



## Natural Gas, Present and Future Energy



Widyawan Prawiraatmadja: **Investment Is The Key**

Prof. Dr. Subroto, a Personification of Dedication **and Service for the Country**

47<sup>th</sup> IPA Convex 2023:

IPA Encourages Upstream Investment **and Energy Transition for National Energy Security**

In Support of SKK Migas' One Million Trees Program, **PETRONAS Focuses on the Revitalization of the Environment**



Dear Beloved Readers,

The upstream oil and gas industry is undergoing rapid changes. There are three main triggers driving these changes: the COVID-19 pandemic, global geopolitical tensions, and the energy transition.

Competition for global capital is becoming tougher as investment shifts to low-carbon projects. But, on the other hand, the industry is required to achieve production targets in order to meet energy needs.

This situation demands all stakeholders to be able to answer all the existing challenges.

In this edition of IPA News, a number of articles will discuss the challenges and opportunities for investment in the upstream oil and gas industry in providing cleaner energy and the government's efforts to create a more attractive investment climate.

Enjoy your reading!

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2022 IPA President



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## 47<sup>th</sup> IPA Convex 2023

# IPA Encourages Upstream Investment and Energy Transition for National Energy Security

The Indonesian Petroleum Association (IPA) will hold the 47th IPA Convention and Exhibition (Convex IPA) on 24-26 May 2023, offline, at the Jakarta Convention Center. This decision was taken considering the success of the 2022 IPA Convex which generated huge enthusiasm from the participants.

The theme for the IPA Convex 2023 will be "Enabling Oil and Gas Investment and Energy Transition for Energy Security".

The IPA Convex 2022 was held as a hybrid event at the Jakarta Convention Center (JCC). All stakeholders in the upstream oil and gas sector who attended the 46th IPA Convex agreed to focus on increasing oil and gas production, meeting national energy needs, and providing low- carbon energy. The event was attended by nearly 20 thousand visitors, consisting of 2,000 convention participants from various countries, 14,996 public visitors, 1,133 students, and 1,250 honorary guests. IPA Convex 2022 was covered by around 288 journalists from 186 media. ○



## IPA Annual General Meeting 2022

# Strengthen the Collaboration of All Parties to Create a Competitive Energy Transition Business Model

The Indonesian Petroleum Association (IPA) held its 51st Annual General Meeting on Monday 12 December 2022. At the event which was attended by all IPA members, it was agreed to set the focus of the association in 2023 by discussing collaborative efforts of oil and gas industry stakeholders to create a competitive energy transition business model.

"Collaboration between the government and industry players in the oil and gas sector is needed so that the right policies and competitive business models to support the application of low emission technologies in oil and gas activities in Indonesia can be realized as soon as possible," said the President of the Indonesian Petroleum Association (IPA) for 2023, Yuzaini Bin Md. Yusof, during the breaks of the event that took place at the Gran Mahakam Hotel, in Jakarta.

According to Yuzaini, the impetus to make an energy transition to meet the demand for cleaner energy in the future has been agreed upon by all parties, including stakeholders in the upstream oil and gas sector. The upstream oil and gas industry in Indonesia, he continued, will still play an impor-



Yuzaini Bin Md Yusof, President of the Indonesian Petroleum Association (IPA) for the 2023 period.

tant role going forward because a sustainable and affordable energy supply must be ensured by all stakeholders. "It is very important to continue close cooperation between industry players and the government so that the resulting policies related to the energy transition can benefit all parties, both regulators and investors," he said.

IPA Executive Director, Marjolijn Wajong, also added that during 2022 IPA has carried out a number of collaborations with relevant ministries and institu-

tions to provide input on things that need to be done to improve the upstream oil and gas investment climate in Indonesia and related to efforts to reduce carbon emissions to support net zero emission targets, as well as the oil and gas production targets previously set by the government.

At the AGM event, the structure of the IPA Supervisory Board and Board of Directors who will take office in 2023 was also announced. Special Staff to the Minister of Energy and Mineral Resources for the Acceleration of Infrastructure Development and Investment, Triharyo Indrawan Soesilo, was appointed to the IPA Supervisory Board. ○

# Investment Is The Key

**Indonesia once hit a record crude oil production of 1.7 million barrels per day. However, the current amount of crude oil production has dropped dramatically, down to 650 thousand barrels per day.**

To meet the still high national energy demand, the government has set a national oil and gas production target of 1 million barrels of oil per day in 2030. This is clearly not an easy target, especially when accompanied by a thrust from global parties for the energy sector to provide cleaner energy.

So, what is the current condition of Indonesia's upstream oil and gas industry? What solutions can be offered to enable this sector to achieve the existing targets? The following is an interview by IPA News with national oil and gas observer, Widhyawan Prawiraatmaja.

## **How do you view today's global and national oil and gas industry?**

Before talking about the upstream oil and gas industry, I want to first divide it into oil and gas separately. If oil and gas companies are exploring, they want oil because it is easier to ship than natural gas. So monetization can be instant. Oil is "the king of energy" because it is easy to store and distribute. The most convenient fuel to use. Crude oil is also very strategic because it is mostly consumed by the transportation sectors: land, air, and sea.

With a huge volume of transactions, the role of oil is still essential. Petroleum has always dominated the world's primary energy consumption. Even though it has undergone a downward trend over the last 10 years, the portion of the petroleum in 2021's energy mix was still at 31 percent, higher than coal at 27 percent and gas at 24 percent. This is clearly a challenge for the energy transition plan because fossil energy prevails in its domination.

In addition, the price of petroleum is also considered volatile. Historically, significant changes in oil prices have occurred several times, such as in 2008 when the price skyrocketed to almost touching US\$150 per barrel, or dropped drastically to US\$10 per barrel in 1998.

It is realized that world oil prices are determined not only by the principles of supply and demand, but also by other factors related to "market sentiments" driven by many circumstances such as geopolitics, pandemics, or market euphoria. Thus, the movement of world oil prices is difficult to predict. In my opinion, no one can predict with certainty what the world's oil price will be in the future.

Meanwhile, upstream oil and gas activities are of course highly dependent on perceptions of the future balance of oil prices. Even though the price of oil is quite high at the moment, it is not certain

that exploration activities will follow suit. Oil companies are known to use more conservative long-term price assumptions.

Let's turn to gas. If in the past energy prices were almost always associated with petroleum, now things are different. The geopolitical conditions related to the Russia-Ukraine war have caused gas prices in Europe to skyrocket. Its equivalent price is much higher than that of petroleum. This is due to the decline in Russian gas supplies to Western Europe. As a result, there was a gas crisis in Europe.

These conditions, in my opinion, are likely to accelerate the penetration of renewable energy globally, especially for those who are highly concerned about climate change. In turn, the consumption of oil and natural gas in the future will eventually be limited. Undoubtedly, this will create uncertainty for the future role of oil and gas and in turn will bring price volatility in international market.

Looking at Indonesia, the fact is that we have been a net oil importer since 2003. With declining production, imports of crude oil for refineries and fuel are actually increasing. If you look at the increase in oil prices, this is actually not good for Indonesia. Moreover, fuel prices in Indonesia have been subsidized by the government's state budget. For information, more than one-fifth of the 2022 state budget funds are used to subsidize energy (a budget of IDR 502 trillion). The largest portion is for fuel and LPG.

Considering the declining oil and gas production, the Government via SKK Migas is trying to change the trend by increasing oil and gas production to 1 million barrels of oil per day in 2030. There are several examples of countries that have succeeded in overturning declining oil and gas production. For Indonesia, this can only happen if the investment climate in the upstream oil and gas sector is improved. Thus, Indonesia can bring back bona fide upstream oil and gas investors, especially to carry out exploration in places that have not been explored massively.

Especially for the gas sub-sector, the existing challenges in Indonesia are economic problems. Utilization of domestic gas will depend heavily on gas infrastructure, both via pipelines and in the LNG form. In fact, the natural gas monetization process takes a relatively long time because domestic buyers want low gas prices amid the high costs of gas production and distribution. So for gas, we not only need a more conducive investment climate but also schemes to accelerate the monetization process.





**According to SKK Migas data, investment in Q3/2022 has only reached 60% of the set target. How do you see this in terms of Indonesia's competitive position as an investment destination country?**

Investment is the key in the upstream oil and gas industry which is known to entail enormous risks. During the exploration period, huge funds are needed and advanced technology is used, but there is no certainty of success in finding oil and gas reserves. Meanwhile, several countries are currently competing to attract incoming investment by providing various facilities. Several countries that were never heard of as oil and gas producers, such as Guyana and Suriname, are now known to have succeeded in discovering large oil reserves.

The question now is whether Indonesia can remain competitive to keep investors investing. Meanwhile, our potential for oil and gas discoveries tends towards finding gas reserves, so the investment needs are even greater.

We must admit that our domestic capabilities are still limited. APBN, as well as state-owned enterprises and the national private sector, have limitations. Thus, the upstream oil and gas sector needs investment from abroad. The use of the State Budget for gas infrastructure, as in the case of the construction of a gas pipeline from Cirebon to Semarang, can be a trigger to further convince foreign investors of the government's seriousness in facilitating investment in gas infrastructure, which in turn is expected to increase the participation of foreign investors.

To attract investors exploring new places with potential resources, Indonesia inevitably has to provide various facilities or incentives, such as a more aggressive split and ease of doing business compared to fields already in production. This is due to the discovery of large reserves being only possible in places that have never been or are still very limitedly explored, such as in the frontier and deep-sea areas.

It should be acknowledged that our upstream oil and gas regulatory regime has undergone degradation compared to the era when oil was a "lex specialis". For example, the assume & discharge rule, which was previously applied, is no longer in place. The question is, can Indonesia restore a conducive investment climate in the upstream oil and gas sector? This can only be done by improving the investment climate in the upstream oil and gas sector. Moreover, it is known that the "window of opportunity" is getting narrower due to the push for an energy transition, limiting the use of fossil energy.

**The oil and gas industry is currently facing a dual challenge, namely the increasing need for energy in line with economic growth and the demand to provide cleaner energy. Your comment?**

Actually, one of the "bridges" for the energy transition is natural gas. Gas is known to be cleaner than coal, with only half the carbon emissions. Indonesia has announced that it will stop operating coal-fired power plants by 2060 at the latest. Even if

EBT is expected to replace it, the scale of this energy source for Indonesia is currently still minuscule. One geothermal generator unit only produces around 55-65 megawatts. Compare that to coal-fired power plants that can produce more than 400 megawatts.

What can replace coal more quickly is natural gas. Utilization of this energy can act as a target between the short and medium term, before heading to a zero-emission power plant. This is an opportunity for gas to play a greater role. For example, some power plants that will retire early can be refitted to use natural gas. Our gas reserves are still quite large, and production will depend heavily on plans to utilize the gas. Thus, not only the upstream oil and gas activities will continue running, but economic activities in the country will also gain by the presence of other multiplier effects, such as industrial development which provides added value and creates employment opportunities.

**In your opinion, what can oil and gas companies do in facing these two challenges?**

To meet the energy transition targets and NZE ambitions, the investment portfolio of oil and gas companies cannot be limited to fossil energy. There must be a carbon-free energy portfolio. For example, Total Energies. This leading oil and gas company from France now has investment portfolios in several countries that not only explore and utilize oil and gas but also renewable energy on a large scale (for example solar and wind power). BP and Shell are also doing the same.

**What do you think governments should do to increase the attractiveness of investment in the technology needed to produce cleaner fossil energy?**

The current main challenge is the enterprise's economy. First, there must be a reform of subsidies from fossil energy to renewable energy. Second, there must be new policies so that the penetration of renewable energy can be massively accelerated in Indonesia. With the right incentives and disincentives, investment can be encouraged to increase energy production capacity to meet the demand, not only in terms of quantity but also quality, especially in the form of clean energy to support the achievement of the NZE ambitions by 2060.

**What are your hopes for Indonesia's energy future?**

Indonesia has signed the Paris Agreement which is committed to reducing greenhouse gas emissions. Even at Egypt COP27, we have increased this commitment. I hope that our dream of becoming a developed country can be achieved by 2045 and that economic growth can only happen if supported by a competitive energy sector. In the medium term, gas can be a mainstay, but in the long term, renewable energy and new technologies such as green hydrogen and CCS technology must be our mainstay. There is a lot of homework for the upstream oil and gas sector, but with the synergy of all stakeholders, this can be achieved. ○

**"TO MEET THE ENERGY TRANSITION TARGETS AND NET ZERO EMISSION AMBITIONS, THE INVESTMENT PORTFOLIO OF OIL AND GAS COMPANIES CANNOT BE LIMITED TO FOSSIL ENERGY. THERE MUST BE A CARBON-FREE ENERGY PORTFOLIO."**



# Natural Gas, Present and Future Energy

**The landscape of the upstream oil and gas industry is undergoing rapid change. Three things are driving this change, namely the Covid-19 pandemic, increasing global geopolitical tension, and the push to make an energy transition to prevent a rise in the earth's temperature in line with the target of net zero emission in 2060.**

As a result, global capital competition in the upstream oil and gas sector is becoming fiercer. Most of the upstream oil and gas investment has shifted to low-carbon energy projects. Energy expert, **Widhyawan Prawiraatmaja**, said that investment is the key to the upstream oil and gas industry which carries enormous risks. "Exploration requires enormous funds and the use of sophisticated technology, but not necessarily successful in finding monetizable oil and gas reserves," he told IPA News some time ago.

He added that currently many countries are competing to attract incoming investment by providing various facilities for potential investors. Several countries that have never been heard of as oil and gas producers, such as Guyana and Suriname, are known to have succeeded in discovering large oil reserves. Then, what about Indonesia?

According to Widhyawan, to attract investors to explore potential new places, Indonesia must provide the necessary facilities or incentives. "For example, a more aggressive split

and the ease of doing business. Because the discovery of large reserves is only possible in places where exploration has not been carried out," he explained. He then gave an example of Brazil which is currently the main oil producer because its deep sea exploration has been successful in discovering large oil reserves.

Fiscal incentives are key or important instruments to maintain oil and gas production levels. The implementation of fiscal incentive policies in mature fields is believed to be a positive signal for investors that the government has a strong and serious commitment to improving the investment climate.

Meanwhile, the Deputy for Exploration Development and Management of SKK Migas Work Area, **Benny Lubiantara**, separately said that all countries are currently known to be issuing new regulations related to upstream oil and gas fiscal incentives to attract investors. "So if we want our ranking to increase, the only way is to have very significant changes. The upstream oil and gas fiscal terms and conditions need 'radical changes'. Without it our ranking would be stuck, going nowhere."

According to him, these terms and conditions must be adjusted so as to provide more win-win in the long term and support the upstream oil and gas sector to participate in efforts to reduce global carbon emissions. These efforts need incentives so that the economic level of the project could be maintained. Benny added, in the early stages everything would look difficult. However, along the way, there is always room for improvement, lessons learned, and economies of

scale that make upstream oil and gas industry activities more efficient in supporting cleaner energy.

Furthermore, he added, the main challenge in attracting potential oil and gas investors is not from the subsurface aspect. SKK Migas has high confidence that oil and gas resources are available under the surface. However, the big challenge lies in the terms and conditions stipulated in the contract.

Based on initial calculations by oil and gas contractors, he said, almost half of the oil and gas projects in the future will not meet the expected minimum attractive rate of return (MARR) if you use the terms and conditions currently in effect in each block. "Without additional fiscal incentives to achieve MARR, the project will certainly not be proposed, let alone be carried out by PSC contractors," he explained.

Separately, a member of the National Energy Council (DEN), **Satya Widya Yudha**, said that energy demand in the form of oil and natural gas is projected to continue to increase amid the push for an energy transition. This condition, according to him, creates its own challenges for the industry to balance short-term returns and long-term permits to operate.

Satya also reminded us that it is important for the government and contractors in the oil and gas sector to be able to accurately calculate oil and gas demand and production to optimize the existing oil and gas supply. At the same time, he added, this can also help the government reduce the potential deficit and send a positive signal to the industry, attracting them to invest in the sector.

As is known, the government has targeted oil production to reach 1 million barrels per day and natural gas of 12 billion standard cubic feet per day in 2030. There are four sources set as an effort to achieve these targets, namely the Existing Assets, Resources to Production (R to P), Secondary & Tertiary Recovery, and Exploration. "Regularly, we update the plan in connection with the latest information, such as new discoveries from exploration wells, or projects that are behind schedule, including the issuance of new regulations," said Benny.

According to him, the highest completion priority matter being pursued by the Government is how to immediately execute oil and gas fields that have been discovered but not yet developed (undeveloped discovery), such as the Abadi Field, IDD, and Asap-Kido-Merah. Meanwhile, for the medium and long term, SKK Migas includes unconventional oil and gas activities as an additional contribution to the oil and gas production target originating from exploration.

For information, terms and conditions regarding unconventional oil and gas are currently being finalized. It is hoped that the new terms and conditions will be much more attractive so that contractors are expected to be more enthusiastic about the potential returns in their respective blocks.

## CARBON REDUCTION

Meanwhile, responding to the target of reducing carbon emissions in the energy sector, Widhyawan expressed his hope that natural gas could become a bridge to meet energy needs during the current energy transition period. According to him, natural gas is considered cleaner because it only produces half the carbon emissions compared to coal. Natural gas reserves nationally are still considered quite large.

He believes that natural gas still has a great opportunity to play a greater role in the future in the energy sector. "The use of natural gas in the electricity sector can be an 'anchor demand' for the use of gas in other sectors," he said.

Satya also expressed the same opinion. According to him, Indonesia has not been able to completely abandon fossil energy and switch to new and renewable forms of energy. It is known that the oil and gas sector currently still contributes half of the national energy mix. However, the future use of fossils as an energy source does require using low-carbon emission technologies, such as Carbon Capture and Storage (CCS) and Carbon Capture, Utilization, and Storage (CCUS). Thus, Indonesia can fulfill its commitment to the Paris Agreement while fulfilling the energy needs that exist in the country.

Satya added, the implementation of the energy transition also needs to ensure affordable energy prices. According to him, Indonesia can learn from the UK in terms of advancing investment in decarbonization energy in the industrial sector. It is known that the UK has succeeded in implementing CCUS to reduce emissions from manufacturing processes such as cement and other chemicals, which played a major role in achieving net zero emission and economic transformation at the same time.

Meanwhile, according to Benny, it is urgent for the upstream oil and gas sector regarding emission reduction targets to ascertain that CCS/CCUS activities are part of petroleum operational activities. "This is to ensure that CCS/CCUS costs can be charged to operational costs. In the future, almost all field development plans will include the scope of CCS/CCUS," he said. ○

**"SO IF WE WANT OUR RANKING TO INCREASE, THE ONLY WAY IS TO HAVE VERY SIGNIFICANT CHANGES. THE UPSTREAM OIL AND GAS FISCAL TERMS AND CONDITIONS NEED 'RADICAL CHANGES'. WITHOUT IT OUR RANKING WOULD BE STUCK, GOING NOWHERE."**

(Benny Lubiantara)





## In Support of SKK Migas' One Million Trees Program, PETRONAS Focuses on the Revitalization of the Environment

**Honoring its commitment to reducing carbon emissions and SKK Migas' (the Special Task Force for Upstream Oil and Gas Activities) One Million Trees Program, PC Ketapang II Ltd consistently carries out a number of Corporate Social Responsibility (CSR) programs focusing on the environment around its operational areas.**

In early November 2022, PETRONAS Indonesia, through its subsidiary, PC Ketapang II Ltd. (PCK2L), planted mangrove trees in Manyar Sidomukti Village, Gresik, East Java. This activity saw 10,000 mangrove seedlings planted with the support of approximately 200 volunteers. The CSR program is carried out in collaboration between PCK2L, the Regional Government, SKK Migas, and the surrounding community.

Aside from being an effort to preserve and save the environment, planting mangrove trees also serves as a protection for the habitat of various species of marine biota.

This was the second tree-planting activity in 2022. Previously, the company also planted 30 trees with a height of 2 meters, located at the ORF PCK2L facility in Gresik, in July 2022. Not only in Gresik, but all PETRONAS Indonesia staff in various places also planted tree seedlings in their respective homes. This was done as a form of their contribution to clean the air.

The tree planting program is part of a concrete step in supporting the vision of the PETRONAS Sustainability Agenda, which is to achieve a net zero emission target

by 2050 and, at the same time, to support SKK Migas' target of planting 1 million trees throughout Indonesia.

The challenge for this program lies in acquiring land and gaining support from the local government, including the village head and the surrounding community. For this reason, the company must coordinate with related parties in advance because it takes up to 10 days to plant thousands of trees.

Going forward, this program will continue to be implemented and will be monitored regularly every three months. What is encouraging, mangrove trees also help the local community. Women in the area also use mangroves as raw materials for coffee and crackers.

For information, there are three main pillars underlying the CSR program from PCK2L, namely the economic/community development

sector, the education sector, and the environmental sector. "In practice, we work with local governments and communities to formulate these community development programs."

For other environmental sectors, PCK2L also took part in the construction of an abrasion retaining walls and planting mangroves and sea cypress on the banks of one of the Bengawan Solo tributaries, in Randuboto Village, Gresik, East Java.

Meanwhile, in the education sector, the company has provided scholarships to 40 high school students in Sampang Regency, Madura, since 2020. The program has been advanced by adding scholarship recipients from the outstanding student category. This year, PCK2L also carried out the development stage of a Smart House to help residents around the operational sites continue their education and become more technologically literate.

For the economic sector, one of the completed CSR programs is the construction of the Merdeka Ketapang Park in Sampang in 2020. This park utilizes 2,500 m<sup>2</sup> of vacant land to be used as a place for recreation and to improve the community's economy through the establishment of MSME kiosks. There is also a program called the *Pemecah Ombak* (Breakwater), which has succeeded in improving fishermen's access so that now they can go to sea without being hindered by sand sedimentation.

PCK2L hopes that all the CSR programs in place can improve the community's economy, the environment, and, in the long term, support the achievement of the net zero carbon emission target. ○

**"TIGA PILAR UTAMA YANG MENDASARI PROGRAM CSR PETRONAS INDONESIA, YAKNI: SEKTOR EKONOMI, SEKTOR PEMBERDAYAAN MASYARAKAT/ PENDIDIKAN DAN SEKTOR LINGKUNGAN."**





## Prof. Dr. Subroto, a Personification of Dedication and Service for the Country

**Indonesia lost yet another major figure in the oil and gas industry, Prof. Dr. Subroto, on Tuesday (20/12) at around 16.25 WIB in Jakarta. Subroto's work for more than 60 years in developing Indonesia's energy sector is clear evidence of his dedication and service to this country.**

Bearing the full name of Raden Subroto, he was born on September 19, 1923, in Surakarta, Central Java. He once served as Secretary General of the Organization of the Petroleum Exporting Countries (OPEC). He also contributed a lot of ideas and thoughts in terms of oil and gas management among OPEC member countries.

In 1945, Subroto was accepted as a cadet at the Military Academy in Yogyakarta. At that time, he was the second-best graduate and held the rank of Second Lieutenant out of 197 of his first class in 1948. As a soldier, Subroto and his comrades played a role in Indonesia's war for independence.

After the war, Subroto studied at the Faculty of Economics, University of Indonesia, and graduated in 1955. He was active in various student organizations during his time as a student and this made him selected as a student representative in a student exchange program at McGill University, Montreal, Canada. Subroto was selected as the recipient of a full scholarship for a postgraduate program in the subject of foreign trade and earned a Master of Arts degree.

In 1956, he returned to Indonesia to apply to a doctoral program in economics at the University of Indonesia and

graduated with a Ph.D. in 1958.

Subroto was once assigned as a Seskoad lecturer in Bandung, one of his students was Suharto, the future second President of the Republic of Indonesia. After Suharto became President, Subroto was appointed as an adviser to the new government. His first assignment was to develop a blueprint for the Indonesian economy which gave birth to REPELITA (Five-Year Development Program). Afterward, he was appointed minister by Suharto. Initially, Subroto was appointed Minister of Transmigration and Cooperatives (1971-1973), then Minister of Manpower, Transmigration and Cooperatives (1973-1978), and Minister of Mines and Energy during two cabinet periods (1978-1988). In the period 1984-1985, he was also elected President of the OPEC Conference.

During his tenure as Minister of Mines and Energy, Subroto distinguished Indonesia through various oil and gas management policies. At that time, Indonesia was known as one of the few oil-exporting countries that made good use of its oil revenues, especially for the development of rural areas (education, health, infrastructure, etc.).

During the Indonesian golden age of the oil and gas industry, Subroto also drew up a Production Sharing Contract scheme to attract foreign investors to Indonesia. With this scheme, Indonesia achieved a record production level of 1.8 million barrels per day.

Thanks to his success in developing Indonesia's oil and gas industry, Subroto was later appointed Secretary General of OPEC in 1988. As OPEC leader, he had to face various crises such as the Gulf War and also the instability of world oil prices at that time. However, his steady hands allowed him to narrow the gap between industrial-consuming countries that wanted low prices and oil-producing countries that had opposing interests to achieve a reasonable balance in world oil prices.

During his lifetime, Subroto never stopped sharing his thoughts on the future of the Indonesian oil and gas industry. He had big dreams of seeing Indonesia have independence in all manners and reducing its dependence on imports.

"Indonesia should not be proud of being an importing nation, being only a target market. Indonesia must also be active in determining the direction of the world economy. This is what makes the country strong and not easily pulled to and fro by the whims of the world," said Subroto in his book, *Indonesia di Tanganmu (Indonesia in Your Hands)*.

Fare thee well, Prof. Dr. Subroto. Your love and dedication to the country will ever be an inspiration for Indonesian oil and gas people. ○

*(Summarized from various sources)*