March 24, 2023
Cosmo Oil Co., Ltd.
Cosmo Energy Holdings Co., Ltd.

Cosmo Signs Memorandum of Understanding with Bangchak Concerning Joint Studies in the Field of Decarbonization, including SAF and Bionaphtha

Cosmo Energy Holdings Co., Ltd. and Cosmo Oil Co., Ltd. (hereinafter the “Cosmo Group” or the “Group”), together with Bangchak Corporation Public Company Limited (Head office: Bangkok, Thailand; hereinafter “Bangchak”), are pleased to announce that on March 23 the three companies signed a memorandum of understanding (MOU) concerning joint studies in the field of decarbonization, including sustainable aviation fuel (SAF) and bionaphtha.

[Joint Study Areas]

1) Import and utilization by the Cosmo Group of three products produced by Bangchak: SAF, bionaphtha (※1) and bioethanol
2) Utilization and transportation of low-carbon hydrogen (※2)
3) CCUS (Carbon Capture, Utilization and Storage)（※3)
4) Lubricant-related base oils

Bangchak is a leading Thailand-based energy conglomerate engaged in petroleum refining and sales, renewable energy (electric power), biomass fuel production and sales, and natural resource development. The Cosmo Group has built a good relationship with Bangchak through many years of technology exchange, primarily with its Refinery Business Group. This tripartite MOU was concluded with the aim of jointly exploring the potential for future decarbonization projects that leverage the respective technologies and strengths built up by each company.

The Cosmo Group is working to expand its low-carbon energy business portfolio as part of efforts to achieve its 2050 Carbon Net Zero Declaration. Aiming to realize its 2030 annual supply target of 300,000 kL in its SAF Business, the Group recognizes the importance of studying the feasibility of importing SAF products made by Bangchak and diversifying its SAF procurement sources, including in-house production, to achieve this goal.

The three parties will examine the possibility of the Cosmo Group importing SAF produced

by Bangchak, which is set to commence commercial operation of its SAF Business around the end of 2024. Furthermore, the Cosmo Group will investigate the feasibility of importing and utilizing bionaphtha – a byproduct of Bangchak's SAF production business plan – which is attracting attention as a low-carbon feedstock for plastics and other products that can replace petroleum naphtha. At the same time, the Group will consider importing bioethanol made by Bangchak as part of its plans to produce SAF, a bioethanol feedstock made using Alcohol to Jet technology. In each of these potential opportunities, Thailand, which is also located in Asia, offers the advantage of lower logistics costs.

Regarding low-carbon hydrogen, the three parties will jointly examine the utilization of hydrogen, including green hydrogen and blue hydrogen, which produces zero or low carbon emissions during production processes, as well as related transportation technologies and methods.

The Cosmo Group remains committed to making further efforts to achieve net zero carbon emissions through global collaboration and multifaceted studies aimed at accelerating decarbonization.

About Bangchak Corporation Public Company Limited

Bangchak Corporation Public Company Limited, a leader in energy transition, operates five main businesses, namely Refinery Business Group: a modern complex refinery which has incorporated high-quality specialty products into its portfolio to produce low emissions and high value products (HVP); Marketing Business Group: a network of over 1,300 service stations, complemented by various non-oil businesses such as Inthanin Coffee, Furio lubricants, food outlets and restaurants, and electric vehicle (EV) charging services; Power Business, operated by BCPG, a renewable energy business leader in the Asia Pacific and operator of a large energy storage system business as well as a public utility infrastructure platform business that supports the energy sector; Bio-Based Products Business, operated by BBGI, Thailand's leading producer and retailer of biofuels, including bio-based HVP; and Natural Resources Business, investing in petroleum exploration and production through targeted investment in Okea ASA, Norway.

The company has also set up Bangchak Initiative and Innovation Center (BiiC), a corporate venture capital investor focusing on new businesses domestically and internationally, as well as building a green innovation ecosystem that promotes green energy and bio-based innovation. Through BiiC, the internal start-up "Winnonie" was initiated as Thailand's first and largest e-motorbike rental platform with battery swapping services, successfully raising Series A funding in 2022.

Additionally, the Bangchak Group has established Carbon Markets Club to promote carbon credit trading in support of energy transition and has set up a network for future bio-based technology called Syn Bio Consortium.

Bangchak was assessed by S&P Global, the assessor of the Dow Jones Sustainability Indices (DJSI), and awarded the S&P Global Sustainability Award 2022 – Silver Class. The company has also received an MSCI ESG Rating of AA – the highest among all energy sector players in Thailand – each year since 2018. The Bangchak Group has set the target of achieving carbon neutrality by 2030 and net zero greenhouse gas (GHG) emissions by 2050. Website: https://www.bangchak.co.th/en/home

※1 Bionaphtha, or biomass naphtha, is produced from renewable biomass (organic resources derived from plants and other living organisms) and is attracting attention as an alternative to petroleum naphtha, which is used as feedstock for plastics and other products. Biomass-derived feedstock absorbs CO_2 from the atmosphere during the growth phase, so even if it is ultimately burned, its CO_2 balance is said to help reduce GHG emissions compared to petroleum naphtha.

※2 Low-carbon hydrogen is a type of hydrogen that minimizes CO_2 emissions during production processes. The term is generally used to refer to green hydrogen (hydrogen produced by electrolysis from renewable energy) or blue hydrogen (hydrogen produced from fossil fuel and supported by carbon capture and storage). On the other hand, the hydrogen most widely distributed nowadays is made from fossil fuel and known as grey hydrogen because it does not capture CO_2 generated during production processes.

※3 CCUS stands for Carbon Capture, Utilization and Storage while CCS is short for Carbon Capture and Storage. CCS is a technology that separates and captures CO_2 and stores it in underground geologic formations so that it will not enter the atmosphere. CCUS, meanwhile, includes the additional cycle of stored CO_2 being extracted as necessary and effectively utilized. The Cosmo Group and Bangchak will jointly explore ways to utilize CCUS technology in the future.

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