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Biofuels and CCS: Tailwinds and Headwinds

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To achieve net-zero emissions, it is crucial to focus not only on electricity from non-fossil sources and hydrogen but also on biofuels and carbon capture and storage (CCS).

Among biofuels, biodiesel is gaining attention as it can be used for heavy-duty vehicles such as trucks. Biodiesel is produced from various feedstocks, including rapeseed, palm oil, soybean, sunflower, and used cooking oil. Ensuring a stable supply of biodiesel will be vital.

On the demand side, palm oil demand is expected to decline in the European Union (EU). Under the EU's Renewable Energy Directive, for the calculation of a Member State's gross final consumption of energy from renewable sources and the minimum share of renewable energy within the final consumption of energy in the transportation sector, the share of high indirect land-use change (ILUC)-risk biofuels, bioliquids or biomass fuels produced from food and feed crops for which a significant expansion of the production area into land with high-carbon stock is observed shall not exceed the level of consumption of such fuels in 2019. From 31 December 2023 until 31 December 2030 at the latest, that limit shall gradually decrease to 0%. A feedstock is considered high ILUC-risk if the share of the average annual expansion of the global production area of the feedstock into land with high-carbon stock is higher than 10%. Palm oil's figure is 41.92%, making it a high ILUC-risk feedstock. In response to these restrictions, Malaysia and Indonesia, major palm oil producers, have filed a complaint with the World Trade Organization (WTO) against the EU, claiming unfair trade practices concerning palm oil and non-compliance with WTO rules.

Currently, revisions to the Renewable Energy Directive are under discussion. In September 2022, the European Parliament proposed in its first reading decision to advance the time by when the limit of high ILUC-risk biofuels decreases to 0% from 31 December 2030 to the date of entry into force of the amending Directive and to lower the maximum share of the average annual expansion of the global production area into land with high-carbon stock from 10% to 7.9%. As a result, soybeans, with a value of 8%, would also become a high ILUC-risk

feedstock. Argentina exports soy-based biodiesel to Europe, and there are concerns in the EU that if this maximum share is introduced, it could negatively impact ongoing negotiations for a free trade agreement between the EU and Mercosur (the Southern Common Market). On March 30, the European Parliament and the Council of the EU agreed on the revised Renewable Energy Directive. The provisional agreement did not lower the threshold of a high ILUC-risk feedstock to 7.9%, leaving soybean as an option.

On the supply side, Indonesia has restricted palm oil exports and strengthened its domestic biodiesel mandate amid soaring oil prices, resulting in a decline in global supply. Future oil prices will continue to affect supply levels.

Concerning used cooking oil, demand has increased in the United States due to federal and state programs and incentives for renewable diesel. According to an analysis by Kpler, 530,000 barrels of used cooking oil were imported from China in January and February, with an estimated 239,000 barrels expected in March.

Japan must consider how to secure biofuels in the future, taking into account these developments as either headwinds or tailwinds.

Regarding CCS, several tailwinds have been observed.

On March 10, Indonesia's Ministry of Energy and Mineral Resources announced regulations on the implementation of CCS and carbon capture, utilization, and storage (CCUS) in upstream oil and gas operations. These regulations define the components of CCS and CCUS, the stages and procedures of their implementation, monitoring, reporting, and verification (MRV), and economic provisions such as monetary evaluation of CCS and CCUS results, incentives, and insurance. Contractors with Indonesia's Special Task Force for Upstream Oil and Gas Business Activities (SKK Migas) or the Aceh Upstream Oil and Gas Management Agency (BPMA) are entitled to tax incentives in their upstream oil and gas operations.

Furthermore, on March 16, the European Commission proposed the Net Zero Industry Act, which stipulates that an annual injection capacity of at least 50 million tonnes of CO₂ shall be achieved by 2030 in the EU. Each entity holding an authorisation to exercise the exclusive right to prospect or explore for or produce hydrocarbons shall be subject to an individual contribution to the Union-wide target for available CO₂ injection capacity and those individual contributions shall be calculated pro-rata on the basis of each entity's share in the Union's crude oil and natural gas production. Every year, the entities shall submit a report to the Commission detailing their progress towards meeting their contributions.

On the other hand, there are also headwinds. In the Midwestern United States, three pipelines are planned to transport CO₂ captured by companies that produce ethanol from corn.

However, it has been reported that farmers and residents have expressed concerns about the impact of the pipelines on farmland and potential groundwater and drinking water contamination due to CO₂ leakage from the storage sites, making it difficult to obtain easements. Among the three pipeline projects is one partnered with Archer-Daniels-Midland, a company involved in bioenergy with carbon capture and storage (BECCS).

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