlling and supervising. The supply chain management, management of the procurement of goods and services for PSC Contractors, and management of BMN assets and leased goods managed by PSC Contractors. Therefore, SKK Migas regularly carries out compliance checks to achieve operational excellence in every supply chain management business process as a form of SKK Migas's supervision to PSC Contractors regarding the level of compliance with PTK-007 Revision 04.

Following up on the Minister of Energy and Mineral Resources Regulation Number 17/2017, SKK Migas appointed the Center for Accounting Development of the Faculty of Economics and Business, University of Indonesia (PPA FEB UI) as the Implementing Team to carry out a Compliance Check for PSC Contractors Supply Chain Management in 2020 through Contract Number PKS-0004/SMPPK2000/2021/S7 dated 8 July 2021. This self-managed inspection activity was under Presidential Regulation Number 16/2018 and its amendments regarding the Procurement of Government Goods/Services. Meanwhile, SKK Migas, through its Letter of Assignment Number SRT-0092/SKMMH1000/2021/S7 dated 27 July 2021, has assigned the SKK Migas team for the Inspection of PSC Contractors' Supply Chain Management Compliance for the Fiscal Year of 2020 to serve as the Planning Team and Supervisory Team.

The purpose of the inspection activity is as a post-audit on the implementation of the PSC Contractors' supply chain management in 2020, comprising procurement of goods and services, national capacity building, asset management, customs assets, and CIVD aspects. This activity aims to carry out SKK Migas' authority and responsibility in supervising and controlling PSC Contractors' supply chain management.

Compliance Inspection was carried out in 16 PSC Contractors using the cost recovery scheme and divided into three categories based on the value of the 2020 WP&B, namely ten large PSC Contractors, three medium PSC Contractors, and three small PSC Contractors. The selection of 16 PSC Contractors was carried out by sampling based on considerations of WP&B value, the complexity of work, and allegations of violations committed.

Table 4.6 PSC Contractors Obtaining Compliance Assessment

No.	Name	CA
1.	PT PERTAMINA EP	Indonesia
2.	PT PHM	Mahakam
3.	EXXONMOBIL CEPU LTD.	Cepu
4.	PT PERTAMINA CEPU	Jambaran Tiung Biru
5.	PT MEDCO E&P INDONESIA/OPHIR INDONESIA	Bengara, Rimau, South Sumatera, Tarakan Island, Lematang, Blok A, Bangkanai, Madura Offshore, Sampang
6.	BP BERAU LTD.	Berau, Muturi, Wiriagar
7.	PHE WMO	West Madura Offshore
8.	CONOCOPHILLIPS (GRISSIK) LTD.	Corridor
9.	PETRONAS CARIGALI KETAPANG II LTD.	Ketapang
10.	HUSKY CNOOC MADURA LTD.	Madura Strait
11.	EMP	Bentu - Segat, Gebang, Korinci Baru, Tonga
12.	PEARLOIL (SEBUKU) LTD.	Sebuku
13.	MEDCO E&P SIMENGGARIS PTY. LTD. - JOB	Simenggaris
14.	ENERGY EQUITY EPIC (SENGKANG) PTY. LTD.	Sengkang
15.	GENTING OIL KASURI PTE. LTD.	Kasuri

Description:

- Large Group
- Middle Group
- Small Group

The 2020 Financial Year Compliance Audit activity began on 04 July 2021 and ended on 23 November 2021. The implementation method was carried out online but was not restricted to submitting data, examining documents and physical assets, and discussing inspection reports. The final inspection results based on the audit are stated in an Examination Result Report (LHP).

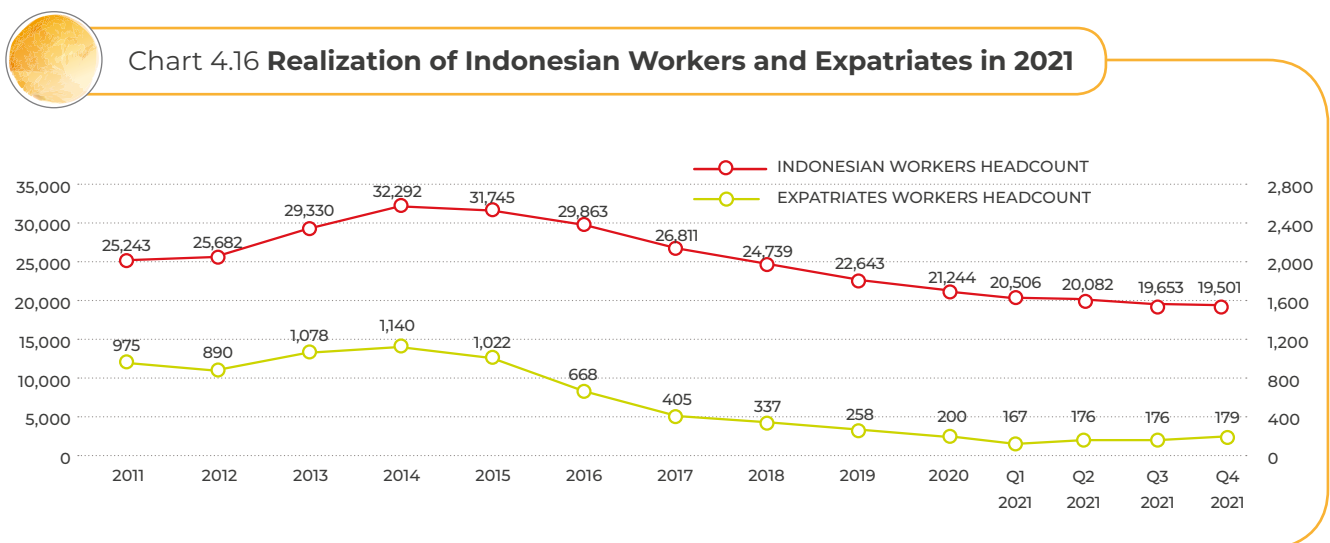
SKK Migas is obliged to inspect and supervise the implementation of the provisions on the use of domestic products. Therefore, every year SKK Migas routinely carries out inspection activities on the realization of the use of domestic products to all PSC Contractors using the cost recovery scheme. In the fourth quarter of 2021, SKK Migas inspected 3 PSC Contractors using the selected cost recovery scheme through sampling, namely PT Pertamina EP Cepu, Petronas Carigali II Ketapang Ltd., and PT Pertamina EP.

E. INDONESIAN AND LOCAL WORKERS

Currently, more than 99% of the human resources working in upstream oil and gas companies are local workers or Indonesian workers (TKIs). In 2021, the total number of PSC Contractors' workers reached 19,680, consisting of 19,501 TKIs and 179 Expatriates (TKAs). Only certain activities Indonesians cannot carry out are allowed to hire expatriates.

The hiring of workers in Indonesia continued to decline from 2015 to 2021. It was due to the efficiency program carried out by PSC Contractors caused by the oil prices and the Covid-19 pandemic. Another factor was that oil and gas projects have been completed and impacted the reduced number of workers, especially for project-based works.

The following chart shows the hiring of workers in upstream oil and gas activities in Indonesia.

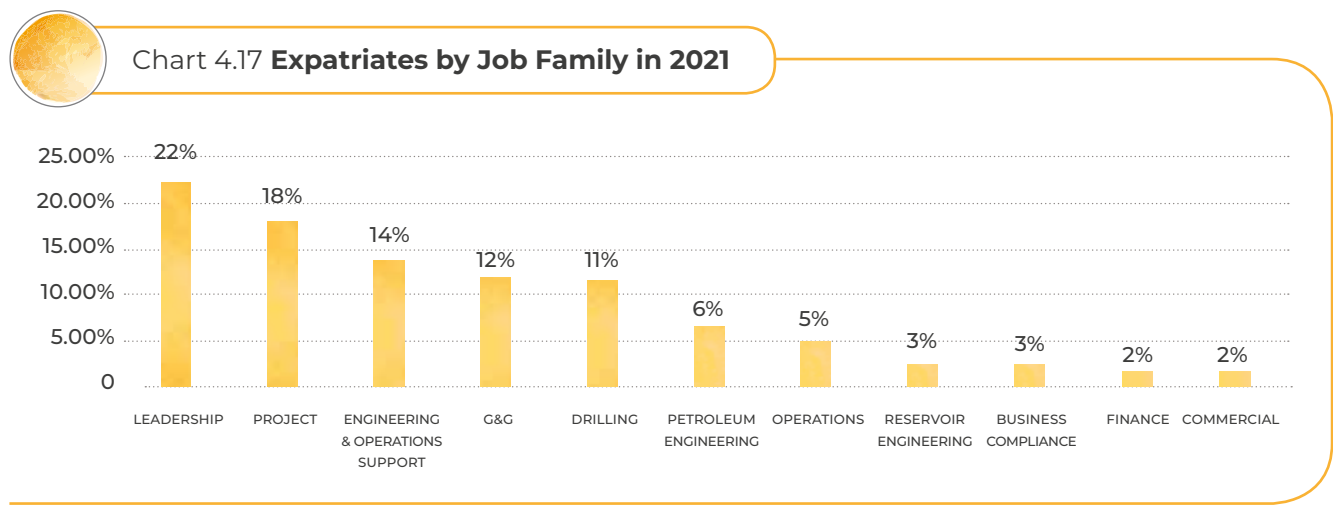


The number of Indonesian workers reached its highest point in 2014, reaching 32,392 workers. It means it drastically fell compared to the conditions in 2021, decreasing by 12,791 people, or by 39.4%, to only 19,501 workers.

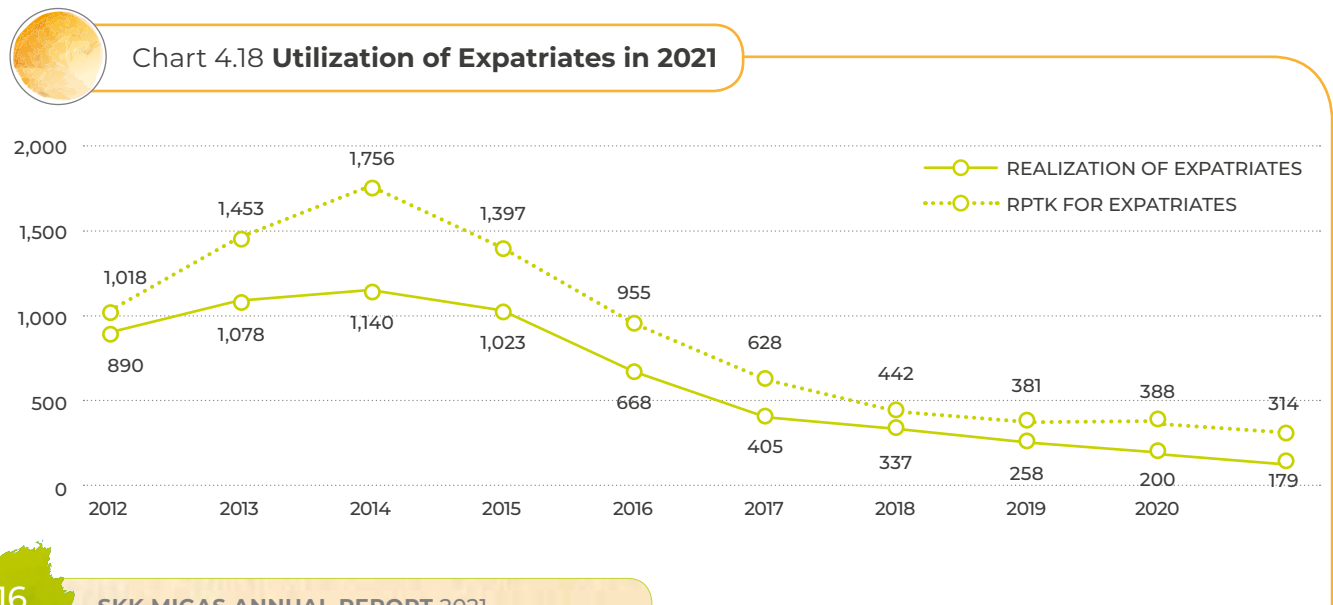
Job opportunities in the upstream oil and gas industry are reflected in the Manpower Utilization Plan (RPTK) already approved by SKK Migas. In 2021, approval for the use of Indonesian workers granted by SKK Migas was 31,082 positions. However, the actual filling of positions was 19,501 people, or only 63% realized. It should be noted that the RPTK is a PSC Contractors' long-term plan, so it does not reflect the current needs of workers. Due to various considerations, including global industry conditions and the pandemic, filling vacant positions was postponed.

The same thing happened with the hiring of expatriates. 2014 was the highest point in hiring expatriates, reaching 1,140 people, and currently, only 179 people. Sharp declines occurred from 2015 to 2018. Meanwhile, the decline was quite sloping from 2019 to 2021. Compared to 2020, the hiring of expatriates in 2021 was only downed by 21 people.

The hiring of expatriates is more focused on investors' representatives being generally top management or only for particular disciplines and expertise. Especially expertise that are not available in Indonesia, specifically for the fields of expertise in Engineering, Projects, Drilling, and G&G, which are indeed needed for smooth operations. Almost similar to the conditions in 2020, for 2021, the composition of expatriates working in the upstream oil and gas industry were mostly for Leadership skills.



In addition to supervising and controlling human resources management in all PSC Contractors, SKK Migas is also obliged to ensure that Indonesian Workers obtain competency development through the transfer of knowledge from Expatriates to Indonesian Workers. Assignments abroad or a series of other development programs are aimed at enabling Indonesian workers to master the competencies needed in upstream oil and gas business activities.



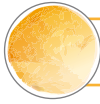
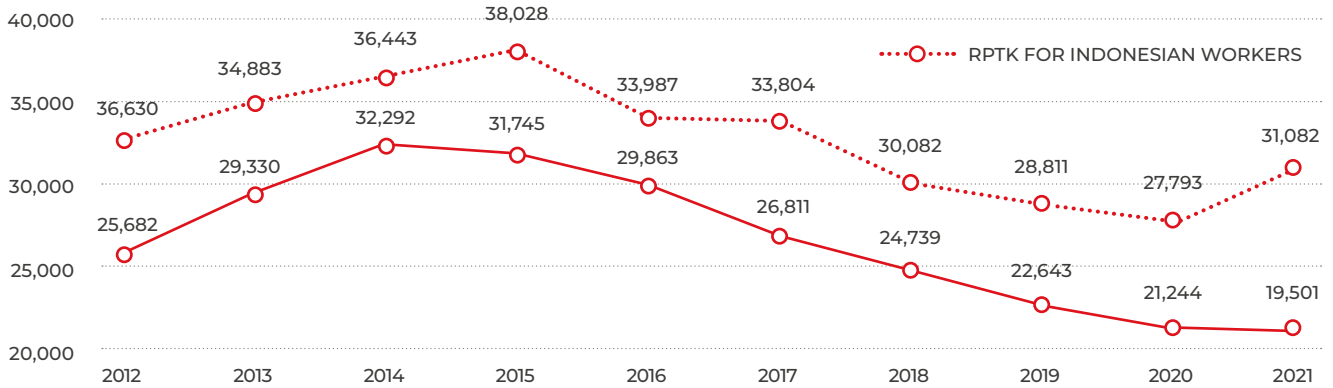


Chart 4.19 Utilization of Indonesian Workers in 2021



In 2021, SKK Migas undertook several competency development initiatives for Indonesian Workers comprising:

- Supporting the implementation of Field Work Practices (PKL), Final Projects (TA), and internships for university students in order to keep open access for the academic community in the upstream oil and gas industry during pandemic conditions and oil and gas prices that are still not encouraging. This is the commitment of SKK Migas and PSC Contractors to prepare competent national human resources to support upstream oil and gas business activities in the future. This activity is still carried out with the virtual method as a commitment of the upstream oil and gas business to carry out community development.
- Encouraging PSC Contractors to send potential Indonesian Workers to work in business units overseas, through the Technical Development Exchange (TDE) Program, Job Swapping, Job Assignment, and Internationalization, including pursuing further education (S2) abroad.

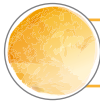
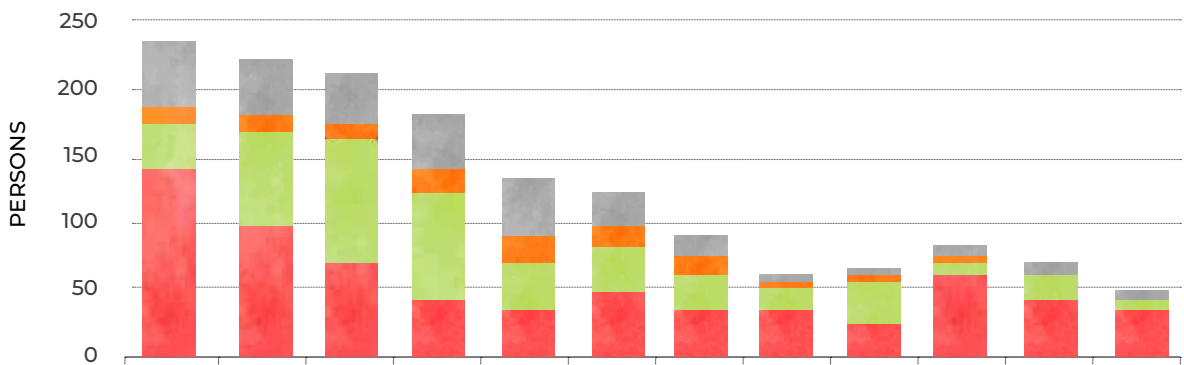


Chart 4.20 International Assignments for Indonesian Workers in 2021



	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Job Swapping	50	45	34	37	43	27	15	1	1	9	7	6
TDE	10	14	16	14	27	16	12	3	3	2	0	0
OJT/Job Assignment	36	70	97	87	36	35	19	20	30	14	17	7
Internationalization	144	100	67	39	34	43	33	31	24	55	41	32

- A. Upstream Oil and Gas Strategic Plan IOG 4.0
- B. Risk Management
- C. Report of SKK Migas Budget Implementation & Financial Audit Results
- D. Governance
- E. Communication and Information Technology System
- F. A Series of Activities in Efforts to Support The Increase in Oil and Gas Production and Reserves



CHAPTER

05

SKK MIGAS INTERNAL ACTIVITIES



A. UPSTREAM OIL AND GAS STRATEGIC PLAN IOG 4.0

It is estimated that Indonesia will become one of the world's ten countries with the highest Gross Domestic Product (GDP) by 2030. However, because economic growth requires energy, inevitably, economic growth will also demand energy growth.

This can be seen in the General National Energy Plan (RUEN), which expects a significant increase in oil and gas demand in 2050 compared to this year's demand.

Oil demand is estimated to increase from 1.66 million barrels per day (bopd) to 3.97 million bopd, or an increase of 139%. Meanwhile, natural gas increases much larger, namely 298%. Currently, the need for natural gas is in the range of 6 million cubic feet per day (MMscfd), but in 2050 the need for natural gas is estimated to reach 26 thousand MMscfd.

SKK Migas launched the Indonesia Oil and Gas Strategic Plan to answer this challenge, also known as IOG 4.0.

IOG 4.0 is a strategy to achieve the following targets: (1) achieving the oil and natural gas production of 1 million bopd and 12 thousand MMscfd, respectively, (2) enhancing the multiplier effect, and (3) ensuring upstream oil and gas operations taking into account the environmental sustainability factors.

To lead to the targets that have been proclaimed, IOG 4.0 is designed by prioritizing 10 pillars, consisting of 6 main pillars and 4 enabler pillars. The main pillars contain strategies that directly affect the achievement of targets, while the enabler pillar is a strategy related to the execution of supporting programs.

The main and supporting pillars have an equally important role, are interrelated, and jointly determine efforts to achieve the Long Term Plan (LTP) of producing 1 million bopd of oil and 12 thousand MMscfd of natural gas by 2030.

Pillar 1: Improving Existing Asset Value

Pillar 1 is implemented by ensuring that 100% of the drilling programs already approved by SKK Migas in the Work Program and Budget (WP&B) can be realized. It frequently happens that the drilling programs approved by SKK Migas do not meet the number of wells that must be drilled to meet the LTP target. Therefore, an essential part of implementing the pillar one strategy is the SKK Migas initiative by designing a filling the gap (FTG) program.

The FTG program is designed by SKK Migas, resulting from an in-depth evaluation that considers various factors so that the potential for drilling is not neglected in the Production Sharing Contractors (PSC Contractors)' work plans. SKK Migas, as the controller and operations management, can order PSC Contractors to execute the program even though it is not listed in the WP&B. Of course, the FTG program has considered the benefits for SKK Migas and PSC Contractors. The WP&B and FTG deep drilling programs become the new drilling targets. With the addition of FTG in SKK Migas's work plans, it becomes a unique challenge for SKK Migas to pursue the target.

By the end of 2021, the realization of upstream oil and gas business activities consisted of such activities as development drilling at 480 wells (78% of the target), 566 workover wells (92% of the target), well service of 22,790 wells (86% of the target) and reactivation of 515 wells (250% of the target).

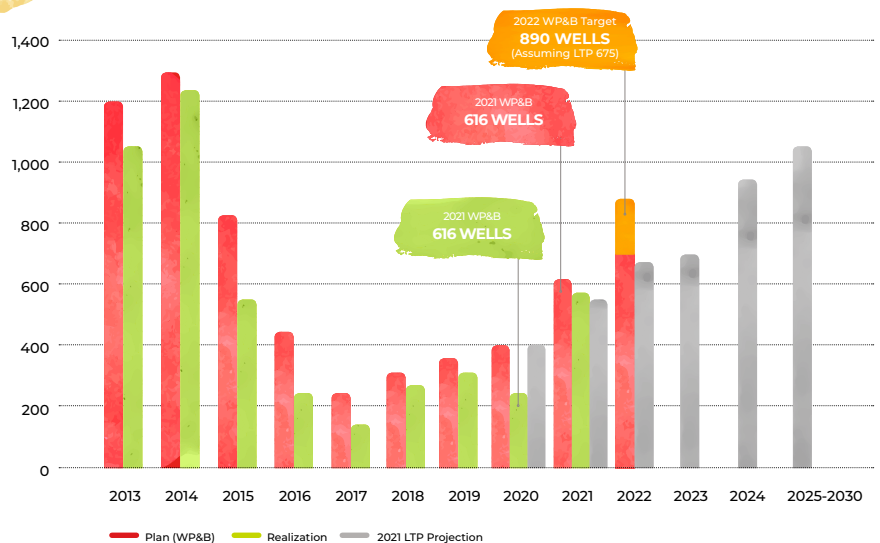
Figure 5.1

STRATEGY 1

Improving Existing Asset value

"In line with LTP target, the total number of drilling wells in 2022 is predicted to reach **780 wells (WP&B) + 10 Unbundling wells + 100 FTG wells.**"

Punctual & Efficient Execution and Completion of 2021 WP&B				
	Drilling	Workover	Well Services	Reactivation
Target	616	615	26,431	200
Realization	480	566	22,790	515
% Realization	78%	92%	86%	250%
Accelerated investment in Rokan CA				
Drilling commitment 276 wells				
Progress: 235 wells have been drilled				
Execution & Completion of Filling the Gap (FTG) Program				
Progress: Production Contribution of 11 Thousand BOPD FYA, exceeding the 5,000 BOPD target through the end of the year				
Securing development drilling program in 2022 min. 600+ wells				
Progress: 890 wells have been identified				



Meanwhile, for 2022, SKK Migas has prepared a drilling program of 890 wells. Based on technical calculations, to achieve the 2030 production target, only 600 wells will be drilled in 2022. However, SKK Migas and PSC Contractors managed to identify 790 potential wells to be drilled by 2022.

Pillar 2: Transformation Resources to Production (R-to-P)



The second strategy implemented by SKK Migas to achieve the oil and gas production target in 2030 is to accelerate the transformation from resources to production.

This strategy is expressed in programs to accelerate the monetization of oil and gas reserves in contract areas that have successfully found reserves. Monetization of oil and gas reserves can be found from the approval of Plan of Development (POD) or Optimization of Field Development (OPL).

The realization of the Reserve to Replacement Ratio (RRR) in 2021 reached 116%, higher than the target of 100%. However, the increase in production can only be seen when the fields are developed, and PODs are agreed upon, approved, and executed. Throughout 2021, monetization was accelerated for 34 PODs comprising 2 PODs-I (Pauman Field and Tanjung Enim CBM), 9 PODs/Put On Production (POP), 20 OPLs/Optimization of Field Development (OPLL) and 3 data updates.

Figure 5.2

STRATEGY 2

Transformation Resources to Production

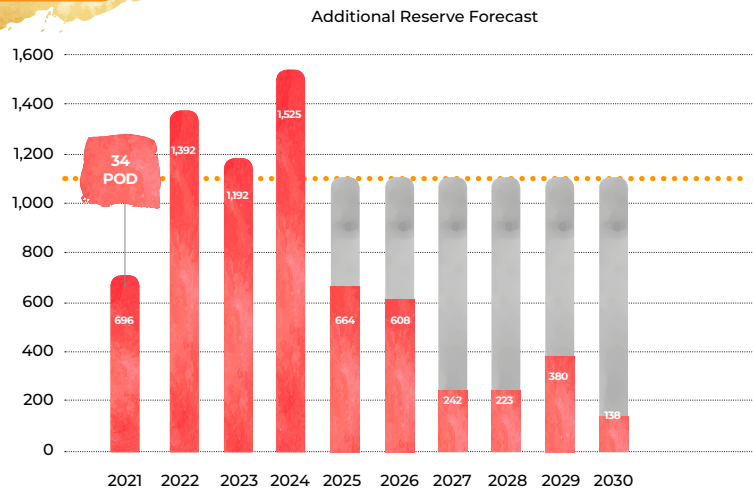
Accelerated monetization of 34 PODs comprising 2 PODs I (Pauman & GMB Tanjung Enim), 20 OPLs/OPLL, and 4 undeveloped discoveries (Forel, Ubadari, Pasir Jadi Naik, Secanggang)

RRR Target for 2021-2030 is higher than 100% through 40-50 PODs/OPLs/OPLLs per year estimation of 100-130%

Approved incentives for enhancing the economy of OPLL Mahakam 2B dan 2C, OPL Banyu Urip, Forel-Baronang

Reactivation of delayed PODs & evaluation of incentive proposals

Conducting development projects with "on time on budget."



Pillar 3: Enhance Oil Recovery (EOR)



EOR is one of the solutions to increase production. EOR is also called tertiary recovery, namely a technology applied to increase the ability of the oil to flow into a well by injecting water, chemicals, or gas into the reservoir.

EOR implementation studies have been conducted in recent years to ensure effective methods and formulas. They were conducted in Rokan Contract Area (CA) in Minas Field (Pertamina Hulu Rokan) and Mahakam CA in Handil Field (Pertamina Hulu Mahakam) using the waterflood method. Meanwhile, a different method is applied, namely using polymers, in Tanjung Field (PT Pertamina EP).

Pillar 4: Exploration



The next pillar is the exploration strategy. Exploration is one of the strategies to increase oil and gas reserves from new fields. This strategy is essential because it will ensure the sustainability of future oil and gas production. Therefore, SKK Migas always encourages PSC Contractors to carry out massive exploration activities in contract areas already in production and exploration contract areas. New technology is used to support the success of exploration.

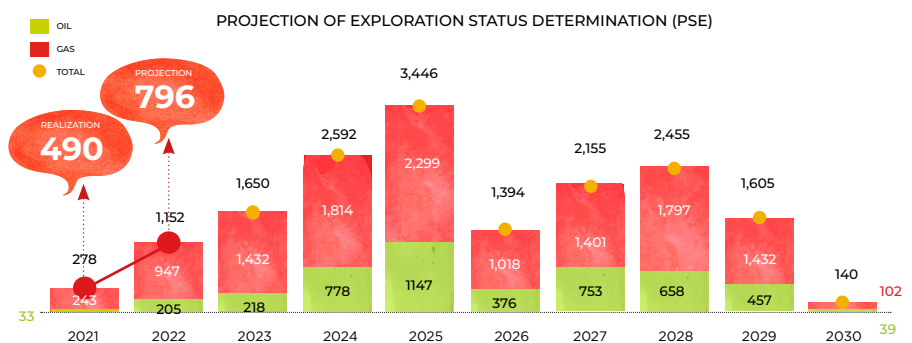
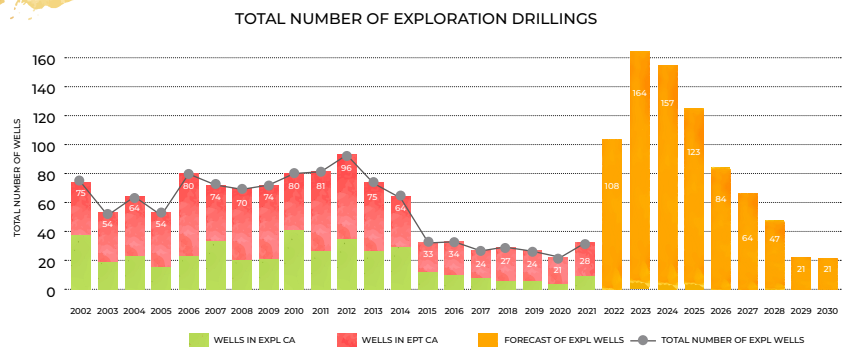
In 2021, SKK Migas and PSC Contractors conducted a survey using full tensor gravity (FTG) technology. The survey was carried out using a satellite aircraft so that the required cost was cheaper and the process was faster because the survey did not require any land acquisition process. The FTG survey was carried out in Kepala Burung Basin with a target of 45,580 km and in the Akimeugah Basin with an area of 60,440 km. Both are located in West Papua Province.

Figure 5.4

STRATEGY 4

Exploration/Migas Non Konvensional

Realization of exploration activities in 2021:
28 EXPLORATION WELLS
2.635 KM SEISMIC 2D
1.190 KM ² SEISMIC 3D
Progress of significant exploration program in 2021:
Subvolcanic vibrosels: progress 26%
Pseudo 3D reprocessing: the process of KBH transformation and procurement process
Airborne FTG Survey: acquisition of data (realization of 103%) in Akimeugah covering a total area of 60,440 km ² was completed. Bird's Head-Bintuni covering a total area of 45,580 km ² , progressed 91%
The process of 2D seismic data reprocessing of KKP Jambi Merang has been submitted to PUSDATIN, Opened Data for Investor, in March 2022.
MNK: MNK study including the use of relevant fiscal terms and plan of 2 MNK wells in Rokan CA in 2022



In addition to the 4 main pillars above, there are 6 other main pillars designed by SKK Migas to maximize national production, namely:

Pillar 5: Supplier Competitiveness



This pillar is to support the target achievement of increasing in multiple effects of the upstream oil and gas industry. Supplier Competitiveness aims to support the achievement of the target in the increase in various effects resulting from the upstream oil and gas industry and increase in national suppliers' capability. In this strategy, SKK Migas must ensure that operators meet the domestic upstream oil and gas Local Content (TKDN) target in 2021 by 57% through a national supplier enhancement program. This program is aimed at building the national suppliers' competitiveness and quality to compete with international suppliers in the upstream oil and gas industry because enhancing the national suppliers' competitiveness will enhance the multiplier effects of the upstream oil and gas industry.

During 2021, some actions have been taken to encourage the realization of pillar five as follows:

- Preparing an analysis of needs for goods and services by upstream oil and gas projects based on commodities and supplier capabilities with the completion of the National Capability Book, which has been published at the IOG Convention 2021;
- Holding discussions between SKK Migas, related Ministries/Agencies, PSC Contractors, and the Chief Executive Officer (CEO)/Director of national supply companies to discuss issues/problems and areas of improvement by organizing a National Capacity Forum aimed at becoming a forum to showcase the upstream oil and gas industry, business Match-Making (matchmaking bureau) within the scope of upstream oil and gas supporting industry, as well as being a means of publication for upstream oil and gas efforts in driving the supporting industries and creating the multiplier effects;
- Strengthening the national supply capability database for the upstream oil and gas industry through a joint assessment mechanism with PSC Contractors and the Director General (DG) of Oil and Gas of the Ministry of Energy and Mineral Resources (ESDM) for 29 domestic manufacturers conducted in the third and fourth quarters of 2021, and having held a plenary meeting to determine the results of the joint assessment between the Directorate General of Oil and Gas, SKK Migas and PSC Contractors to approve the joint assessment results to be published in the first quarter of 2022;
- Strengthening the supervision system for the use of domestic products and implementing local content provisions through the completion of the Local Content Realization Module in SI-PRS, as well as testing the module at SKK Migas on 29 July 2021 internally and socialization and launching carried out on 26 November 2021;
- Conducted a Vendor Development program related to the capabilities of Local Companies comprising a testing program for Amine Solvent Product produced by PT Luas Birus Utama and has been successfully applied to the production operating system at PSC Contractor, ExxonMobil Cepu Ltd., in October 2021 to replace/substitute the imported product.

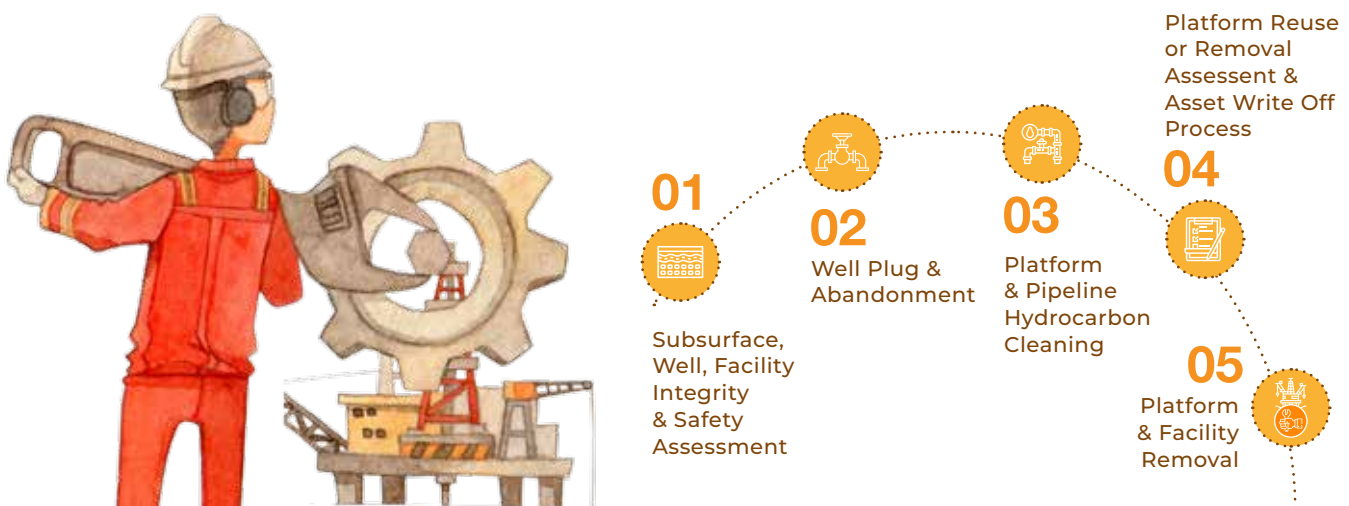
Meanwhile, another program that has been running since 2021 and is in the process of being completed together with PSC contractors is the development of business cases (including supplier tiering criteria and a list of supplier capability levels) to show the monetary value of national supplier competitiveness improvement program with the final result in the form of a business validation report.

Pillar 6: Decommissioning

Decommissioning is one of the strategic pillars of IOG 4.0, a strategic plan developed by SKK Migas to achieve the ambitions of Indonesia's upstream oil and gas industry for the next 10 years (2030).

Decommissioning activities are essential for the safety, design, and management of unused assets and for ensuring environmental sustainability. In this context, short, medium, and long-term decommissioning strategies are needed to ensure the sustainability of the value chain process in the upstream oil and gas industry.

Figure 5.5 Strategy 6 of “Decommissioning”



This pillar has 9 action plans and is planned to end at the end of 2023. The 2021 activity targets have been fully completed. Overall progress currently reaches 52.29% for activities up to the end of 2023.

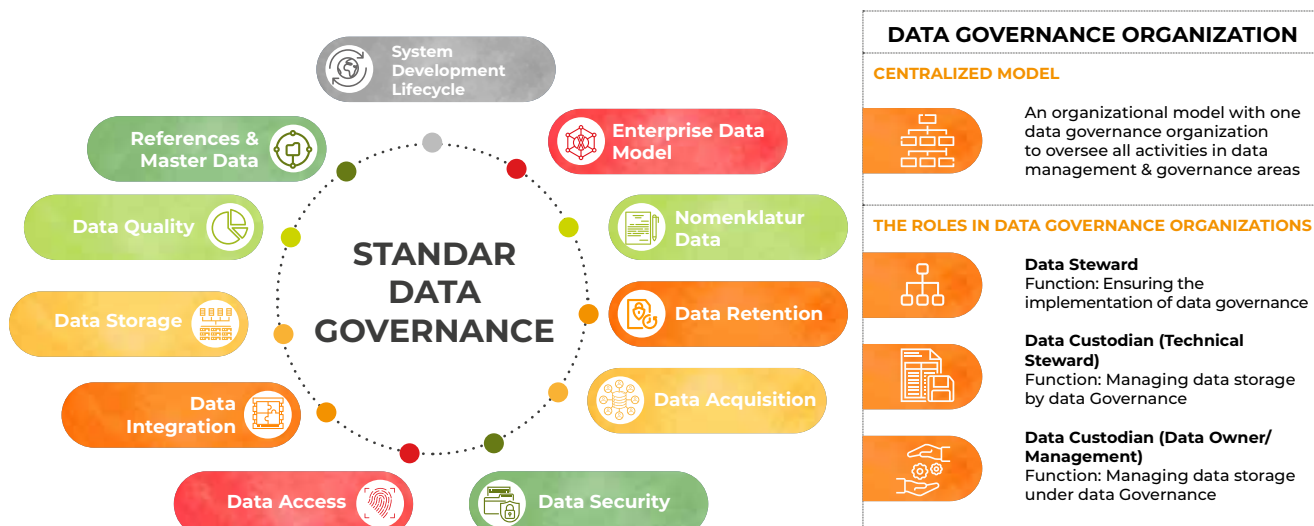
Related to decommissioning activities, discussions and processes for decommissioning activities have been carried out in 2021. They comprised such pilot projects as Attaka I, UA and EB (Pertamina Hulu East Kalimantan), FHT, PA-FT and FF-FT (PHE ONWJ, West Seno & Bangka Field (Chevron Makassar Ltd.), PGC-7 (Kangean Energy Indonesia Ltd.), MSN Platform (EMP Mallaca Strait) decommissioning platforms.

In addition, there are 4 (four) enabler pillars to support the implementation of pillar 6 above, as follows:

Pillar 7: Digitization and Strategy Data Management through Utilization of Information Technology

This pillar focuses on developing systems and technology at SKK Migas to support the achievement of IOG 4.0 targets that have been prepared. Through this pillar, SKK Migas is expected to have a reliable system and technology that can support providing data and information for optimal decision-making. Availability, Integrity, Validity, and Timelines of data and information are keys in supporting successful decision-making that can affect the performance of an organization in achieving targets, as well as implementing the vision and mission of an organization. It also supports the establishment of active collaboration from various parties in SKK Migas and is expected to support creating a conducive environment for the organization.

Figure 5.6 Strategy 7 "Digitization and Strategy Data Management through Utilization of Information Technology"



PROSEDUR DATA GOVERNANCE	
1	Data Governance Operating Framework Preparing provisions for the carrying out of data management
2	Data Governance Organization Referred to as Data Management and Governance (DMG)
3	Data Stewardship Explaining the role of Data Governance, namely: Data Owner, Data Steward, & Data Custodian
4	Issue Management The process of identifying, defining, escalating, and resolving issues related to Data Governance
5	Data Classification Guidelines for identifying organizational data into defined categories
6	Data Policy Determining the direction of Data Governance policy at SKK Migas

The implementation of this pillar is carried out not only through the development of systems and information, as well as the necessary supporting infrastructure but also by improving data governance and quality management, as well as active participation from all parties in SKK Migas. After properly building this pillar, SKK Migas' performance and achievement can be supported, whereas the relevant stakeholders' needs can be fulfilled.

Pillar 8: Technology Adaptation



Indonesia Oil and Gas Institute (IOGI) was formed under the Chairman of SKK Migas' Decree dated 6 July 2021. Two Focus Group Discussions (FGDs) have been held, whereas the collection of publications on studies that IOGI has made is ongoing. Three studies are in progress, and the process of Selecting Subject Matter Experts & Research Fellows.

IOGI intends to broaden its horizons to find solutions to various problems faced by Indonesia's upstream oil and gas industry. Therefore, it is hoped that SKK Migas, PSC Contractors, and stakeholders of the upstream oil and gas industry in Indonesia can collaborate to provide input or participate in IOGI activities.

These program charters aim to ensure more targeted studies and idea sharing by linking these activities with SKK Migas' strategy and transformation goals. Concerning its realization at the end of 2021, the overall progress reached 82.3%.

In 2021, IOGI procured consultants entitled "Consulting Services/Subject Matter Experts and Research Fellows Implementation of IOG 4.0 Charter 8A Program Cross Industry Research Knowledge & Research Collaboration".

The purpose of this procurement is to obtain assistance from consultants / Subject Matter Experts in the upstream oil and gas industry and Research Fellows to monitor, manage quality control, and administer the implementation of Cross Industry Research Knowledge & Research Collaboration so that it runs well and is carried out per the deadlines set to achieve the target of 1 million bopd of oil and 12 thousand MMscfd of natural gas in 2030. In this case, IOGI's team wants to get an initial assessment of the selection of the most optimal location for the placement of Non-Conventional Oil and Gas (NCOG) exploration wells in several priority contract areas of NCOG prospects.

The results of this work are obtained from the initial assessment of the placement of NCOG Hydrocarbon Shale exploration wells in contract areas with priority NCOG prospects. The beneficiaries of this activity/study are:

- a) State of the Republic of Indonesia
- b) SKK Migas
- c) PSC Contractors
- d) National and international upstream oil and gas investors
- e) National upstream oil and gas supporting industry
- f) Relevant state ministries/agencies

Pillar 9: Investment and Commercialization Model



The next pillar constitutes an enabler and supports the strategic pillars in IOG 4.0 Strategic Plan to achieve the production target of 1 million bopd of oil and 12 thousand MMscfd of natural gas by 2030. This pillar aims to attract more investment and optimize gas commercialization.

To improve the investment climate, SKK Migas developed a more attractive and innovative business model to increase production and reserves. This strategy comprises the formulation and proposals of various fiscal incentives designed for various projects or value chain phases, as well as fiscal incentives that can comprehensively and significantly improve the investment climate in Indonesia's upstream oil and gas industry.

To optimize gas commercialization and consider the large number of gas resources currently owned by Indonesia but not yet fully absorbed, SKK Migas, through this pillar, aims to improve the gas commercialization process, especially through increased engagement with buyers, both currently existing buyers, and other potential buyers.

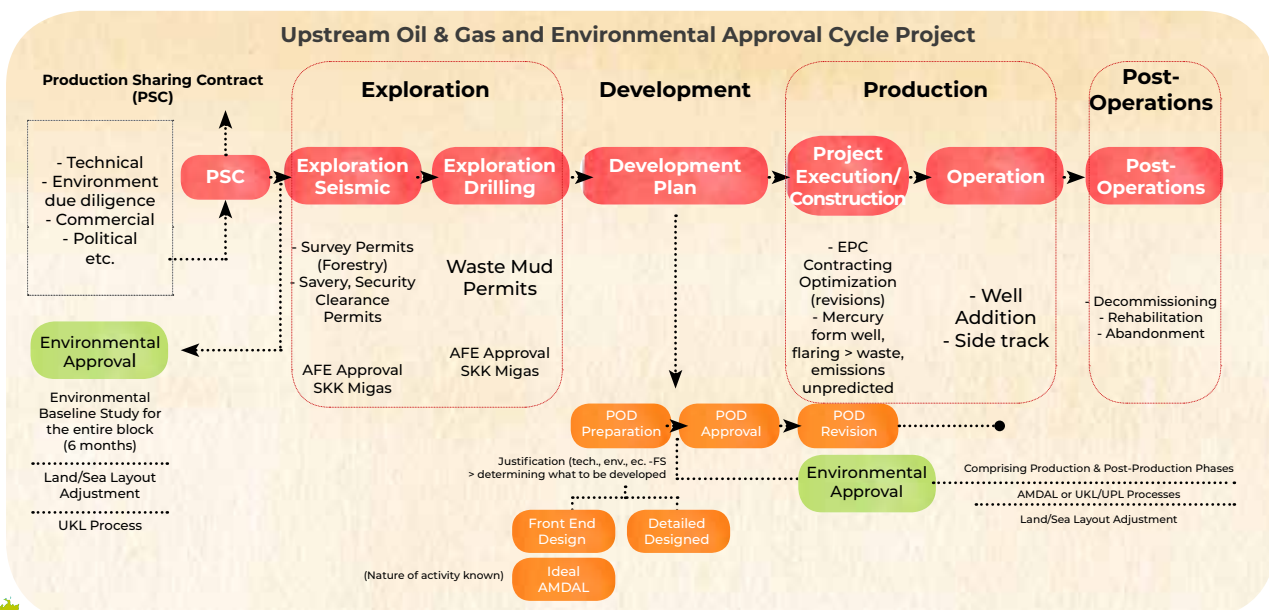
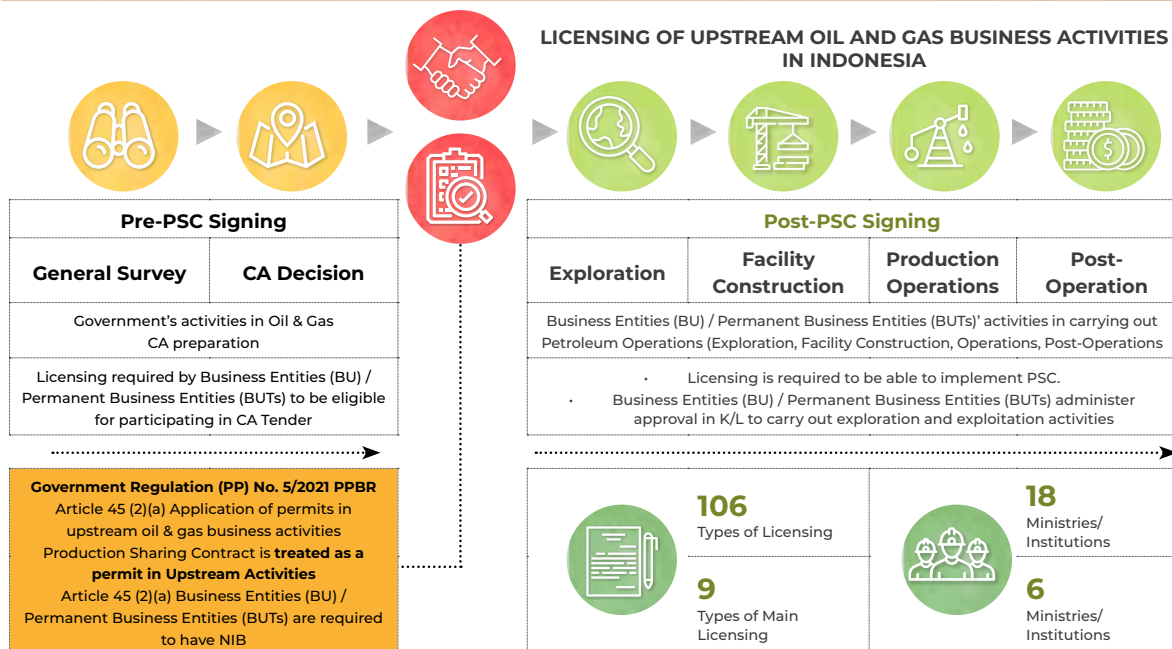
The implementation of this pillar in 2021 comprised the following actions:

1. Holding scientific studies related to tax exposure in upstream oil and gas activities, including the implementation of FGD and Tax Forums involving stakeholders, including the Ministry of Finance (Fiscal Policy Agency and Directorate General of Taxes), Ministry of Energy and Mineral Resources, and Indonesian Petroleum Association for the submission of fiscal incentives formulation. This study focuses on the analysis of the Branch Profit Tax of Indonesian oil and gas companies and the implementation of assume and discharge in the Indonesian upstream oil and gas industry, as well as the impacts of the multiple effects (backward and forward linkage) resulting from the application of tax incentives.
2. Developing procedures/guidelines related to the evaluation process and criteria that contract area bidders must meet about financial aspects to improve the investment climate as a consideration for the Minister of Energy and Mineral Resources to decide winners of contract area bids.
3. Playing an active role in preparing tax incentives related to the Treatment of Income Tax on Transfer of Interests Participation in Indonesia's upstream oil and gas business activities through issuing Government Regulation Number 93/ 2021.
4. Preparing projections of Indonesia's natural gas supply and demand (including regional and global) based on consideration of supply capacity, estimated needs (existing and development), and supporting infrastructures.
5. Formulating and proposing changes/adjustments to the field development schemes for several stranded gas fields.
6. Implementing marketing strategies and introducing new Liquefied Natural Gas (LNG) projects to potential LNG buyers.
7. Develop timelines and plans for active facilities and socializing with stakeholders in gas commercialization efforts, including holding the LNG Forum in 2021 and gas commercialization studies in collaboration with the University of Indonesia's Economic & Community Research Institute.
8. Building, developing, and implementing a monitoring system for natural gas commercialization in the form of a Table.

Pillar 10: Strengthening SKK Migas's Capability and Role through Regulatory Oversight, Simplification of Licensing System, and Human Resource Management

As a prerequisite for the successful implementation of the main programs described in IOG 4.0, it is necessary to pursue a comprehensive revision of the constitution underlying Indonesia's oil and gas business activities, simplification of the bureaucracy and regulations related to licensing, as well as the implementation of best governance that will improve organizational capabilities in supporting stakeholders' interests. Regarding the organization, the main focus is to make SKK Migas a business partner for PSC Contractors, which is deemed essential to improve SKK Migas' organizational capability as a Center of Excellence with an organizational structure that can expedite business processes at SKK Migas and create SKK Migas's best in class work culture and human resource management (HR) to support better the operations of upstream oil and gas industry.

Figure 5.7 Strategy 10 "Strengthening SKK Migas' Capability and Role through Regulatory Oversight, Simplification of Licensing System and Human Resource Management



In 2021, a holistic study was carried out to identify regulations affecting the upstream oil and gas industry, including supporting and hindering regulations, as well as implementing cooperation with universities/ stakeholders to revise the relevant Oil and Gas Law:

- The Management of Oil and Gas natural resources under the Constitution / Basic law of the Republic of Indonesia.
- Substance and Legal Power of the Decision of the Constitutional Court Republic of Indonesia concerning the Examination of the Oil and Gas Law through:
 - o FGDs in three Law Faculties at Famous State Universities in Indonesia (Unair, UNS, Undip)
 - o FGDs with DPR Expertise Board
 - o FGDs assisting the test of the Oil and Gas Bill in Surabaya and Balikpapan
 - o Discussion of the Regulatory Impact Analysis of the Bill with the DPR BKD
 - o FGDs with the Ministry of Laws and Human Rights
 - o FGDs with Community Organizations

Based on this study, a revision of the Oil and Gas Law has been proposed to position the SKK Migas better in the upstream oil and gas industry based on comparative study analysis. This is marked by the publication of two studies of academic texts and the legal aspect of the Oil and Gas Bill from the University of Indonesia and Airlangga University.

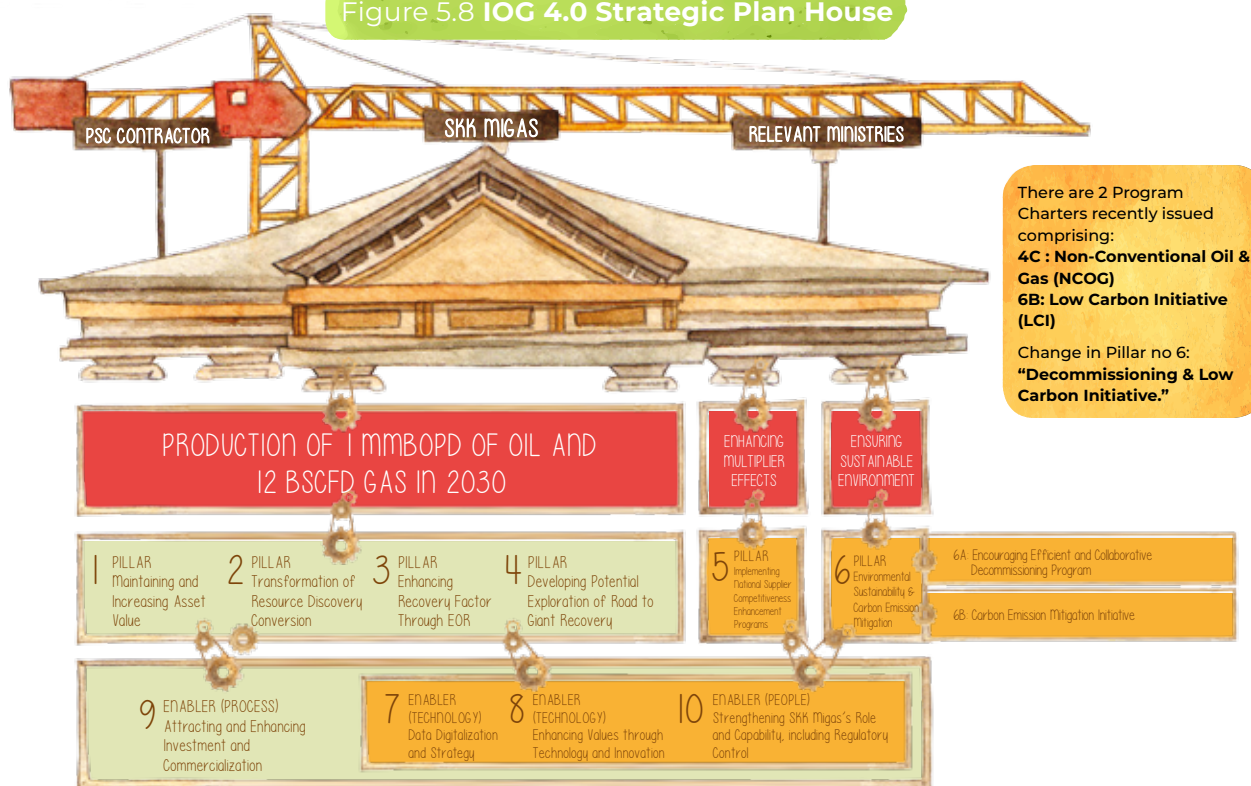
Regarding licensing, a Draft Presidential Regulation on Acceleration of Licensing for Upstream Oil and Gas Business Activities has been prepared, and discussions have been held with UGM and IPDN with the main ideas of the Draft Presidential Regulation on simplification of licensing for upstream oil and gas activities:

1. Affirming that upstream oil and gas exploitation constitutes Government's vital strategic activity.
2. Confirmation that the techniques for preparing licensing requirements and discussions submitted by Business Entities (BU) / Permanent Business Entities (BUTs) are integrated by SKK Migas for further discussion by the relevant ministries.
3. Confirmation of the certainty of permits required in the KUHM.

In connection with the enhancement of the organizational function of SKK Migas, a proposal for a new SKK Migas organizational structure has been submitted to the Minister of Energy and Mineral Resources, which refers to the study/identification of the Center of Excellence and Smart Organization operating model. In addition, a study for the Key Account Representative (KAR) has been completed, which is one of the breakthroughs that SKK Migas will carry out to mobilize and assist PSC Contractors directly by assigning competent employees as liaisons and providing strategic inputs to PSC Contractors (chosen ones), and prevent any debottlenecking.

The relationship between the main pillars and enablers, as well as the targets of the IOG 4.0 strategic plan, can be briefly described through the following IOG 4.0 strategic plan house:

Figure 5.8 IOG 4.0 Strategic Plan House



The ten strategic pillars are broken down into 25 program charters, further into 200 action plans.

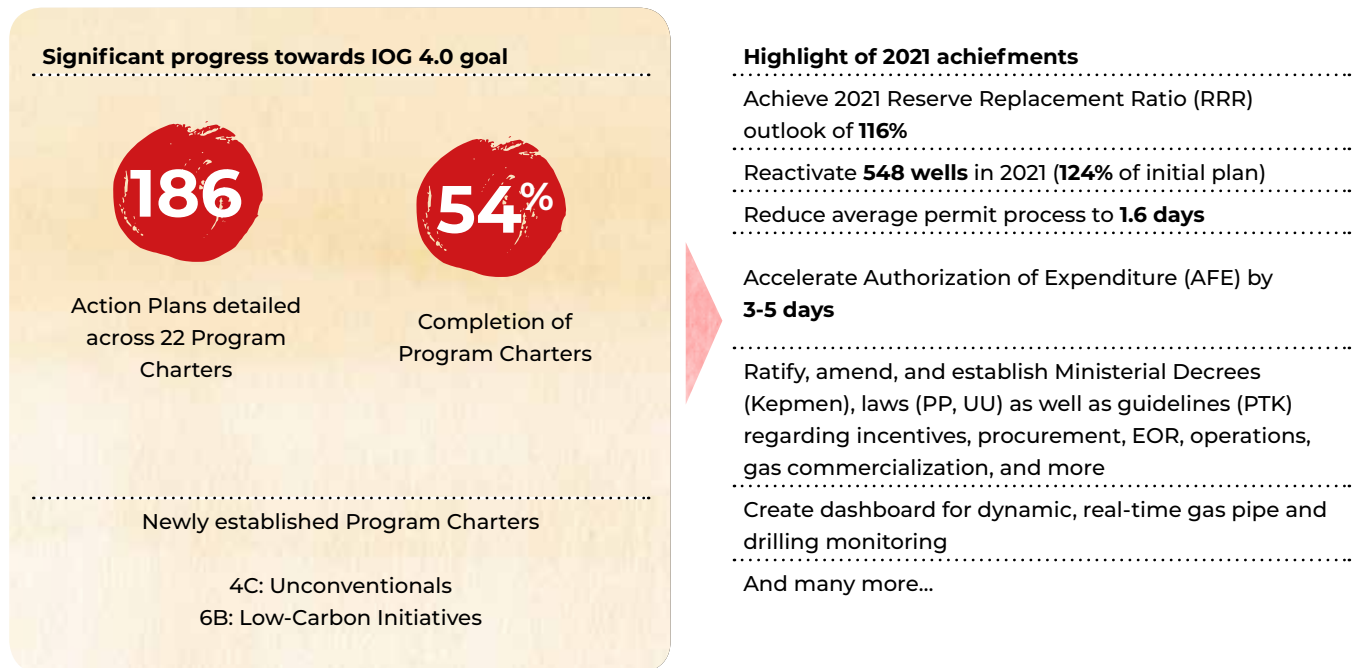
Table 5.1 10 Strategic Pillars and 22 Key Programs

<p>1 Maintaining and Improving Existing Asset Value</p> <p>A. Downtime Management and Operating Excellence</p> <p>B. Strategic Operation Management</p> <p>C. Idle Well and Fields Rejuvenation & Production Efficiency</p> <p>D. Competitive and Sustainable Cost Base (I-Cost)</p> <p>E. Turnaround Performance in Expiring Assets</p>	<p>2 Transforming Conversion of Discovered Resources</p> <p>A. Accelerated Dev. of Undeveloped Discoveries</p> <p>B. Critical Infrastructure Retention</p> <p>C. World Class Project Management</p>	<p>4 Unlocking Exploration Potential: Road to Giant Discovery</p> <p>A. Exploration and Giant Discoveries Strategy</p> <p>B. Near-Field Exploration & Optimization of Sleeping Areas</p>	<p>6 Driving Efficient and Collaborative Decommissioning</p> <p>A. National Decommissioning Strategy</p>	<p>9 Attracting & Enhancing Investment and Commercialization</p> <p>A. Inward Investment and Innovation Business Model Strategy</p> <p>B. Gas Commercialization</p>
	<p>3 Increasing Recovery Factor Through EOR</p> <p>A. EOR Intensification</p>	<p>5 Enacting National Suppliers Enhancement Program</p> <p>A. Supplier Competitiveness Enhancement Program</p>	<p>7 Digitalization and Data Strategy</p> <p>A. Digital Implementation and Data Strategy Formulation</p>	<p>10 Strengthening SKK Migas Roles & Capabilities incl Regulatory Oversight</p> <p>A. Key Account Representatives</p> <p>B. Regulation to Strengthen SKK Migas Role & Function</p> <p>C. One Door Policy and Operator Stewardship</p> <p>D. Center of Excellence and Smart Organization</p>
			<p>8 Unlocking Value Through Technology and Innovation</p> <p>A. Cross Industry Knowledge & Research Collaboration</p> <p>B. Strategic Alliance & Partnership With Advanced Technology Providers</p>	

The action plan in the IOG 4.0 Strategic Plan is a cross-year action plan. Of the 200 action plans in 2021, 186 have been implemented.

Implementing these activities has resulted in the completion of 54% of the total program charters.

Figure 5.9 Implementation of IOG 4.0 Strategic Plan in 2021



The results of several activities carried out in 2021 exceeded the stipulated targets comprising:

- The addition of reserves is more excellent than the produced one, so the RRR reached 116%.
- Reactivation of wells can be carried out, totaling 548 wells, hence 124% of the 2021 WP&B plan.
- The licensing support process by SKK Migas can be completed in an average of 1.6 days, faster than the 2020 average of 3.5 days.
- Acceleration of Authorization of Expenditure (AFE) approval can be completed in 3-5 days.

Referring to the dynamics faced by the upstream oil and gas industry, SKK Migas completed the program charters in 2021 by adding 13 action plans as follows:

Table 5.2 SKK Migas Program Charters in 2021

No	Program Charters	Main Activities
1	2C, 10	Facilitating the recruitment and training of skilled workers to share best practices
2	6B	Assisting the Government to establish a clear net zero plan (phase out coal, promotion of renewable energy, and use natural gas as a substitute)
3	6B	Facilitating the project priorities for the implementation of decarbonization initiatives
4	6B	Providing an overview of customer needs/preferences/willingness to purchase oil and gas decarbonization products
5	6B	Establishing a clear view of the carbon intensity per project/field / well and a strategy for improving the Low Carbon Intensity Project
6	6B, 8B	Facilitating identification and development of possible emission reduction levers (such as CCU and CCS, especially in East Natuna)
7	6B, 9A	Helping assure net zero regulations (e.g., carbon tax mechanism, CCUS, greener alternatives)
8	9A	Attracting investment from non-traditional oil and gas players (e.g., small cap, mid cap, PE-backed)
9	9A	Enabling the procurement process that can be carried out in conjunction with long-term planning, following the development plan
10	9B	Preparing and maintaining infrastructures for gas distribution to ensure long-term supply availability (e.g., consolidation of scattered gas infrastructures)
11	10B	Engaging relevant stakeholder audits to create collaboration (e.g., creating assurance maps, avoiding duplication of audits) while creating good governance, effective operations, and increasing investor confidence
12	10B	Completing SKK Migas BAKAMLA and SKK Migas-TNI AU Cooperation Agreements
13	10D	Exploring TCO implementation in tender processes (contract strategy)

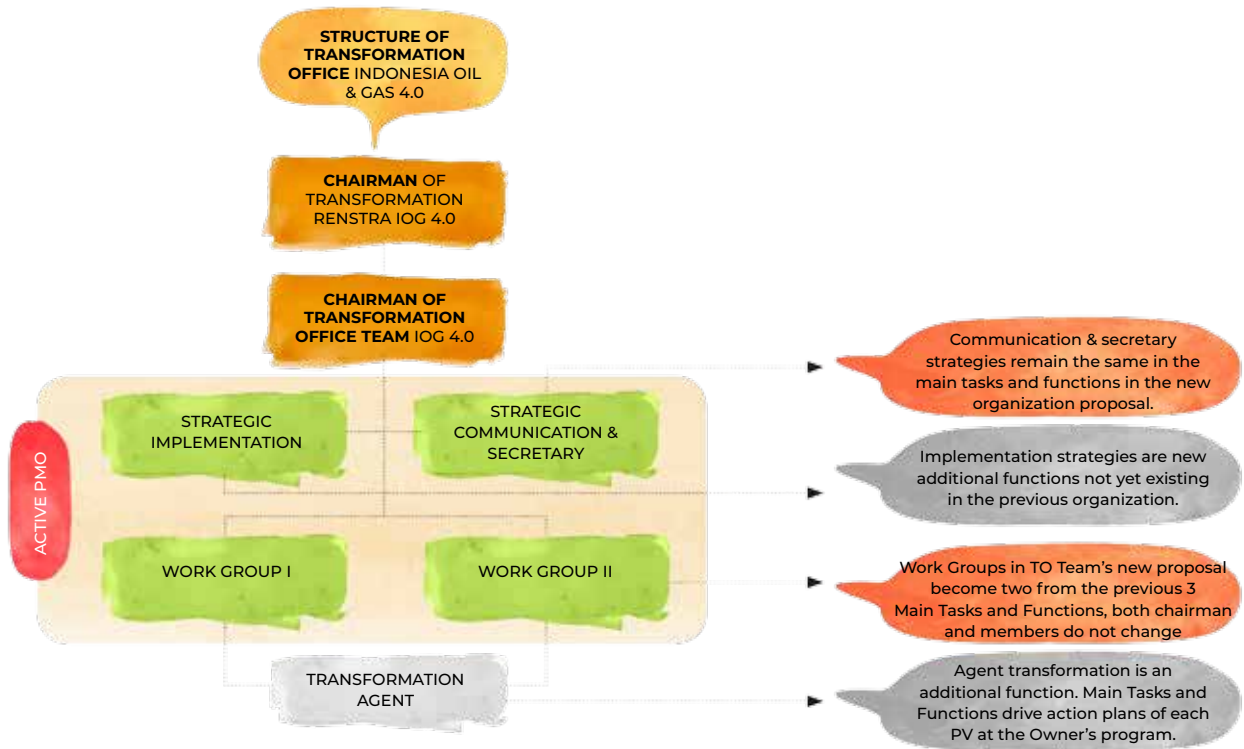
Implementation and realization of the action plan to support the ten pillars are coordinated by the Transformation Office. The Transformation Office (TO) Team, acting as Project Management Office (PMO), focuses on preparing the program charter baseline, monitoring progress, preparing new program charters, preparing the strategic plan revision, and compiling the PMO Governance & Manual. If there is any shift in implementation or a slowdown, it is recommended to immediately take the necessary actions to return it to the ' track ' agreed upon in IOG 4.0.

Table 5.3 Main Tasks and Functions of SKK Migas Transformation Office Team of 2021

2021	
1.	Preparation of the Charter Program Baseline
2.	Implementation of the Program Charter Monitoring Progress
3.	Preparation of additional new Program Charters: PC 4C (Non-Conventional Oil and Gas) and 6B (Low Carbon Initiative)
4.	Preparation of Revised Strategic Plan (Renstra)
5.	Preparation of PMO Governance and Manual

The following is the organizational structure of TO which is directly responsible to the Chairman of SKK Migas:

Figure 5.10 Organizational Structure of SKK Migas Transformation Office Team of 2021



B. RISK MANAGEMENT

1

ANTI-BRIBERY MANAGEMENT SYSTEM SNI ISO 37001:2016

SKK Migas is highly committed to carrying out all upstream oil and gas business activities with the principles of good governance, namely transparency, accountability, responsibility, independence, fairness, and integrity, as well as compliance with all applicable laws and regulations. The implementation of SNI ISO 37001:2016, the Anti-bribery Management System, constitutes a substantial effort to maintain the reputation of SKK Migas under the principles of good governance and to provide a systematic framework of anti-bribery.

SKK Migas established an Anti-Bribery Compliance Function (FKAP) Organization to implement SMAP with the following duties, responsibilities, and authorities: overseeing the design and implementation of SMAP, providing instructions and guidance for personnel on SMAP and issues related to bribery, ensuring that SMAP is under the applicable standard requirements, and reporting SMAP performance to SKK Migas Management.

The implementation of SMAP requires active participation from all parties in SKK Migas, starting from top management, workers, and outsourcing staff, including core family members.

A summary of target achievement outcomes and performance indicators is as follows:

Table 5.4 **SKK Migas's Targets And Performance Indicators through The perspectives of Internal Process**

Improving The Quality of Organization Governance Related To SMAP in SKK Migas Environment					
STRATEGIC TARGETS	PERFORMANCE INDICATORS	PERFORMANCE ACHIEVEMENTS			
		TARGETS	REALIZATION	%	
1 Enhanced control and management of bribery risks	Updating of bribery risks	Submission of SKK Miga's risk profile to all functions that are copied to all Deputy delivery emails on October 14, 2021	100	%	
	Implementation of mediation/ assistance activities to enhance internal control of bribery risks related to business process	Carrying out risk updating assistance with the related required functions. Functions/Divisions that are assisting include: FKK, Expenditure Treasurer, PPSM, PPK, ULP, MSTI, SDM, Exploitation Planning, PPBJ, PRSAB, Asset Management, Law, Northern Part of Sumatera.	100	%	

Improving The Quality of Organization Governance Related To SMAP in SKK Migas Environment

STRATEGIC TARGETS	PERFORMANCE INDICATORS	PERFORMANCE ACHIEVEMENTS			
		TARGETS	REALIZATION	%	
2	Provision of directions and guidelines for SMAP implementation	Availability of Guidelines for TAD Due Diligence and Internal Providers of Goods and Services	Due Diligence for PBJ and PBJ candidates that ULP can implement (for PBJ candidates through the questionnaire method and PBJ by PPK through the signing of the PBJ Integrity Pact). Notes: continuing with what has been in progress	100	%
		Availability of Guidelines Forms for SMAP Feedback	Feedback Form used to get responses related to SMAP implementation at SKK Migas. Notes: continuing with what has been in progress	100	%
		Availability of Guidelines for TAD Risk Analysis	Guidelines include procedures, fill-in forms, KPI examples, and TAD risk analysis papers which can be used for TAD placement.	100	%

Table 5.5 SKK Migas's Targets And Performance Indicators through Customers' Perspectives

Improving The Quality of SMAP Operation implementation

STRATEGIC TARGETS	PERFORMANCE INDICATORS	PERFORMANCE ACHIEVEMENTS			
		TARGETS	REALIZATION	%	
1	Enhanced the quality of Employees related to SMAP	Implementation of Employee Proper Test by HR Division	Proper test interview has been conducted for employees hired by SKK Migas in 2021. Notes: Continuing with what has been in progress by the HR Division	100	%
		implemented Signing of Employees' Pact Integrity	Using intranet media (web-based) for employees with a 6-monthly period. Notes: Continuing with what has been in progress	100	%
2	Enhanced quality of Internal Providers of Goods and Services	Related to SMAP by ULP through the filling in of questionnaire of Proper Test for Internal Providers of Goods and Services	For PBJ Candidates in 2021 Notes: Continuing with what has been in progress for ULP. Document uploaded in ECM	100	%
		Implementation of Proper Test for Internal Providers of Goods and Services by PPK through the signing of Internal Providers of Goods and Services' Integrity Pact	For PBJ under contract with SKK Migas 2021 Notes: continuing with what has been in progress for ULP	100	%

Improving The Quality of SMAP Operation Implementation					
STRATEGIC TARGETS	PERFORMANCE INDICATORS	PERFORMANCE ACHIEVEMENTS			
		TARGETS	REALIZATION	%	
3	Enhanced quality of Employees related to SMAP	Implementation of the TAD Proper Test at Head office and Representatives through the signing of the TAD Integrity Pact	For TAD 2021	100	%
		Implementation of TAD risk analysis activities at Representatives	Already conducted by all representatives for TAD at Representatives 2021	100	%
		Implementation of TAD anti-bribery declaration activity at Representatives	Already conducted by all representatives for TAD at Representatives 2021	100	%
4	Supporting SKK Migas's needs in every activity associated with the enhancement of SMAP understanding for SKK Migas stakeholders / Business Partners	Availability of guidelines/ materials required related to SMAP	Materials associated with SMAP for SR, AR, and socialization of ULP vendors	100	%
		Coordination and support required related to SMAP (Strands PK)	There is no achievement monitoring assignment for KPI Strands PK	100	%

Table 5.6 **SKK Migas's Targets And Performance Indicators through Learning & Growth Perspectives**

Improving The Organizational Culture related to SMAP within SKK Migas					
STRATEGIC TARGETS	PERFORMANCE INDICATORS	PERFORMANCE ACHIEVEMENTS			
		TARGETS	REALIZATION	%	
1	Update of SMAP exam materials and questions Notes: Training through Moodle LMS constrained by WFJ is proposed to be held in 2021.	Creation of SMAP exam materials and questions for training through Moodle LMS in 2021.	Creation of SMAP exam materials and questions coordinated by the Strategic Management Department. Already prepared and uploaded in LMS on July 2, 2021	100	%
		Socialization to Internal Providers for Goods and Services at Head Office and Representatives	Socialization is coordinated and implemented by ULP Representative Financial Administration Manager	100	%
2	Submission of SMAP awareness program through promotional media and or electronic media to relevant functions	Submission of SMAP awareness program to workers and TAD	Submission of awareness program through: 1. Implementation of LMS for SKK Migas's workers since July 12, 2021, and extended until October 19, 2021 2. Implementation of Townhall integrity by PI for workers and TAD on 12 & 28 August 2021	100	%

2

SKK MIGAS RISK MANAGEMENT BASED ON BUSINESS PROCESS V 5.0

In implementing risk management, SKK Migas routinely updates the risk register by involving all functions in SKK Migas. The risk register is updated based on the business process applicable at SKK Migas. For the period of 2021, the risk register is updated based on business process version 5.0 set in 2020.

SKK Migas's risk updating based on business processes is one of the requirements and is mandatory in the application of SNI ISO 37001:2016 Anti-Bribery Management System and SNI ISO 9001:2015 Quality Management System for main business processes at SKK Migas. Hence, mapping is carried out on risks included in the Operational Risk category and Fraud Risks, especially in the Bribery subcategory/ aspect.

In measuring the impact of Operational Risk, referring to SKK Migas's Strategies, there are five aspects: oil and gas reserves, cost recovery, monetization, production optimization, and governance. Meanwhile, to measure the impacts on Fraud Risks, consider the impacts on the following two aspects: bribery and other fraud.

From the results of SKK Migas's risk updating in 2021, the number of risks with a very significant level (Top Risks) that need priority attention and handling is relatively the same as in 2020. The following compares the number of risks with a very significant level for 2020 and 2021 based on relevant risk aspects.

Table 5.7 SKK Migas's Risk Aspect Data

YEAR	RISK ASPECTS						TOTAL
	COST RECOVERY	OIL AND GAS RESERVE	MONETIZATION	PRODUCTION OPTIMIZATION	BRIBERY	GOVERNANCE	
2019	2	4	5	2	1	11	25
2020	2	4	5	2	1	12	26



The following is a list of SKK Migas's Top Risks for 2021:

Table 5.8 **SKK Migas's Latest Top Risks in 2021**

RISK ID	RISK EVENT	RISK CAUSE	CONSEQUENCES	RISK SUBCATEGORY (ASPECT)
MC-20	Ineffective implementation of the procurement process (preparation of HPS, contract making, and validation of SKK Migas' procurement process)	<ul style="list-style-type: none"> • Lack of understanding of applicable internal regulations/policies • Limited time allotted for the procurement process. • Weaknesses in supervising the work implementation • Inadequate number and competence of human resources • HR capabilities are not following the workload • Overspecification on request of function • Multiple interpretations of clauses in the contract • Interests that benefit certain parties • Ineffective coordination with vendors • Incompetent vendors • Differences in understanding between SKK Migas and auditor (BPK) 	<ul style="list-style-type: none"> • Repetition in carrying out the procurement process • Planned Work Programs are not implemented 	Governance
ME-32	Persetujuan anggaran mengandung ketidakakuratan yang dapat menguntungkan pihak-pihak tertentu.	<ol style="list-style-type: none"> 1. Evaluators do not understand the regulations and PSC 2. Evaluators do not know that budget approval may benefit certain parties 3. The price reference or quotation given by PSC Contractors is improper and results from cooperation between PSCs and vendors. 4. Limited time and personnel make all proposed activities could not be evaluated in detail. 5. Time constraints and personnel constraints make the budget of some activities not evaluated. 6. PSC Contractors believe that according to the PSC, all operating costs stipulated in the WP & B agreement receive cost recovery even though no special evaluation exists for these activities. 	<ol style="list-style-type: none"> 1. There are parties receiving benefits from approval of the WP&B budget 2. Increase in cost recovery 3. The Budget Strategy Department Team is exposed to authority abuse 	Cost Recovery

Notes:

For ME - 32, it is an elaboration of the risk events previously registered in 2020, namely, "There are costs that are not stated in the WP&B, either those that have been estimated or are beyond estimates so that the actual costs are higher than the WP&B." For 2021, it includes related functions.

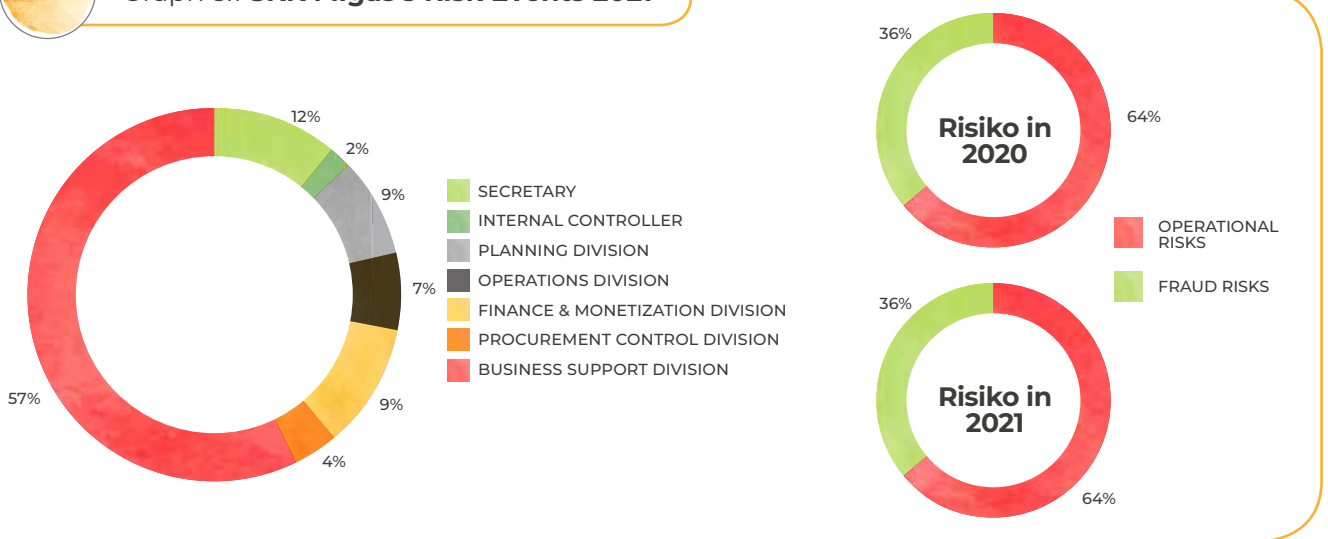
Table 5.9 **SKK Migas's Top Risks in 2021 Similar To Those in 2020**

RISK ID	RISK EVENT	RISK CAUSE	CONSEQUENCES	RISK SUBCATEGORY (ASPECT)
ME 19	- Potential bribery from PSC Contractors or vendors or certain parties to SKK Migas in the WP&B approval process	<ul style="list-style-type: none"> • Mutually beneficial cooperation between PSC Contractors and the work program division/budget plans division in passing the PSC Contractors' WP&B • Many routines and non-routine activities (the budget of which is still significant) that have not been discussed in the Pre-WP&B must be completed in a short time at the WP&B Meeting 	<ul style="list-style-type: none"> • Work program that is budgeted even though it is not really needed • The cost required is higher than it should be 	Bribery
ME 28	- Incompatibility of POD approval with realization	Coordinations are not properly done	Increased cost recovery because the realization is not in line with POD	Cost Recovery
ME 38	- Development of uneconomical fields due to falling oil price	Fields with reserves that are not large and or require a large number of costs in their development plan	RRR (Reserve Replacement Ratio) down	Oil and Gas Reserves
ME 42	- Development of uneconomical fields due to falling oil and gas prices (related to the Government's policy for the allocation and adjustment of gas prices)	Field with reserves that are not large and or require a large number of costs in their development plan	RRR (Reserve Replacement Ratio) down	Oil and Gas Reserves
ME 56	- There is no increase in oil and gas reserves	<ul style="list-style-type: none"> • Insufficient availability of subsurface data in EOR Pilot planning • POD primary/secondary phase does not support EOR Pilot implementation afterward (availability of ideal pattern and well spacing) • Lack of the EOR raw material industry and its supporting facilities that affect the economy of the EOR project • EOR human resources are still limited (planning and operation aspects) 	Incremental realization of production and reserves does not match the predictions during EOR Pilot planning	Oil and Gas Reserves
MF - 8	Exploration drilling and survey commitment are not realized	Determination of commitment is not in accordance with PSC Contractors' ability	Komitmen realisasi sumur eksplorasi dan survei tidak tercapai	Oil and Gas Reserves

RISK ID	RISK EVENT	RISK CAUSE	CONSEQUENCES	RISK SUBCATEGORY (ASPECT)
MF - 21	Non-achievement of APBN/APBNP production targets	<ul style="list-style-type: none"> The determination of APBN production targets is higher than the technical figures according to the reservoir capability. Occurrence of Unplanned shutdown Inappropriate use of technology The decline rate of production wells is higher than predicted Delayed onstream project Realization of work and production of drill results, WO/WS not matching the prognosis Factors outside SKK Migas cannot be controlled (Off taker, weather, subsurface, etc.) 	<ul style="list-style-type: none"> Non-achievement of production/lifting targets according to APBN/APBNP Bad reputation to SKK Migas 	Monetization
MF-25	<ul style="list-style-type: none"> Non-optimized supervision of lifting activities Non-achievement of lifting targets Lifting PPL (Proforma Lifting) is potentially higher than the production in the current month 	<ul style="list-style-type: none"> A limited number of personnel who can supervise lifting activities A limited number of competent personnel in carrying out lifting monitoring activities Lack of supervision over field supervisors at lifting points Reduction of stocks and debottlenecking programs do not reach 1 million BBLS Production does not meet the target Oil or gas quality does not meet lifting specifications Stock projections do not match actual stock availability due to production and distribution disruptions Covid-19 pandemic 	<ul style="list-style-type: none"> Not all lifting points are directly supervised. The workload is not evenly distributed, and SKK Migas's KPI is only achieved for some workers. Actual lifting volume is smaller than PPL volume 	Production Optimization
MG-19	State revenue from gas earnings cannot be received on time	Source data not received on time	<ul style="list-style-type: none"> Findings by Auditor (BPK RI, PI) Delayed realization of revenue 	Monetization
MG-47	Non-optimal monetization of certain types of oil and condensate	<ul style="list-style-type: none"> Non-optimal supervision of planning for the distribution of state part's crude oil/ condensate (MMKBN) from domestic refineries Composition not matching Pertamina's request Domestic refineries do not have tank storage; therefore, they require "on the spot" oil. Lack of Pertamina's commitment related to the absorption of domestic oil refineries because the specification of refineries does not match the oil production The Government's unclear policy regarding conditions of oil/condensate monetization not absorbed by Pertamina (sold by SKK or Pertamina) 	<ul style="list-style-type: none"> Causing not optimal lifting and high stock Indonesia's Crude oil is not fully efficient for Pertamina's refineries Increase in cost of transportation/ vessels waiting for the refineries' readiness to process crude oil 	Monetization

RISK ID	RISK EVENT	RISK CAUSE	CONSEQUENCES	RISK SUBCATEGORY (ASPECT)
MI - 3	Potential delay in works because the locations of activities that will be carried out intersect with Mining or other CAs	Overlapping outcomes of CA mapping	<ul style="list-style-type: none"> May trigger conflicts with other parties Production activities become hampered 	Production Optimization
MI - 7	Forest reclamation activities (post-activities operation) and DAS (Water Catchment Area) rehabilitation activities are not carried out.	Incompatibility in implementation of lifting with lifting planning generated in shipcord	Lifting is delayed from the original schedule	Governance
MI-63 MI-137 MI-212 MI-286 MI-361	Lifting planning is not optimal (this risk exists in SKK Migas's Representative Office)	Incompatibility in implementation of lifting with lifting planning generated in shipcord	Lifting is delayed from the original schedule	Governance
MI - 88 MI-162 MI-237 MI-311 MI-385	Potential changes in work scope during the implementation of the contract (this risk exists in SKK Migas's Representative Office)	Lack of personnel competency in carrying out contract implementation supervision	There are additional fees and contract duration extensions	Governance

Graph 5.1 SKK Migas's Risk Events 2021



Top Risk contributors exist in the functions of Secretary, Planning, Operations, Finance and Monetization, and Business Support Sectors.

Description:

- MC: Secretary of SKK Migas
- MD: Internal Supervisor
- ME: Deputy for Planning
- MF: Deputy for Operations
- MG: Deputy for Finance and Monetization
- MH: Deputy for Procurement Control
- MI: Deputy for Business Support

The largest composition of risk events comes from the Business Support Division. This occurred because there are contributions from SKK Migas's five representative offices in which each representative updates the risk register, and the risks of each representative are registered in SKK Migas's risk register.

C. REPORT OF SKK MIGAS BUDGET IMPLEMENTATION & FINANCIAL AUDIT RESULTS

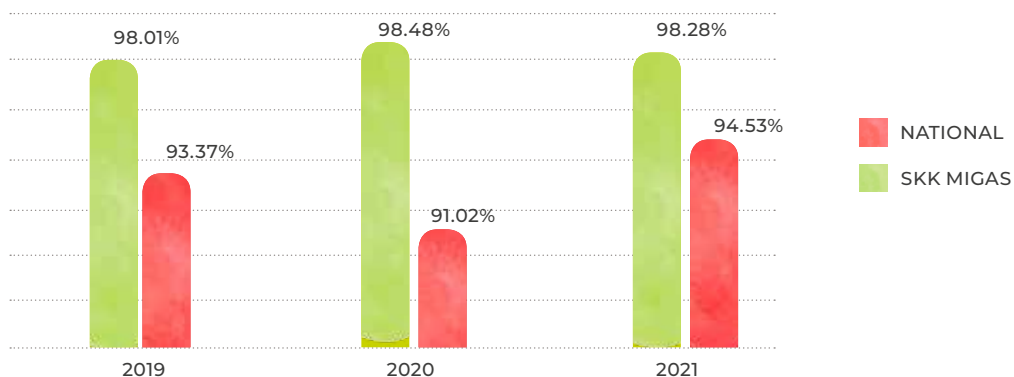
Since 2015, SKK Migas's operations have been using the State Revenue and Expenditure Budget (APBN) mechanism. Previously, SKK Migas's budget was BPMIGAS, which used a maximum reward mechanism of 1% of the non-tax oil and gas revenue obtained from upstream oil and gas business activities.

Budgeting and monitoring realization with the State Revenue and Expenditure Budget mechanism has four indicators, namely (i) compatibility of planning and budgeting, (ii) efficiency of activity implementation, (iii) effectiveness of budget implementation, and (iv) regulatory compliance. The four indicators constitute the Budget Implementation Performance Indicators (IKPA) of the Ministry of Finance of the Republic of Indonesia.

SKK Migas has consistently been above the National average IKPA in the last three years. SKK Migas's IKPA for Fiscal Year (FY) 2021 is 98.28%, higher than the National IKPA of 94.53%. Meanwhile, in 2020, SKK Migas's IKPA was 98.48% above the National IKPA of 91.02%. In budget management, SKK Migas prioritizes prudent governance.

Meanwhile, in terms of Achievement, realization since 2015 has always been higher than the national average. Looking at the realization of the SKK Migas budget from 2019 to 2021, higher than the national average, it shows SKK Migas' commitment to carrying out its duties and functions in supervising and controlling the upstream oil and gas industry, even during the Covid-19 pandemic.

Graph 5.2 SKK Migas and National's IKPA Records in 2019-2021 Fiscal Years



Meanwhile, SKK Migas's accounting and financial reporting compliance is based on the Independent Auditor Report of the Public Accounting Firm Amir Abadi Jusuf, Aryanto, Mawar and Rekan (RSM) Number 00141/2.1030/AU.1/02/1514-4/1/III/2022 March 18, 2022. SKK Migas's Financial Statements as of December 31, 2021, SKK Migas received qualified Opinions in all material respects, as well as its financial activities and cash flows for the year ended on the date under Financial Accounting Standards in Indonesia.

D. GOVERNANCE

1

IMPROVING ORGANIZATIONAL CAPABILITIES AND GOVERNANCE AT SKK MIGAS

SKK Migas keeps on improving governance on an ongoing basis, including improvements to business processes, Work Procedure Guidelines (PTK), and internal Standard Operating Procedures (SOP), as well as improving organizational quality and capacity. These improvements are in line with applicable laws and regulations without compromising the quality of services to stakeholders to achieve effective, efficient, and transparent bureaucratic reforms. The following are 37 PTKs that are valid to date:

Table 5.10 List of PTK Names applicable at SKK Migas in 2021

NO.	PTK NAMES	APPLICATION
1	PTK Management of Health, Occupational Safety, and Environmental Protection in Upstream Oil and Gas Business Activities	External
2	PTK Supply Chain Management Revision 04	External
3	PTK SKK Migas Human Resources Management Revision 02	Internal
4	PTK Tanker Ship Assessment (Vetting) Revision 03	External
5	PTK Public Relations Revision 01	External
6	PTK PSC Contractors HR Management Revision 02	External
7	PTK General Administration Management	Internal
8	PTK Use of External Lawyer/Legal Consultant Services by PSC Contractors Revision 01	External
9	SKK Migas Representative Operational PTK Revision 01	External
10	PTK Placed Into Service Revision 02	External
11	PTK Imprest Fund Work for Upstream Oil and Gas Business Activities Revision 01	External
12	PTK Plan Of Development (POD) Revision 02	External
13	PTK Work Program & Budget Revision 01	External
14	PTK Authorization for Expenditure (AFE)	External
15	PTK Abandonment and Site Restoration Revision 01	External
16	PTK Maintenance of Oil and Gas Production Facilities Revision 02	External
17	PTK Insurance Management Revision 01	External
18	PTK Commitment to Exploration Cooperation Contract Revision 01	External
19	PTK Aircraft Technical Requirements, Aircraft Crew and Air Support Facilities Revision 01	External
20	PTK Follow-up on Certain Findings From the Examination of Profit Sharing Calculations and Suspension of Charging Operational Costs Revision 01	External
21	PTK Information and Communication Technology at SKK Migas	Internal

NO.	PTK NAMES	APPLICATION
22	PTK Information and Communication Technology at PSC Contractors	External
23	PTK Integrated Operating System Rev. 01	External
24	PTK Sailing & Aviation Navigation Facilities	External
25	PTK SKK Migas Internal Management Revision 02	Internal
26	PTK Administration of Cooperation Contract Revision 01	External
27	PTK Improvement of Recovery Factor Through Pilot Tertiary Recovery Activities	External
28	PTK PSC Accounting Policy for Upstream Oil and Gas Business Activities	External
29	PTK Work Completion Approval	External
30	PTK Geological and Geophysical Engineering Revision 01	External
31	PTK Management of Oil and Gas Production Operations Revision 01	External
32	PTK Financial Budget and Reporting Manual of Production Sharing External Contract and Chart of Account	External
33	PTK Lifting Crude Oil and/or Condensate in Upstream Oil and Gas Business Activities	External
34	PTK Appointment and Sales of State's Part Crude Oil and/or Condensate	External
35	Presentation & Disclosure of PSC Financial Information Reports from Internal Upstream Oil and Gas Business Activities *).	Internal
36	Preparation and Reporting of Upstream Oil and Gas Business Activities under Gross Scheme Split *)	External
37	Amendments to PTK Provisions for Safeguarding Upstream Oil and Gas Business Activities Revision 01 **)	External

*) New PTK ***) Revised PTK

Regarding the organizational aspects, SKK Migas keeps on improving continuously to increase organizational capacity. This is done by referring to the transformation that is being carried out by SKK Migas as stated in IOG 4.0.

E. COMMUNICATION AND INFORMATION TECHNOLOGY SYSTEM

To improve the integration of internal data of SKK Migas and PSC contractors, the development of several information systems carried out by SKK Migas comprises:

1

IOC DASHBOARD

Indonesia's upstream oil and gas business activities aim to find and produce oil and gas to benefit the Republic of Indonesia. These activities comprise well drilling, processing/production of oil and gas, as well as maintenance and other activities that support the smooth operations of oil and gas. These activities are monitored and ensured to run smoothly while staying within the corridor of safety standards.

Preparedness for emergencies and crises is needed to overcome these situations as quickly as possible so that the losses incurred can be minimized as low as possible. Good coordination between PSC Contractors, SKK Migas, and related agencies in handling emergencies and crises taking place within the PSC Contractor's environment is vital.

To assist in handling any crisis and emergency in the fields, 'tools' are needed. They comprise Emergency Response Center that mitigates incidents, troubles, fires, oil spills, medivacs, and others.

Currently, Emergency Response Center facility has been upgraded and, optimized, converted into an Integrated Operation Center (IOC). Not only is it used to monitor emergency issues, but this refurbished facility has become a center for online monitoring of all operational activities in the fields, including drilling activities, production processes, vessel tracking, oil and gas production, and lifting, as well as maintenance activities for operating facilities. In 2021, developments were carried out comprising:

- Development of desktop applications that can open any web browser to display monitoring applications and can be embedded in a dashboard from Bank Indonesia (BI) Tools SKK Migas,
- Development of mobile applications based on Android and iOS that can be embedded in the dashboard from BI Tools SKK Migas,
- Development of back office applications to manage authorization, authentication, data entry, and data upload,
- Addition of IOC master data including PSC Contractors, field names, Contract Area names, well names, regions, coordinates, and special assets for PSC Contractor PT Pertamina EP and adjustment of relationship,

- Synchronization of PSC Contractors and Contract Areas data from the PSC Contract Management (PCM) Application already running at SKK Migas.



Figure 5.11 **Production Dashboard**

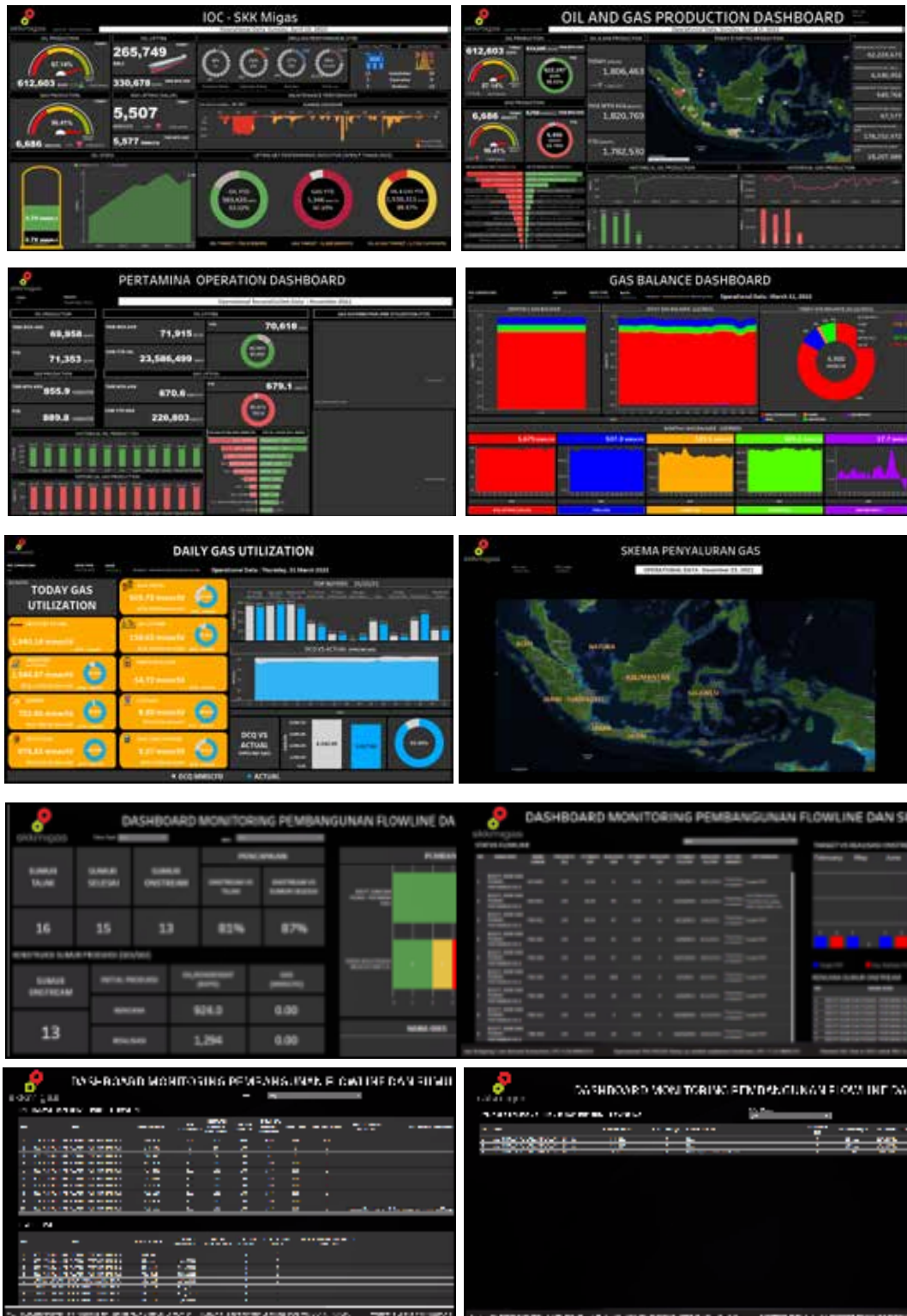




Figure 5.12 Drilling Dashboard

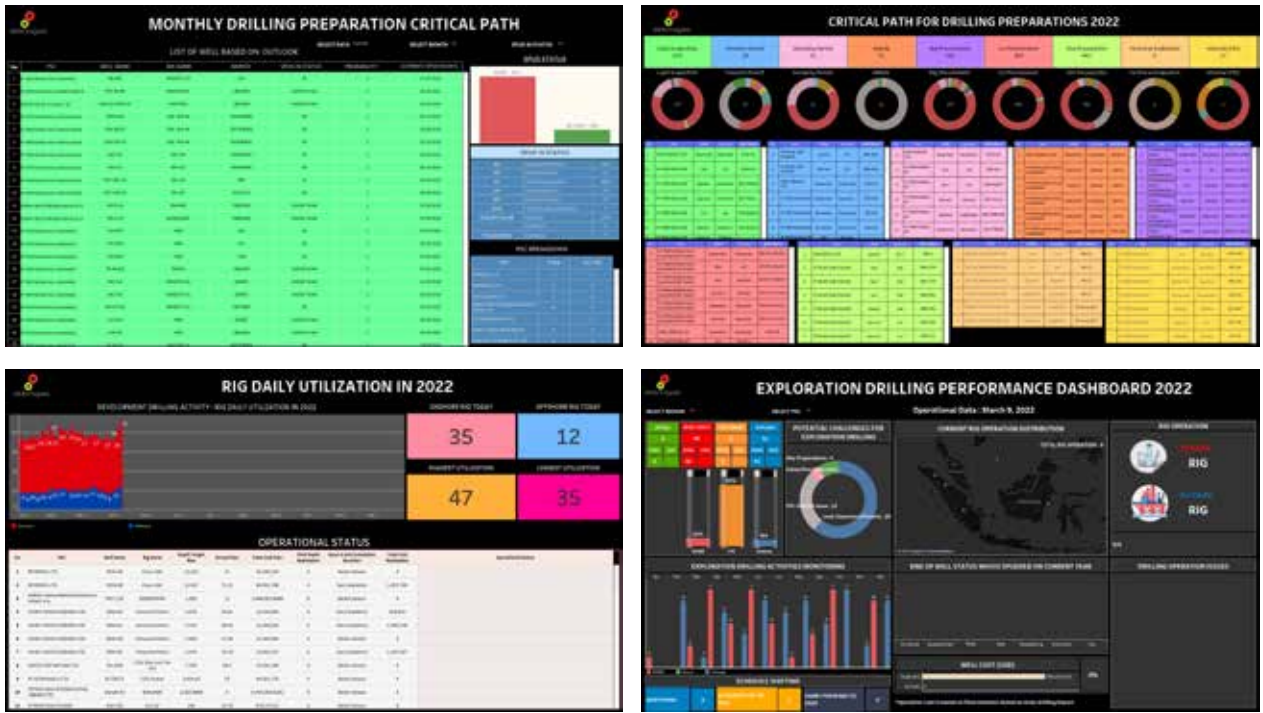


Figure 5.13 HSE Dashboard





Figure 5.14 **Marine & Terminal Dashboard**



2

MONITORING OF OPERATIONS, PRODUCTION, AND LIFTING

Production and lifting must be monitored. Likewise, field operations are related to the production and lifting processes' ability, including monitoring constraints. For this reason, SKK Migas develops IOCs, which are continuously refined from time to time.

The features of the main dashboard or its derivative dashboard continue to be developed, covering such areas as production operations, oil and gas operational and safety supports, well drilling and maintenance, project management, and facility maintenance.

In more detail, the development of a production dashboard comprises monitoring of gas distribution hubs throughout Indonesia, a dashboard for monitoring daily oil and gas lifting grouped into each representative area, and a more detailed derivative dashboard per each field in the contract areas of PT Pertamina EP.

The Real-time monitoring process has also increased with the inclusion of the Plant Information Management System (PIMS) application for PT Badak LNG, EMP Bentu, and Premier Oil so that with the increasing number of dashboard applications for the realtime-based oil and gas production process, PSC Contractors' live monitoring process is becoming broader and easier to process the monitoring of operating conditions at any time without being constrained by distance and time.

Another feature also developed in the IOC is the monitoring of flowline development. This new dashboard feature allows the presentation of more complete data and graphs about flowline development in Indonesia, including spud in data, the status of flowline development, ongoing issues, and onstream or put-on-production data for wells that have been drilled. With the presentation of complete and detailed data, the supervision process oriented towards accelerated production will be more intensive, so issues that have the potential to hinder flowline development can be better mitigated.

Integration is also strengthened in the drilling or drilling dashboard applications. New dashboards around drilling activities for exploration and development purposes are continuously improved and developed by comprising monthly preparation status, critical path, daily operational status, and rig operational charts. In addition, new dashboards, such as work over and well service, including daily operations, distribution maps, and historical data, are developed.

The presentation of data on oil and gas supporting and safety facilities is no less important. Shipping data, including Floating Storage Offloading (FSO), Floating Production Storage Offloading (FPSO), Floating Production Unit (FPU), and operational support vessels, are increasingly equipped from time to time, in the form of IOC displays, including fuel monitoring and ship population.

An airport and helipad distribution map throughout Indonesia is presented more thoroughly, including annual inspections of related facilities. Shipping terminals and berthing occupancy spread throughout Indonesia are displayed in interactive graphics to facilitate the process of monitoring the activities supporting the oil and gas operations. In addition, safety aspects of oil and gas operations comprising Health, Safety, and Environment (HSE) Level 1, Health Dashboard, Safety Dashboard, and Environment Dashboard are presented as new IOC features that further complement previously existing applications.



Figure 5.15 **Display of New IOC Dashboard**



SKK Migas's IOC development di 2021 entered the analytical data era marked by the development of the Production-Lifting Analytical Information System (SIAP- LIFTING) application. One of the main features of this application is the use of machine learning technology to predict the daily production profile for calculating oil stocks and forecasting future lifting nominations.

With this application, lifting data management will be increasingly stored in a structured and systematic manner in the database and also displayed in a dashboard and system-based reporting, which will support a faster data-based negotiation and decision-making process related to national lifting target achievement.

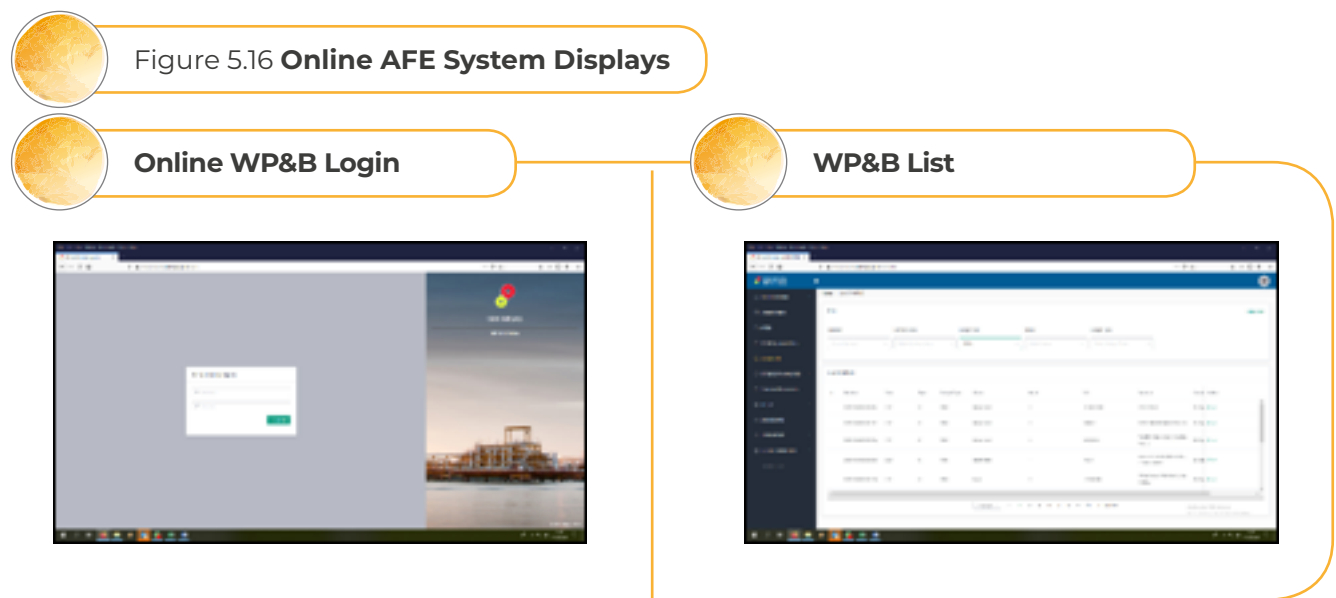
3 WP&B ONLINE ENHANCEMENT

One of the ways in which SKK Migas supervises and controls the PSC Contractor's operations is to ensure that the process of discussing proposals and approval of Authorization For Expenditure (AFE) and Work Program & Budget (WP&B) is of high quality.

To improve the effectiveness, efficiency, and auditability of the implementation of the business process for the submission and approval of PSC Contractors' WP&B, they must build a system that records the process of submitting, evaluating, and approving the PSC Contractors' WP&B to SKK Migas.

System development is carried out in phases. Application improvements and dashboard additions are carried out as needed. The system has generally been used by SKK Migas and PSC Contractors. Currently, the application that has been built contains WP&B data from 2017 to 2019. Development in 2021 comprised:

1. Flow Process Application Development
2. Electronic Minute of Meeting
3. Internal Document Evaluation

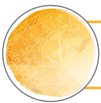




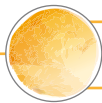
WP&B Budget Entry



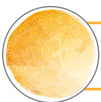
WP&B BS Budget Import



WP&B Cost Details



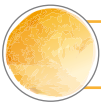
WP&B List e-Mom



Oil Lifting Analysis Data



Gas Lifting Analysis Data



Oil & Gas Lifting Analysis Data



Revenue Distribution Analysis Data



Recoverable Cost Analysis Data



Capex & Opex Analysis Data



4 SOT INTERCONNECTION

SKK Migas System Interconnection Program with stakeholders, especially with the Ministry of Finance and the Ministry of Energy and Mineral Resources, was implemented from 2014-2017. In 2019, it was further developed to accommodate undeveloped information needs and improve performance so that electronically exchanging data between agencies/institutions/ministries is more optimal and materializes good governance.

Then in 2020, SKK Migas conducted maintenance and testing of developed applications to optimize their utilization. Continued in 2021, the construction of the online system was integrated with the system at the Ministry of Finance and completed by the end of 2021. SKK Migas has been able to send data online to some agencies at the Ministry of Finance, including the Directorate General of Budget, Directorate General of State Assets, Directorate General of Taxes, and Directorate General of Customs and Excise.

The developed system adopts a Service Oriented Architecture (SOA) which allows the data integration process between agencies with different systems.

The modules that were developed in 2021 comprised:

A. Directorate General of Budget (DJA)

The flow of data and features developed include:

1. Data of Non-Tax State Revenue (PNBP) of Oil and Gas (realization of oil lifting, realization of gas lifting, over lifting, and other PNBPs)
2. Government's Data Obligations (State Income Tax (PPN) of Reimbursement, Domestic Market Obligation (DMO) Fee, Regional Tax and Regional Retribution (PDRD), under lifting, Fee for upstream oil and gas business activities)
3. Financial Reports (Journal adjustment inputs, journals, ledgers, balance sheets, worksheets, Budget Realization Report (LRA), Operational Report (LO), Export Inspection Report (LPO), and Statement Of Financial Position)
4. Upload and recap BI notes
5. Validation of invoice with BI notes
6. Simponi PNBP Data

7. Land and Building Tax (PBB) of Oil and Gas
8. PNBP Prognosis
9. Management Dashboard
10. Interconnection data analysis

B. Directorate General of State Assets (DJKN)

The development of an Online System integrated with DJKN is carried out to stream the data needed to support the development of the Information System of State-owned Properties (BMN) for Upstream Oil and Gas State carried out by the Ministry of Finance. SKK Migas has developed an integrated online data connection system according to the upstream oil and gas assets data needs identified by the DJKN team.

The data that have been exchanged include:

- i. Capital Assets (HBM)
- ii. Inventory Assets (HBI)
- iii. Inventory Materials (MP)
- iv. Land Assets

The system is built based on a web service that connects online data from relevant data source systems existing at SKK Migas (SINAS, SIPRS, and SPF) with the BMN Information System at DJKN.

C. Directorate General of Tax (DGT)

Data that have been exchanged with DGT include:

1. Data by the Regulation of the Minister of Finance Number 191/2014
2. Data by the Regulation of the Minister of Finance Number 228/2017

The development of an Online System integrated with DGT was completed in 2019, but its utilization has yet to be maximized.

D. Directorate General of Customs and Excise (DJBC)

SKK Migas, together with DJBC, Directorate General of Oil and Gas, and National Single Window Agency (LNSW), have developed a Single Submission System (SSm) Indonesia National Single Window (INSW) for Fiscal Oil and Gas Facilities in which the processing of import permit process for PSC Contractors' goods (master list) is carried out in an online and integrated way. With the application of this system, the average processing time of the master list involving three agencies (SKK Migas, Directorate General of Oil and Gas, and DJBC) can be reduced from 33 working days to 15 working days. In addition, the application of this system has several advantages, namely: data consistency, data quality enhancement, Pertamina Material Identification Code Data Reference (KIMAP) and Prohibitions & Restrictions (Lartas), reporting dashboards /automation of reports and enabling PSC Contractors' system integration (system to systems).

This SSm INSW system for Oil and Gas Fiscal Facilities was soft-launched on October 14, 2019, and began to be used by all PSC Contractors in March 2020.

The next step is to propose the Joint Launching of the Integrated Online System (SOT) of the Ministry of Finance and SKK Migas as a milestone for the official use of the system by all users/agencies.

This Joint Launching will encourage relevant agencies to optimize the use of the system to create better collaboration in the use of shared data.

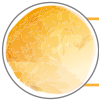
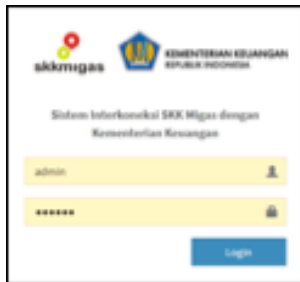


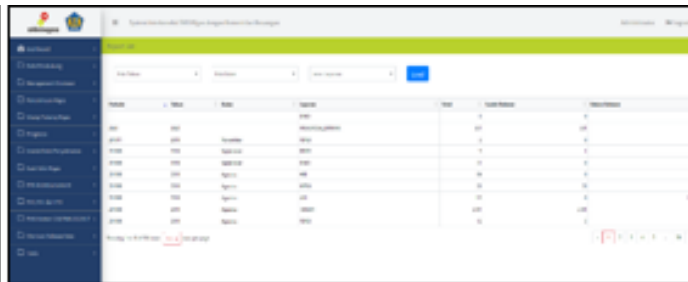
Figure 5.17 Displays of SKK Migas and Directorate General of Budget' SOT



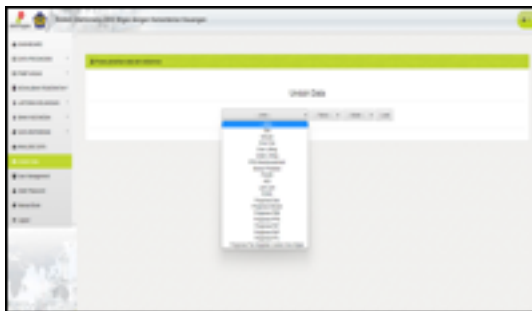
URL at SKK Migas and Ministry of Finance



Login Page



Report List



Retrieval of data from SKK Migas



Oil Import Completion



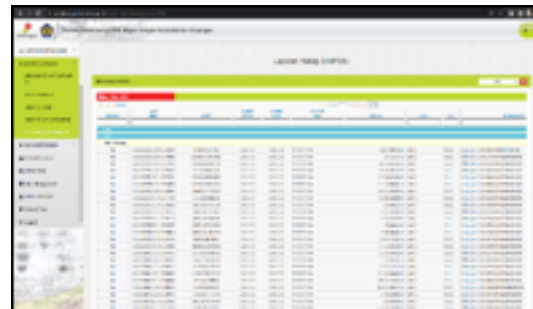
BI Recap Upload



BI Account Recap Report



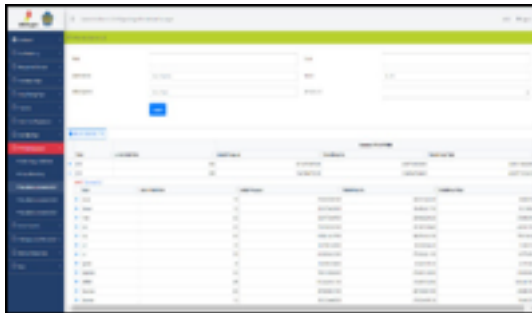
Oil Delivery to Domestic Refinery Report



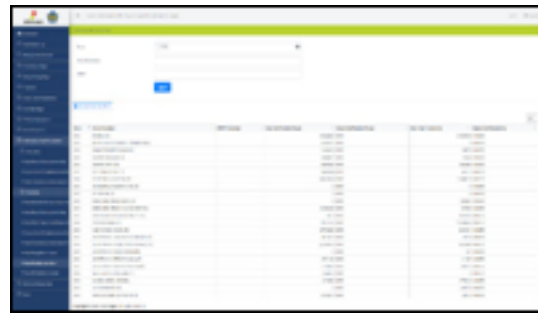
Simponi Recap Report



Figure 5.18 **Displays of SKK Migas and Directorate General of Tax' SOT**



PPN Reimbursement



Production Data Per Year



5 ONE DOOR SERVICE POLICY SYSTEM (ODSP) SYSTEM

Since 2019, an in-house ODSP application has been developed to monitor the status of PSC Contractors' permit proposals and arrange discussion schedules.

The modules and features that have been developed include the ODSP dashboard, a data input module for activities and licensing, a data input module for discussion plans and activity discussion meetings, and licensing status module. In 2020, this application began to be used by ODSP Team, whereas a dashboard display has been included in the SKK Migas IOC and continued with minor improvements in 2021.

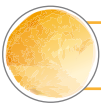


Figure 5.19 **ODSP Display**



Login Page



ODSP Dashboard



ODSP Activities



ODSP activity info

6

ELECTRONIC RESERVE RESOURCES (ESDC)

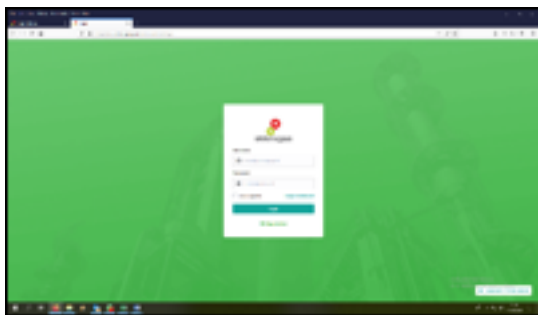
The eSDC system has been developed since 2016. The development of this system refers to the 2007 Petroleum Resources Management System (PRMS) standard published by The Society of Petroleum Engineers (SPE). The eSDC system has been used in reporting resources and reserves at SKK Migas.

But in 2018, SPE published the latest PRMS 2018 standards. With the issuance of these standards, eSDC needs to be adjusted according to world standards. In 2020, the eSDC system was updated and developed to be more flexible and comprehensive, with a validation system that can maintain data quality above the minimum set standards and a visualization system that can provide data that is easily accessible and can be easily adapted to needs. Development is done by adding the following:

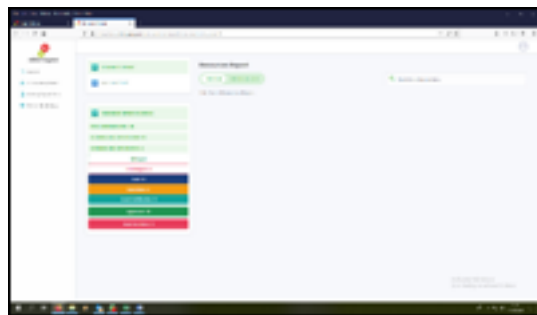
- Features of master data maintained in the system (basin, formation name, lithology, etc.),
- Development of Resources Report (repair of data history, Validation Report),
- Development of Validation System Features (Rule Test, Improved Web Editor),
- Update of Project Monitoring Report,
- Development of Eureka module.



Figure 5.20 eSDC Display



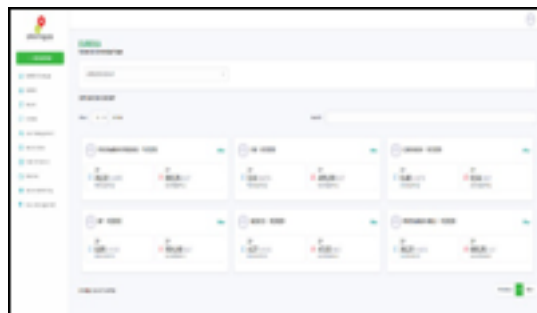
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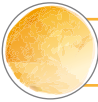
Resources Report



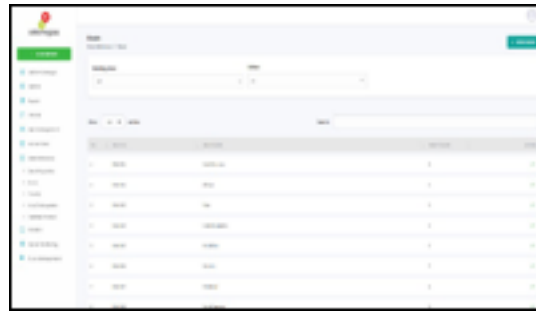
Backend e-SDC – Eureka Public



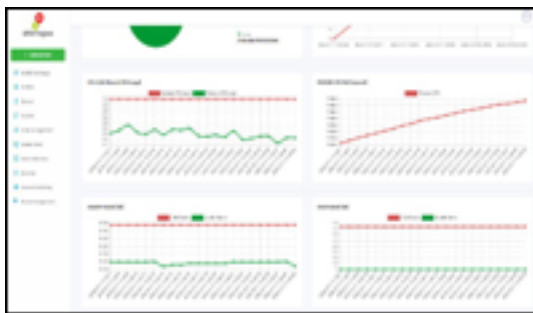
General Report per Company Group



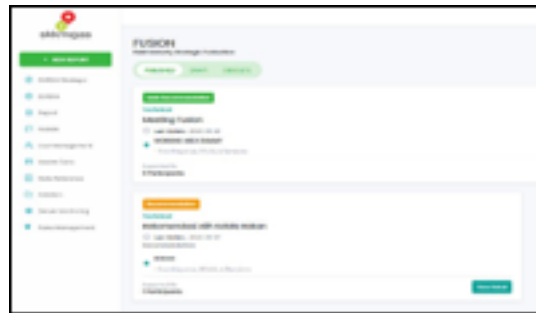
Monitoring of Reports



General Report per Company Group



Server Monitoring



Evaluation Reports

7

SOT PROGRAM PRODUCTION MEASUREMENT (PPM)

The development of production measurement (flowmeter) is one of the steps to optimize collaboration using an integrated operation center framework with online and in-time methods.

As a continuation of activities of the Flowmeter Team which was formed in 2019, SKK Migas decided to develop an in-house flowmeter in 2020, using the existing facilities at PSC Contractors, in particular using automatic tank gauging (ATG) and flowmeter (FM). Data is periodically sent by PSC Contractors to SKK Migas every hour to monitor stock and production at PSC Contractors' final tanks.

The 2020 activities were then continued in 2021 for the remaining PSC Contractors who have not been monitored but have ATG or FM equipment, with minor repairs that can be independently carried out by utilizing existing resources in SKK Migas.

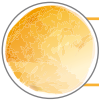
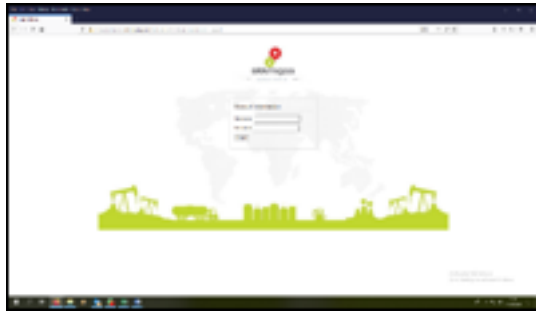
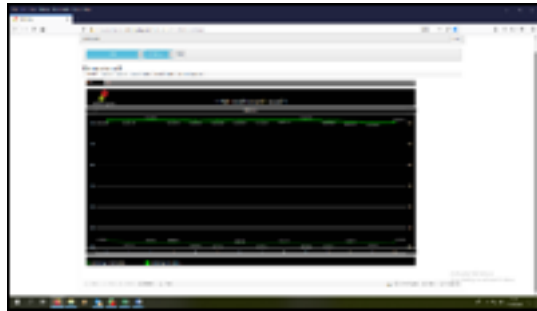


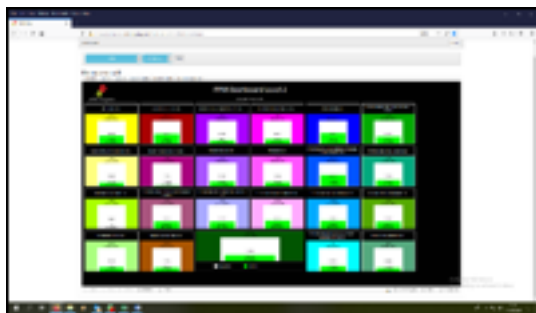
Figure 5.21 **PPM Display**



Login Page of PPM Reporting



Dashboard of PPM Level 1 – Indonesia



Dashboard of PPM Level 2 – Per PSC Contractor



Dashboard of PPM Level 3 – Per Tank



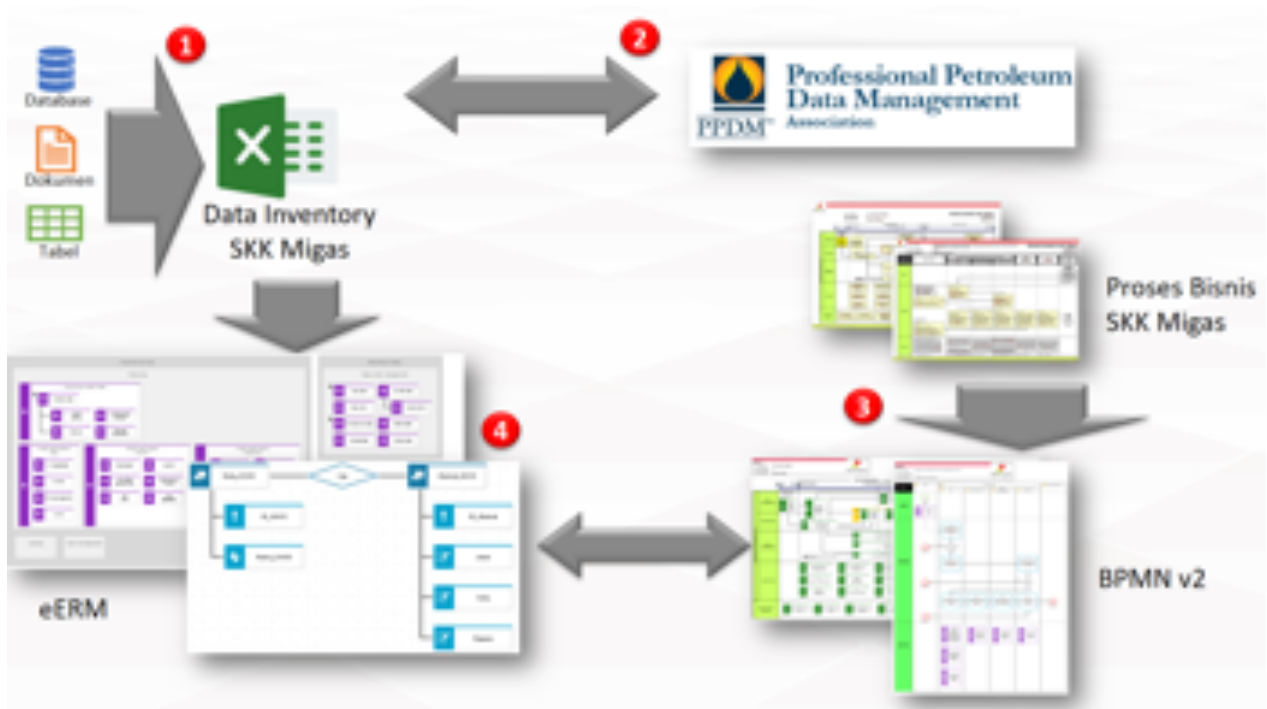
MAPPING OF DATA AND MAIN BUSINESS PROCESSES

To support the implementation of IOG 4.0 long-term strategy. Mainly related to Digital Implementation and Data Strategy Formulation, as well as the Center of Excellence and Smart Organization, data mapping that aligns with SKK Migas' business processes is needed.

The data mapping activity begins with an inventory of all data flowing in each function and organization and data stored in the SKK Migas application. The data inventory process will produce data elements in the internal environment and data originating from outside SKK Migas.

The data elements are grouped based on the area in the business process contained in the application database, forms used, report recap documents, results of discussions, and also based on documents used as references in the activities carried out by SKK Migas. Furthermore, data elements are mapped based on the standards issued by the Professional Petroleum Data Model version 3.9 (PPDM 3.9), to be used later as a reference in the development of application or processing of subsequent data.

Figure 5.22 Data Mapping Activities with Business Process



9

INFORMATION TECHNOLOGY OPERATIONS

SKK Migas, as a modern organization, requires reliable information technology facilities and infrastructures and a reliable communication system. For this reason, certification and standardization of SKK Migas' information technology service management must comply with international standards.

a. ISO 20000-1:2018 and ISO 27001:2013 Certification

SKK Migas' information technology system has fulfilled the ISO 20000-1:2018 Information Technology Service Management System (SMLTI). This certification is integrated with the ISO 27001:2013 Information Security Management System (SMKI) standard. Both have been certified by a certification body, British Standards Institution (BSI).

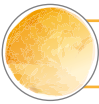


Figure 5.23 ISO 20000-1:2018 and ISO 27001:2013 Certificates



In 2020, SKK Migas received ISO 20000-1:2018 certification constituting an improved version of ISO 20000-1:2011. ISO 20000-1:2018 contains standards in planning, preparation, service delivery up to measurement, and service quality enhancement. Meanwhile, ISO 27001:2013 contains standards of procedures and information security domains that must be met in order to ensure the quality of information security implementation.

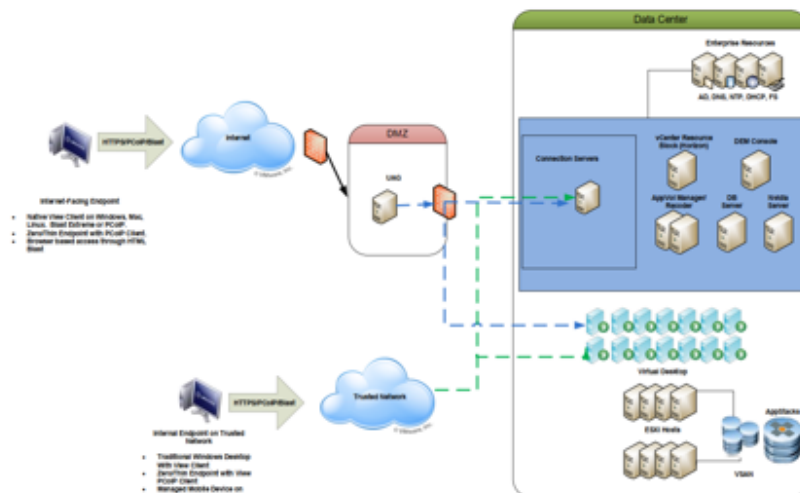
Integration of implementation of the two standards is expected to guarantee the quality of information technology services for stakeholders as promised.

b. Development of Virtual Desktop Infrastructure (VDI)

SKK Migas implements a Virtual Desktop Infrastructure (VDI) system to support the development activities or application development that is easy to access but still pays attention to the security factor.



Figure 5.24 Infrastructures Virtual Desktop System

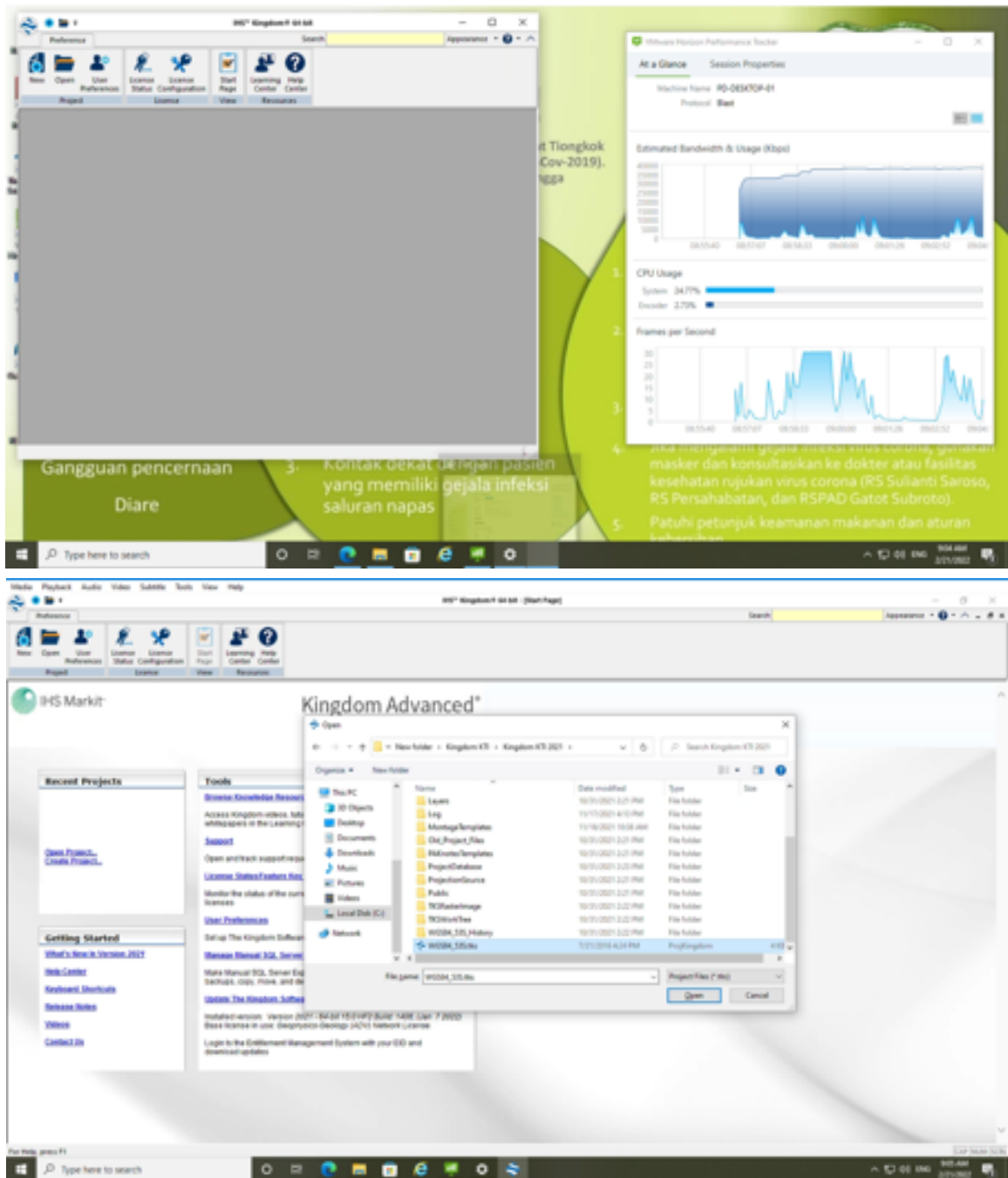


The VDI system is expected to facilitate the implementation of information technology works that support the SKK Migas users' need to run properly and safely. In addition to this, this VDI system can also help reduce any risk of data loss.

The following is an example of using VDI in Geology, Geophysics, and Reservoir (GGR) applications:



Figure 5.25 Use of VDI for GGR app usage



E. A SERIES OF ACTIVITIES IN EFFORTS TO SUPPORT THE INCREASE IN OIL AND GAS PRODUCTION AND RESERVES

To support the smooth operation of upstream oil and gas, SKK Migas coordinates, cooperates, and collaborates with all PSC Contractors and stakeholders. To that end, SKK Migas carries out a series of activities both at the head office and representative offices. These activities in the areas are unique because there is a direct touch with stakeholders in areas close to upstream oil and gas operational activities.

The implementation of activities to support the increase in oil and gas reserves and production in 2021 must be handled in such a way by taking into account the Covid-19 Pandemic. Therefore, some activities are conducted online, and some can still be done in a hybrid way (face-to-face and online).

1

NORTHERN SUMATRA FORUM | NOVEMBER 25, 2021



Figure 5.26 Northern Sumatra Forum Activities

The Northern Sumatra Forum (NSF) was held in Batam, Riau Islands, on November 25, 2021. NSF is a communication strategy for the upstream oil and gas industry that synergizes all stakeholders to support the target of producing 1 million bopd of oil and 12,000 MMscfd of natural gas in 2030. This forum is one of the pre-events of an international event, namely the 2nd International Convention on Indonesian Upstream Oil and Gas (IOG 2021).

This NSF event was organized by SKK Migas and PSC Contractors operating in northern Sumatra to provide a broad understanding of the upstream oil and gas industry. So that understanding and good cooperation between stakeholders in the northern part of Sumatra

are established, namely the Regional Governments, communities, students, journalists, and other stakeholders. This forum discusses regulations related to oil and gas, land and licensing issues, community development programs, communication, and media. One of the interesting topics at that time was related to the 10% Participating Interest (PI) for upstream oil and gas management carried out by Regional Government Owned Enterprises (BUMDs). Through these discussions, all stakeholders in the regions can understand the rules and functions of the 10% PI.

2

LAND AND LAND CERTIFICATION FORUM | NOVEMBER 9, 2021



Figure 5.27 **Land and Land Certification Forum Activities**

SKK Migas and PSC Contractors for the Southern Part of Sumatra (Sumbangsel) region held a Land and Land Certification Forum on November 9, 2021, in Lampung. This event was attended directly by the Expert Staff of the Minister of ATR/BPN RI, Arie Yuriwin, who was also a resource person at this event and discussed the procedures for land acquisition for the public interest by Government Regulation Number 1/2021.

This forum aimed to increase the synergy between SKK Migas, PSC Contractors, and the land office for the smooth process of land certification,

especially regarding the issuance of Omnibus Law Number 11 of 2020.

One of the momentous events was the handing over of certificates issued by the land office (kantah) to SKK Migas – PSC Contractors:

- The Land Office of West Tanjung Jabung Regency District Office handed over 61 certificates to PetroChina International Jabung Ltd.;
- The Land Office of Sarolangun Regency handed over 20 land parcel certificates to PetroChina International Bangko Ltd.;
- The Land Office of Musi Rawas Regency handed over 34 land parcel certificates to Medco E&P Indonesia;
- The Land Office of PALI Regency handed over one land parcel certificate to Medco E&P Indonesia.

3

WEBINAR UNDERSTANDING THE DYNAMICS OF OIL AND GAS REVENUE SHARING FUND (DBH) | APRIL 20, 2021



Figure 5.28 **Webinar Activities Understanding the Dynamics of Revenue Sharing Funds (DBH)**

Webinar Understanding, the Dynamics of Oil and Gas Revenue Sharing Fund (DBH), was held by SKK Migas with the Java, Bali, and Nusa Tenggara (Jabanusa) Upstream Oil and Gas Industry Public Relations Forum (FKIHM) on April 20, 2021. This webinar involved PSC Contractors in the Jabanusa area and some PSC Contractors from the southern part of Sumatra, as well as relevant stakeholders from East Java and Central Java, as many as 490 people.

This forum aimed not only to provide information and increase local stakeholders' capacity but also to provide information on how upstream oil and gas activities have multiplier effects on the regional economy. In addition, it was also explained that the oil and gas DBH brought about an impact on increasing local government revenues, comprising PBB of oil and gas and PDRD. Stakeholders also can take advantage of the Community Development Programs, supply of goods, absorption of local labor, and gas supply for electricity and industry in the region.

4

SOUTH KALIMANTAN SECURITY COMMUNICATION FORUM 2021 | NOVEMBER 23-24, 2021



Figure 5.29 **South Kalimantan Security Communication Forum Activities 2021**

This activity was held for two days, 23-24 November 2021, in Balikpapan. This activity is essential, considering that security is the main requirement for the sustainability of upstream oil and gas operational activities in the region, both onshore and offshore.

Upstream oil and gas activities constitute are one of the vital national objects (obvitnas), which means that their operational activities should not be hampered nor disrupted. This is because disruption to upstream oil and gas activities will directly impact state revenues and the supply of energy used by the economy of other sectors.

Security disruptions in the upstream oil and gas operation area are still challenging for PSC Contractors. To mitigate security conditions in the upstream oil and gas operational areas, Kalimantan and Sulawesi (Kalsul) Security Communication Forum took a theme of "Obvitnas Security Management Strategy

in Supporting Operational Resilience and Conduciveness of Upstream Oil and Gas Investment" attended by PSC Contractors for the South Kalimantan region and SKK Migas representatives and in collaboration with stakeholders related to security issues. Namely TNI, Police, High Prosecutor's Office, and the regional State Intelligence Agency (BIN) as resource persons. More specifically, this activity is expected to support the plan to drill hundreds of upstream oil and gas wells.

5 PAMALU REGIONAL PR COMMUNICATION FORUM | NOVEMBER 9-10, 2021

The annual meeting of the Papua and Maluku (Pamalu) Public Relations Communication Forum together with General Managers and PR practitioners for exploitation and exploration of PSC Contractors in 2021 carried a theme of "Orchestrating the 2022 Communication Grand Narrative for Smooth Operational Activities in Pamalu Area" held in a hybrid manner in Bogor on 9-10 November 2021.

All PSC Contractors in the Pamalu area taking part in this event are expected to prioritize the work program for 2022, which provides ease and smoothness for upstream oil and gas operations and always performs update the SOP as needed. The priority of the public relations program will be carried out jointly per cluster in Pamalu area in the synergy of the implementation of PPM (Community Development Program), Institutional, Communication, and Media.



Figure 5.30 Pamalu Regional Public Relations Communication Forum

6 FOCUS GROUP DISCUSSION (FGD) FOR PRODUCTION AND LIFTING ACHIEVEMENTS IN 2021 | APRIL 7-8, 2021

SKK Migas and PSC Contractors have successfully completed a strategy to accelerate national oil and gas production, which will impact an increase in annual average oil production of 3,500 bopd, as well as verify gas lines of 205 MMscfd. In the 2021 FGD on Production and Lifting Achievement on 7-8 April 2021, there was an agreement between SKK Migas and PSC Contractors in preparing tactical and strategic steps to be implemented to increase the identified potential as an effort to produce additional oil production of 3,500 bopd. When added to the additional output from the filling-the-gap program of 11,900 bopd, this potential will result in an additional 15,400 bopd from the last forecast update position. To face challenges in production and lifting in 2021, it is hoped that there will be good collaboration between SKK Migas, PSC Contractors, the Ministry of Energy and Mineral Resources,

and other stakeholders, as well as technology providers. SKK Migas is committed to supporting and realizing the strategic proposals resulting from this FGD in order to realize accelerated production, which PSC Contractors' seriousness must also support to realize their programs. SKK Migas will continue to transform for the better by simplifying business processes so that strategic decisions that can support accelerated production can be immediately made.



Figure 5.31 **FGD Activities on Production Achievement and Lifting in 2021**

7

VACCINATION IN SKK MIGAS- PSC CONTRACTORS' ENVIRONMENT (APRIL 25-30, 2021) AND SKK MIGAS – KADIN OXYGEN CARE PROGRAM (JULI 16, 2021)

2021 was still an inseparable part of the Covid-19 outbreak. In fact, in 2021, there was a new variant of Covid-19, namely the Omicron variant. However, at the same time, the Government has also made socialization for all Indonesian people to get a third vaccine, or what can be called a booster vaccine. Therefore, to carry out the Government's mandate and support the national Covid-19 vaccination program, SKK Migas, PSC Contractors, and upstream oil and gas supporting companies held joint activities to carry out the vaccination. This vaccination activity was supported by a team from the Ministry of Health, DKI Jakarta Provincial Health Office, South Jakarta Health Sub-office, Mampang Prapatan Health Center, as well as all health workers and workers who directly assisted in the implementation process.

Not only related to Covid-19 vaccination, but SKK Migas also helped provide equipment for oxygen transportation needed by the media for handling Covid-19 patients through collaboration with the Indonesian Chamber of Commerce and Industry (KADIN) and PSC Contractors. The handover of 7 (seven) isotank and around 1,500 tubes measuring 3 m2 and 6 m2 held on July 17, 2021, is expected to support the Upstream Oil & Gas Oxygen Care Program – KADIN Indonesia.



Figure 5.32 **SKK Migas - Kadin Indonesia's Oxygen Care Program Activities**



Figure 5.33 **LNG Forum Activities**

One of the tangible forms of SKK Migas' efforts in increasing oil and gas production and lifting is by holding a forum where all workers in the upstream oil and gas industry can share related challenges and technologies that are currently being faced. Several forums that have been established and can support this are the Production Facilities Forum and the LNG Forum.

SKK Migas sees that any change taking place both inside and outside a company requires an agile organization. Oil and gas companies are required to have the ability to survive and thrive in a competitive environment that is full of unpredictable and continuous changes, namely changes in market demands and the world's fluctuating oil prices. SKK Migas sees that upstream and downstream oil and gas activities are integrated. Thus, the oil and gas industry's challenges on how to increase production and pursue field optimization involve upstream and downstream optimization.

At this time, the LNG business is attractive because of changes in LNG business orientation. The LNG business, which was previously export-oriented, has now started to become domestically oriented since the operation of the Nusantara Regas 1 Floating Storage Regasification Unit (FSRU) on May 24, 2012, as the first LNG receiving, storage, and regasification terminal in Indonesia dedicated to PLN. In addition to the electricity and transportation sectors, LNG can be applied as an alternative to LPG in households. In various parts of the world, natural gas is commonly used as fuel for household stoves because it guarantees the safety and cleanliness of the emissions produced compared to LPG. Therefore, supporting infrastructure is needed to develop LNG stations in the Indonesian archipelago.



Figure 5.34 **IOG Convention Activities**

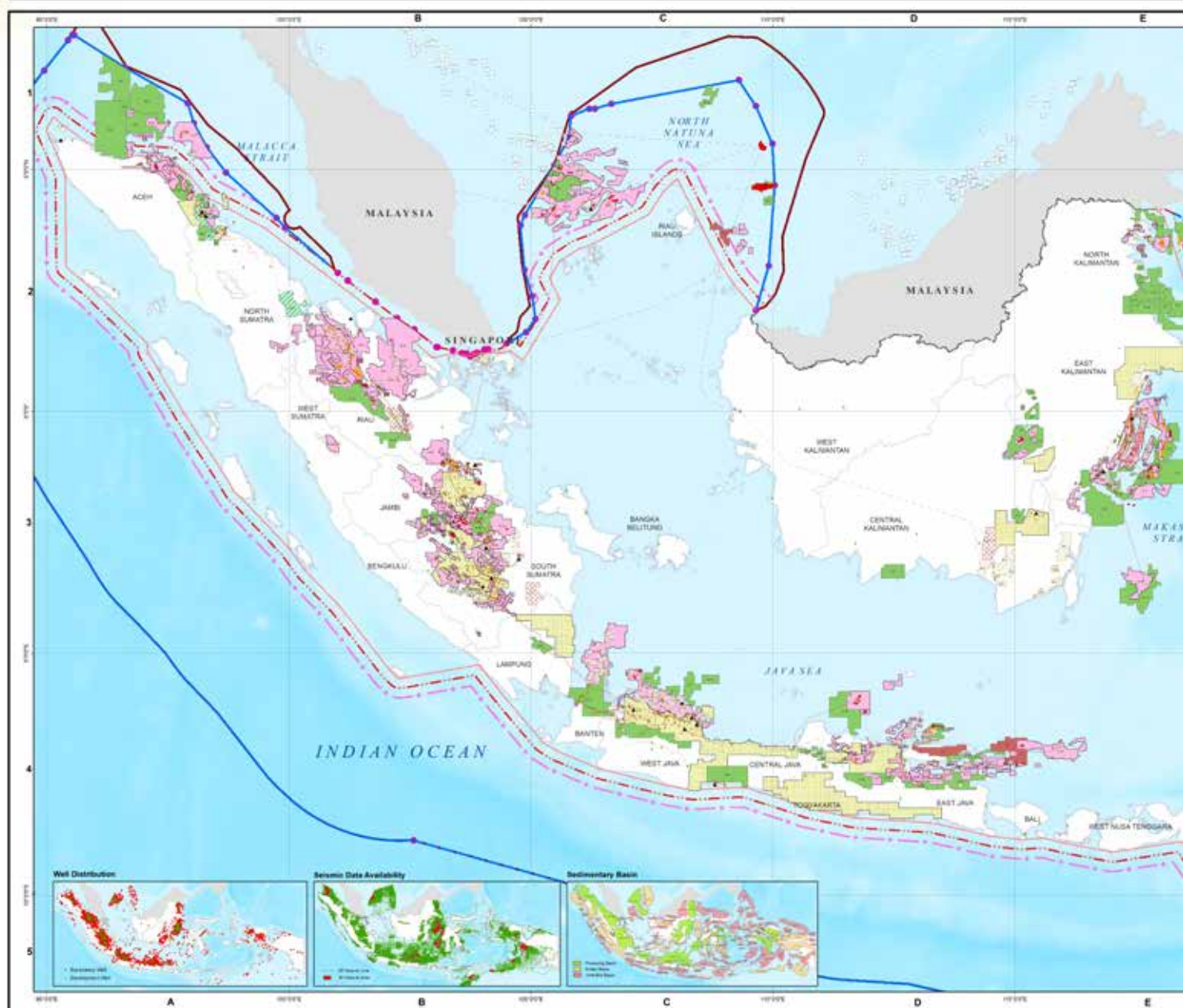
To harmonize the short-term upstream oil & gas strategies and work programs in facing the 2022 lifting target and long-term upstream oil & gas strategies and work programs of 1 million bopd and 12 thousand MMscfd in 2030. SKK Migas held the 2nd CEO Forum 2021 in a hybrid way on September 27, 2021, attended by 150 chiefs of production and exploration PSC Contractors face-to-face. This activity aimed to discuss with the PSC Contractors chiefs to obtain a joint commitment to achieve the 2022 targets of 703 thousand bopd, and 5,800 MMscfd stated in the State Revenue and Expenditure Plan (RAPBN) 2022 and harmonize the long-term vision upstream oil and gas industry 2030. These activities were also used to mark the opening of the WP&B 2022 discussion. In these activities, the chiefs of PSC Contractors presented inputs or supports required to realize activities in 2022.

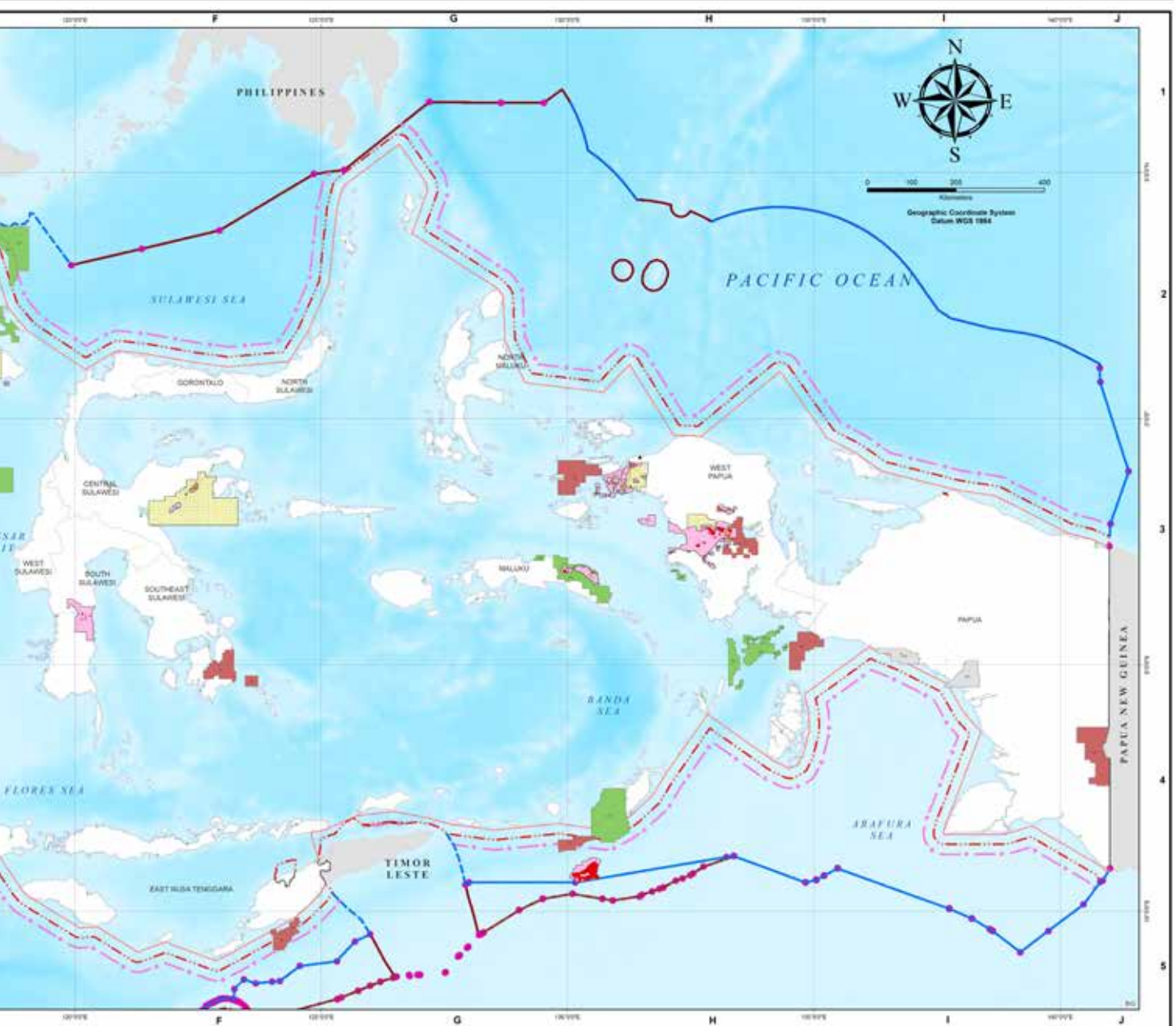
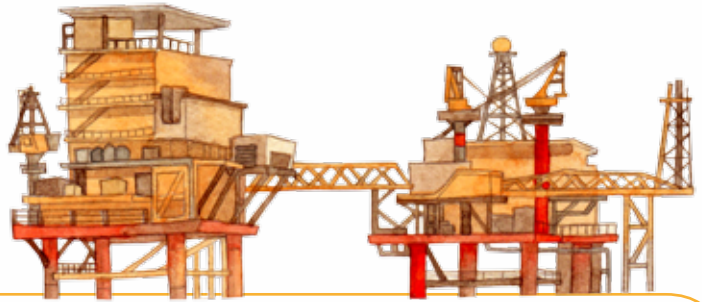
To harmonize the objective of achieving the 1 million bopd and 12 thousand MMscfd targets in 2030, SKK Migas held an international convention. Through this activity, it is exposed that the upstream oil and gas industry still has a strategic position to supply energy in the future, which will not be neglected soon due to the strengthening of the new renewable energy sector. Implementing a carbon emission reduction strategy becomes one of the keys to success in the upstream oil and gas industry. This convention served as a follow-up of the first convention held in 2020, with an emphasis on carbon emission reduction as one of the state's commitments to reduce carbon emissions. SKK Migas expected that IOG Convention 2021 could identify policies and strategies to enhance investment attractiveness in Indonesia's upstream oil & gas amid the world's increasingly competitive conditions. Topics raised comprised global conditions, LCI, and energy transition.

MAP OF INDONESIA OIL & GAS CONTRACT AREAS 2021



MAP OF INDONESIA OIL & GAS CONTRACT AREAS 2021





LEGEND OF MAP OF INDONESIA OIL & GAS CONTRACT AREAS 2021



UPSTREAM OIL AND GAS MAP REPUBLIC OF INDONESIA

(Last Update: 31st December 2021)

Working Area

A.1 Area Kampar, PHE
PSC, 01-01-2010, Ons, Ept. (B2)

Guidance to Legend

A.1 : ID

Area Kampar : Working Area
PHE : Operator
PSC : Contract Type
01-01-2010 : Effective Date
Ons : Onshore/Offshore Location
Ept : Stage (Exploitation/Exploration)
B2 : Grid of Location
(column B, row 2)

Legend of Stage & Summary

	Pertamina EP Blocks (Exploitation)	: 1 block
	Conventional - Exploitation	: 92 blocks
	Conventional - Exploration	: 45 blocks
	Conventional - Waiting gov't policy	: 2 blocks
	Conventional - Termination Process	: 13 blocks
	CBM - Exploitation	: 1 block
	CBM - Exploration	: 11 blocks
	CBM - Termination Process	: 5 blocks
	MNK - Exploration	: 3 blocks

TOTAL : 173 blocks

Infrastructure

- LNG Plant
- Oil Refinery
- Platform
- Oil Terminal

Field

- Gas Fields
- Oil & Gas Fields
- Oil Fields

Pipeline

- Operating, Gas
- Operating, Oil
- Planned, Gas
- Planned, Oil

Maritime Boundaries

- Baseline
- Continental Shelf Boundary - Agreement
- Continental Shelf Boundary - Unratified Agreement
- Continental Shelf Boundary- Need Agreement
- Continental Shelf Boundary - Unilateral
- Mou Fisheries Boundary
- Maritime Boundary Point
- Territorial Sea
- Additional Zone
- Exclusive Economic Zone
- Base Point

prepared by: Exploration Planning Division - SKK Migas

CONTACT PERSON: Shinta Damayanti (sdamayanti@skkmigas.go.id)
Sunjaya Eka Saputra (sunjaya@skkmigas.go.id)
Taubah Faulin (tsulin@skkmigas.go.id)
Rahajeng Ardinni Noor (ranoor@skkmigas.go.id)

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CONVENTIONAL CA

REGION I

SUMATERA AND NATUNA ISLANDS

- A.1** Bangko, PETROCHINA
PSC, 17-02-1995, Ons, Ept (B3)
- A.2** Batanghari, GREGORY
PSC, 16-01-2007, Ons, Ept. (B3)
- A.3** Belida, SELE RAYA
PSC, 12-12-2004, Ons, Ept. (B3)
- A.4** Bentu, EMP
PSC, 20-05-2021, Ons, Ept. (B2)
- A.5** Blok A Aceh, MEDCO
PSC, 01-09-2011, Ons, Ept. (A2)
- A.6** CPP, BOB PERTAMINA - BSP
PSC, 09-08-2002, Ons, Ept. (B2)
- A.7** Corridor, CONOCOPHILLIPS
PSC, 20-12-2003, Ons, Ept. (B3)
- A.8** Duyung, WEST NATUNA
PSC GS, 16-01-2007, Off, Ept. (C2)
- A.9** Gebang, EMP
PSC, 29-11-2015, Ons/Off, Ept. (A2)
- A.10** Jabung, PETROCHINA
PSC, 27-02-1993, Ons, Ept. (B3)
- A.11** Jambi-Merang, PHE
PSC GS, 10-02-2019, Ons, Ept. (B3)
- A.12** Kakap, STAR ENERGY
PSC, 22-03-2005, Off, Ept. (C1)
- A.13** Kampar, PHE
PSC, 01-01-2016, Ons, Ept. (B2)
- A.14** Karang Agung, ODIRA
PSC, 16-01-2007, Ons, Ept. (B3)
- A.15** Korinci Baru, EMP
PSC, 15-06-1997, Ons, Ept. (B2)
- A.16** Krueng Mane, ENI
PSC, 27-09-1999, Off, Ept. (A1)
- A.17** Laggak (MFK), SPR
PSC, 20-04-2010, Ons, Ept. (B2)
- A.18** Lemang, MANDALA ENERGY
PSC, 18-01-2007, Ons, Ept. (B3)
- A.19** Lematang, MEDCO
PSC, 06-04-2007, Ons, Ept. (B3)
- A.20** Lhokseumawe, ZARATEX
PSC, 22-12-2006, Ons/Off, Ept. (A1)
- A.21** Mahato, TEXCAL
PSC, 20-07-2012, Ons, Ept. (B2)
- A.22** Malacca Strait, EMP
PSC GS, 05-08-2020, Ons/Off, Ept. (B2)
- A.23** Merangin II, SELE RAYA
PSC, 14-10-2003, Ons, Ept. (B3)

A.24	Natuna Sea Block A, PREMIER PSC, 16-10-2009, Off, Ept. (C1)	B.1	Anambas, KUFPEC PSC GS, 05-06-2019, Off, Eks. (C2)
A.25	North Sumatra B Block, PHE PSC, 08-05-2021, Ons, Ept.-EXT (A1)	B.2	Andaman I, MUBADALA PSC GS, 13-04-2018, Off, Eks. (A1)
A.26	N. Sumatra Offshore, PHE PSC GS, 17-10-2018, Off, Ept. (A1)	B.3	Andaman II, PREMIER OIL PSC GS, 13-04-2018, Off, Eks. (A1)
A.27	North West Natuna, AWE PSC, 12-12-2004, Off, Ept. (C1)	B.4	Andaman III, TALISMAN PSC, 30-11-2009, Off, Eks. (A1)
A.28	Ogan Komering, PHE PSC GS, 20-05-2018, Ons, Ept. (B3)	B.5	Bohorok, BUKIT ENERGY PSC, 20-07-2012, Ons, Eks. (A2)
A.29	Palmerah, TATELY PSC, 30-12-2003, Ons, Ept. (B3)	B.6	Lampung III, HARPINDO PSC GS, 07-05-2019, Ons, Eks. (C3)
A.30	Pandan, TROPIK PSC, 12-12-2004, Ons, Ept. (B3)	B.7	North Sokang, MEDCO PSC, 26-11-2010, Off, Eks. (C2)
A.31	Pase, TRIANGLE PSC, 24-02-2012, Ons, Ept. (A2)	B.8	South Andaman, MUBADALA PSC GS, 28-02-2019, Off, Eks. (A1)
A.32	Raja & Pendopo, PHE PSC GS, 06-07-2019, Ons, Ept. (B3)	B.9	South Block A, RENCO PSC, 05-05-2009, Ons/Off, Eks. (A2)
A.33	Rimau, MEDCO PSC, 23-04-2003, Ons, Ept. (B3)	B.10	South Sakakemang, REPSOL PSC GS, 28-02-2019, Ons, Eks. (B3)
A.34	Rokan, CHEVRON PSC GS, 09-08-2021, Ons, Ept. (B2)	B.11	Southeast Jambi, REPSOL PSC GS, 30-07-2018, Ons, Eks. (B3)
A.35	Sakakemang, TALISMAN PSC, 18-05-2010, Ons, Ept. (B3)	B.12	Tuna, PREMIER PSC, 21-03-2007, Off, Eks. (C1)
A.36	Selat Panjang, SGE GS, 16-10-2019, Ons, Ept. (B2)	B.13	South CPP, EMP TUNAS ENERGI PSC, 22-12-2021, Ons, Eks. (B2-B3)
A.37	Sembilang, MANDIRI PANCA USAHA PSC, 01-04-2011, Off, Ept. (C2)	(C.1)	Bungamas, BUNGA MAS PSC, 16-01-2007, Ons, Eks. (B3)
A.38	Siak, PHE PSC, 28-05-2014, Ons, Ept. (B2)	C.2	East Pamai, NORTHERN YAMANO PSC, 05-05-2009, Ons, Eks. (B2)
A.39	South Betung, TECHWIN PSC, 01-04-2011, Ons, Eks. (B3)	C.3	South Sokang, MEDCO PSC, 17-12-2010, Off, Eks. (C2)
A.40	South Jambi B, JINDI PSC GS, 26-01-2020, Ons, Ept. (B3)		
A.41	South Natuna Sea B, MEDCO PSC, 16-10-1988, Off, Ept (C2)		
A.42	South Sumatra, MEDCO PSC, 28-11-2013, Ons, Ept. (B3)		
A.43	South West Bukit Barisan, RIZKI PSC, 13-11-2008, Ons, Eks. (B3)		
A.44	Tonga, EMP PSC, 16-01-2007, Ons, Ept. (A2)		
A.45	Tungkal, MONTD'OR PSC, 26-08-1992, Ons, Ept. (B3)		
A.46	West Air Komering, TIARABUMI PSC, 21-03-2007, Ons, Ept. (B3)		

LEGEND OF MAP OF INDONESIA OIL & GAS CONTRACT AREAS 2021



UPSTREAM OIL AND GAS MAP REPUBLIC OF INDONESIA

(Last Update: 31st December 2021)

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prepared by: Exploration Planning Division - SKK Migas

CONTACT PERSON: Shinta Damayanti (sdamayanti@skkmigas.go.id)
Sunjaya Eka Saputra (sunjaya@skkmigas.go.id)
Taubah Faulin (tsulin@skkmigas.go.id)
Rahajeng Ardinni Noor (ranoor@skkmigas.go.id)

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CONVENTIONAL CA

REGION II

JAVA, MADURA, & KALIMANTAN

- D.1** Alas Dara Kemuning, PERTAMINA
PSC, 26-02-2014, Ons, Ept. (D4)
- D.2** Bangkanai, MEDCO
PSC, 30-12-2003, Ons, Ept. (E3)
- D.3** Brantas, MINARAK
PSC GS, 23-04-2020, Ons/Off, Ept. (D4)
- D.4** Bulu, KRISENERGY
PSC, 14-10-2003, Off, Ept. (D4)
- D.5** Cepu, EXXONMOBIL
PSC, 17-09-2005, Ons, Ept. (D4)
- D.6** Kangean, KANGEAN ENERGY
PSC, 14-11-2010, Ons/Off, Ept. (E4)
- D.7** Ketapang, PETRONAS
PSC, 11-06-1998, Off, Ept. (D4)
- D.8** Madura Offshore, OPHIR
PSC, 04-12-1997, Off, Ept. (D4)
- D.9** Madura Strait, HUSKY-CNOOC
PSC, 20-10-2012, Ons/Off, Ept. (D4)
- D.10** Muriah, PETRONAS
PSC, 20-05-1991, Off, Ept. (D4)
- D.11** Nunukan, PHE
PSC, 12-12-2004, Off, Ept. (E2)
- D.12** ONWJ, PHE
PSC GS, 19-01-2017, Off, Ept. (C4)
- D.13** Pangkah, SAKA
PSC, 08-05-1996, Off, Ept. (D4)
- D.14** Pasir, PASIR
PSC, 05-05-2009, Ons, Ept. (E3)
- D.15** Randugunting, PHE
PSC, 09-08-2007, Ons, Ept. (D4)
- D.16** Sampang, MEDCO
PSC, 04-12-1997, Off, Ept. (D4)
- D.17** Sanga-Sanga, PHE
PSC GS, 08-08-2018, Ons, Ept. (E3)
- D.18** Simenggaris, JOB MEDCO
JOB, 24-02-1998, Ons, Ept. (E2)
- D.19** South East Sumatra, PHE
PSC GS, 06-09-2018, Off, Ept. (C3)
- D.20** Tarakan, MEDCO
PSC, 14-01-2002, Ons, Ept. (E2)
- D.21** Tuban, PHE
PSC GS, 29-02-2018, Ons, Ept. (D4)
- D.22** Wailawi, BENUO TAKA
PSC, 01-07-2012, Ons, Ept. (E3)

D.23 Wain, PANDAWA
PSC, 16-01-2007, Ons, Ept. (E3)

D.24 W Madura Offshore, PHE
PSC, 07-05-2011, Off, Ept. (D4)

E.1 Abar, PHE
PSC, 22-05-2015, Off, Eks. (C4)

E.2 Anggursi, PHE
PSC, 22-05-2015, Off, Eks. (C4)

E.3 Babai, KE BABAI TANJUNG
PSC, 20-07-2012, Ons, Eks. (D3)

E.4 Banyumas, MINARAK
PSC GS, 5-12-2018, Ons, Eks. (C4)

E.5 Bengara II, BARADINAMIKA
PSC, 26-02-2014, Ons/Off, Eks. (E2)

E.6 Blora, TIS
PSC, 30-11-2009, Ons, Eks. (D4)

E.7 Citarum, COGEN
PSC GS, 06-07-2018, Ons, Eks. (C4)

E.8 Kuala Pambuang, MENTARI
PSC, 19-12-2011, Ons, Eks. (D3)

E.9 L. Hubung L. Bagun, KALISAT
PSC, 18-05-2010, Ons, Eks. (D3)

E.10 Maratua, PHE
PSC GS, 28-02-2019, Ons-Off, Eks. (E2)

E.11 Merak Lampung, BALMORAL
PSC GS, 07-06-2018, Ons-Off, Eks. (C4)

E.12 North Madura II, PETRONAS
PSC, 22-05-2015, Off, Eks. (D4)

E.13 Off. North X-Ray, CONRAD
PSC, 15-05-2013, Off, Eks. (C4)

E.14 Sakti, KRISENERGY
PSC, 26-02-2014, Off, Eks. (D4)

E.15 South Bengara II, SDA
PSC, 13-11-2008, Ons, Eks. (E2)

E.16 South East Madura, EML
PSC, 05-05-2009, Ons/Off, Eks. (D4)

E.17 West Bangkanai, MEDCO
PSC, 13-05-2013, Ons, Eks. (E3)

E.18 Liman, HUSKY LIMAN LIMITED
PSC, 22-12-2021, Ons, Eks. (D4)

F.1 Madura (New Jabung), SPE
PSC, 13-11-2008, Ons, Eks. (D4)

F.2 Northeast Madura, TECHWIN
PSC, 21-11-2011, Off, Eks. (D4)

F.3 Mahakam Hilir, CUE
PSC, 13-11-2008, Ons, Eks. (E3)

LEGEND OF MAP OF INDONESIA OIL & GAS CONTRACT AREAS 2021



UPSTREAM OIL AND GAS MAP REPUBLIC OF INDONESIA

(Last Update: 31st December 2021)

Working Area

A.1 Area Kampar, PHE
PSC, 01-01-2010, Ons, Ept. (B2)

Guidance to Legend

A.1 : ID

Area Kampar : Working Area
PHE : Operator
PSC : Contract Type
01-01-2010 : Effective Date
Ons : Onshore/Offshore Location
Ept : Stage (Exploitation/Exploration)
B2 : Grid of Location
(column B, row 2)

Legend of Stage & Summary

	Pertamina EP Blocks (Exploitation)	: 1 block
	Conventional - Exploitation	: 92 blocks
	Conventional - Exploration	: 45 blocks
	Conventional - Waiting gov't policy	: 2 blocks
	Conventional - Termination Process	: 13 blocks
	CBM - Exploitation	: 1 block
	CBM - Exploration	: 11 blocks
	CBM - Termination Process	: 5 blocks
	MNK - Exploration	: 3 blocks

TOTAL : 173 blocks

Infrastructure

- LNG Plant
- Oil Refinery
- Platform
- Oil Terminal

Field

- Gas Fields
- Oil & Gas Fields
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Maritime Boundaries

- Baseline
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- Continental Shelf Boundary- Need Agreement
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- Additional Zone
- Exclusive Economic Zone
- Base Point

prepared by: Exploration Planning Division - SKK Migas

CONTACT PERSON: Shinta Damayanti (sdamayanti@skkmigas.go.id)
Sunjaya Eka Saputra (sunjaya@skkmigas.go.id)
Taubah Faulin (tsulin@skkmigas.go.id)
Rahajeng Ardinni Noor (ranoor@skkmigas.go.id)

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CONVENTIONAL CA

REGION III

EASTERN INDONESIA

- G.1** Berau, BP
PSC, 12-02-2017, Off, Ept. (H3)
- G.2** Bontang, STARBORN
PSC, 30-12-2003, Ons/Off, Ept. (E2)
- G.3** Bula, KALREZ
PSC GS, 01-11-2019, Ons, Ept. (H3)
- G.4** East Kalimantan & Attaka, PHKT
PSC GS, 25-10-2018, Off, Ept. (E3)
- G.5** East Sepinggan, ENI
PSC GS, 20-07-2012, Off, Eks. (E3)
- G.6** Ganai, CHEVRON
PSC, 24-02-1998, Off, Ept. (E3)
- G.7** Kasuri, GENTING
PSC, 27-05-2008, Ons, Eks. (H3)
- G.8** Kepala Burung, PETROGAS
PSC GS, 15-10-2020, Ons, Ept. (H3)
- G.9** Mahakam, PHM
PSC, 01-01-2018, Ons/Off, Ept. (E3)
- G.10** Makassar Strait, CHEVRON
PSC, 26-01-2020, Off, Ept. (E3)
- G.11** Masela, INPEX
PSC, 16-11-1998, Off, Ept. (H4)
- G.12** Muara Bakau, ENI
PSC, 30-12-2002, Off, Ept. (E3)
- G.13** Muturi, BP
PSC, 26-08-1992, Ons/Off, Ept. (H3)
- G.14** Rapak, CHEVRON
PSC, 04-12-1997, Off, Ept. (E3)
- G.15** Salawati, PETROGAS
PSC GS, 23-04-2020, Ons/Off, Ept. (H3)
- G.16** Sebuiku, PEARL
PSC, 22-09-1997, Off, Ept. (E3)
- G.17** Sengkang, ENERGY EQUITY
PSC GS, 24-10-2020, Ons, Ept. (F3)
- G.18** Senoro-Toili, JOB MEDCO
JOB, 16-07-2002, Ons/Off, Ept. (F3)
- G.19** Seram Non Bula, CITIC
PSC GS, 01-11-2019, Ons, Ept. (H3)
- G.20** Tarakan Offshore, MANHATTAN
PSC, 14-10-2003, Off, Ept. (E2)
- G.21** West Salawati, MONTD'OR
PSC, 30-12-2003, Ons/Off, Eks. (H3)
- G.22** Wiriagar, BP
PSC, 27-02-1993, Ons, Ept.-EXT (H3)

H.1	Ambalat, ENI <i>PSC, 27-09-1999, Off, Eks. (E2)</i>	I.1	Arguni I, ENI <i>PSC, 21-11-2011, Ons/Off, Eks. (H3)</i>
H.2	Aru, REPSOL <i>PSC, 20-07-2012, Off, Eks. (H3)</i>	I.2	Babar Selaru, INPEX <i>PSC, 21-11-2011, Off, Eks. (H4)</i>
H.3	East Ambalat, PHE <i>PSC, 25-05-2016, Off, Eks. (E2)</i>	I.3	Buton I, PUTINDO <i>PSC, 13-11-2008, Ons/Off, Eks. (F4)</i>
H.4	East Ganai, ENI <i>PSC GS, 30-07-2018, Off, Eks. (E3)</i>	I.4	Kofiau, NIKO <i>PSC, 05-05-2009, Ons/Off, Eks. (H3)</i>
H.5	East Seram, BALAM ENERGY <i>PSC GS, 30-07-2018, Ons/Off, Eks. (H3)</i>	I.5	Wokam II, SAKA <i>PSC, 17-12-2010, Off, Eks. (H3)</i>
H.6	North Ganai, ENI <i>PSC, 21-11-2011, Off, Eks. (E3)</i>	I.6	Off. Timor Sea I, ENI <i>PSC, 19-12-2011, Off, Eks. (F5)</i>
H.7	Off. Mangkalahat, SDA <i>PSC, 15-05-2013, Off, Eks. (E2)</i>	I.7	West Timor, ENI <i>PSC, 27-05-2008, Ons/Off, Eks. (F5)</i>
H.8	Pekawai, SAKA <i>PSC GS, 16-05-2018, Ons-Off, Eks. (E3)</i>	I.8	Southeast Papua, KAU 2 <i>PSC, 22-05-2015, Ons, Eks. (J4)</i>
H.9	Semai III, SUMA SARANA <i>PSC, 13-11-2008, Off, Eks. (H3)</i>	(I.9)	North Arafura, MANDIRI <i>PSC, 26-11-2010, Ons/Off, Eks. (I4)</i>
H.10	South Sesulu, SAKA <i>PSC, 05-05-2009, Off, Eks. (E3)</i>		
H.11	West Ganai, ENI <i>PSC GS, 28-01-2020, Off, Eks. (E3)</i>		
H.12	West Papua IV, REPSOL <i>PSC, 30-11-2009, Off, Eks. (H3)</i>		
H.13	West Sebuku, MUBADALA <i>PSC, 15-05-2013, Off, Eks. (E3)</i>		
H.14	West Yamdena, SAKA <i>PSC GS, 16-05-2018, Ons-Off, Eks. (H4)</i>		

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CONTACT PERSON: Shinta Damayanti (sdamayanti@skkmigas.go.id)
Sunjaya Eka Saputra (sunjaya@skkmigas.go.id)
Taubah Faulin (ttsulin@skkmigas.go.id)
Rahajeng Ardinni Noor (ranoor@skkmigas.go.id)

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UNCONVENTIONAL CA

SUMATERA

	GMB Tanjung Enim, NU ENERGY GROUP PSC GS, 04-08-2009, Ons, Eks. (B3)
	GMB Belida, SUGICO GROUP PSC, 01-08-2011, Ons, Eks. (B3)
	GMB Muara Enim, NU ENERGY GROUP PSC, 30-11-2009, Ons, Eks. (B3)
	GMB Muara Enim II, NU ENERGY GROUP PSC, 01-04-2011, Ons, Eks. (B3)
	GMB Muralim, NU ENERGY GROUP PSC GS, 03-12-2010, Ons, Eks. (B3)
	GMB Sijunjung, SUGICO GROUP PSC, 01-04-2011, Ons, Eks. (B3)
	GMB Ogan Komering II, SUGICO GROUP PSC, 04-08-2009, Ons, Eks. (B3)
	GMB Rengat, NU ENERGY GROUP PSC, 30-11-2009, Ons, Eks. (B2)
	MNK Kisaran, PACIFIC PSC, 22-05-2015, Ons, Eks. (A2)
	MNK Sumbagut, PHE MNK PSC, 17-05-2013, Ons, Eks. (A2)

KALIMANTAN

N.1 GMB Bangkanai III, SUGICO GROUP
PSC, 19-12-2012, Ons, Eks. (E3)

N.2 GMB Bangkanai IV, SUGICO GROUP
PSC, 19-12-2012, Ons, Eks. (E2)

N.3 GMB Barito, SUGICO GROUP
PSC, 30-11-2009, Ons, Eks. (D3)

N.4 GMB Kapuas III, SUGICO GROUP
PSC, 01-04-2011, Ons, Eks. (D3)

N.5 GMB Kotabu, SUGICO GROUP
PSC, 04-08-2009, Ons, Eks. (E3)

N.6 GMB Sangatta II, VISI MULTI ARTHA
PSC, 05-05-2009, Ons, Eks. (E2)

O.1 GMB Kapuas I, SUGICO GROUP
PSC, 01-04-2011, Ons, Eks. (D3)

O.2 GMB Kapuas II, SUGICO GROUP
PSC, 01-04-2011, Ons, Eks. (D3)

O.3 GMB Sanga Sanga, VICO
PSC, 30-11-2009, Ons, Eks. (E3)

P.1 MNK C. Bangkanai, SUGICO GROUP
PSC, 25-05-2016, Ons, Eks. (E3)



Gedung Wisma Mulia Lantai 35
Jl. Jend. Gatot Subroto No. 42
Jakarta 12710
PO BOX 4775
Indonesia

Telepon:
(+62-21) 29241607

Fax:
(+62-21) 29249999

www.skkmigas.go.id

