

## Day 2 Emerging Industry Challenge

### The Roles of CCS/CCUS in Energy Transition for Indonesia Reaching NDC

#### The Important Role of CCS-CCUS Technology in Achieving Indonesia's Net Zero Emission

The implementation of carbon capture storage (CCS) or carbon capture utility storage (CCUS) technology is expected to help Indonesia achieve its Net Zero Emission (NZE) target. CCS/CCUS represents the efforts of the oil and gas industry to promote cleaner oil and gas production processes.

This topic was discussed at the 47th IPA Convention & Exhibition during the Emerging Industry Challenge session titled "The Roles of CCS/CCUS in Energy Transition for Indonesia Reaching NDC," which took place at Nusantara Hall, Indonesia Convention Exhibition (ICE) BSD City, Tangerang, on Wednesday (26/7/2023).

The session was moderated by Joshua Ngu, the Head of Upstream Consulting APAC Wood Mackenzie, and featured four speakers: Tutuka Ariadji, Director General of Oil & Gas at the Ministry of Energy and Mineral Resources (ESDM); Nanang Abdul Manaf, Deputy Head of SKK Migas; Belladona Maulianda, Executive Director of Indonesia CCS Center; and Kathy Wu, IPA Council and President of the Asia Pacific Region.

Tutuka stated that the government is actively working to expedite the energy transition process. Regarding the implementation of CCS, he acknowledged that it is a challenging project but assured that they will continue to support it.

SKK Migas as the government's extended arms, has a low-carbon initiative program that will contribute to achieving NZE by 2060. This initiative is based on the significant carbon storage potential, where CCS/CCUS plays a crucial role in carbon emissions reduction.

Citing the International Energy Agency (IEA) Special Report on Indonesia's Net Zero Emission (NZE) Roadmap in the energy sector, the application of CCUS is expected to begin after 2025, with an estimated 6 million tons of CO<sub>2</sub> captured per year by 2030, and reaching approximately 190 million tons of CO<sub>2</sub> per year by 2060.

Nanang mentioned that SKK Migas has already undertaken several CCS/CCUS projects in Indonesia, which are currently in the study and preparation phase, but most of them are targeted to be operational before 2030.

"We will provide detailed and comprehensive governance on CCS/CCUS in oil and gas blocks. We have approved the Plan of Development (POD) for gas, especially in the Tangguh area," said Nanang.

Kathy Wu emphasized that CCS/CCUS is currently crucial in combating climate change and has a significant impact on emission reduction targets. To achieve this, stakeholders in the oil and gas sector need the government's support, and vice versa, as this project cannot be accomplished independently.

"With a focus on this technology, Indonesia will be able to achieve its NZE target by 2060," she said.

Echoing this sentiment, Belladona stated that as a nation, Indonesia must work diligently to achieve the target. Various actions need to be taken, such as prompt actions by ministries, increasing public awareness, and enhancing internal capacity to foster skilled businesses and industries.

Moreover, as a developing country, Indonesia needs to attract investors' interest to establish CCS/CCUS infrastructure.

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#### Focus Discussion Session 2

Moving on to the Focus Discussion Session 2, with the theme "Development of CCS Hub for Promoting Sustainable Economic Growth," four different panelists were present: Kenneth Freeman, Director of Asia Pacific Policy at ExxonMobil; Chris Stavinoha, General Manager of CCUS Solutions Asia Pacific and the Middle East at Chevron.

Besides, also attending the discussion were, Steve Cox, Executive Vice President of HSE, Net Zero, and CCS at Harbour Energy; and Doddy Abdassah, Indonesia Center of Excellence for CCS/CCUS.

In this session, Kenneth Houston explained that CCS Hub in Indonesia is quite promising due to the country's significant economic potential and potential CO<sub>2</sub> storage. However, Indonesia currently lacks underground CO<sub>2</sub> storage.

"CCS Hub can create new opportunities in developing clean energy products such as blue hydrogen and blue ammonia," he stated.

Further, Chris Stavinoha believed that CCS/CCUS is expected to be a major driver in long-term carbon emission reduction. "This technology is the most cost-effective solution to achieve zero-net emissions."

Concluding the session, Doddy Abdassah expressed confidence that in the future, the oil and gas industry will depend on CCS/CCUS technology.