

**Summary of Q&A at the On-line Briefing Session for Business Strategy held on December 14, 2023**

**Explanators:**

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1. Synthetic fuel, g-Methanol and fuel ammonia

Questions	Response
<p>Synthetic fuels, and even though fuel ammonia is not a today's theme, your company has been making full-fledged efforts since around 2021. Do you think the market is expanding as expected, or is it taking time? How do you perceive it?</p>	<p>Although it may be a little slower than expected, projects are emerging in North America, Australia, and the Middle East. There is COP28, Japan and South Korea are making effort on ammonia, and I feel that the foundation for accelerating each country efforts is now in place. Ammonia is the fastest in the technology point of view. In addition to ammonia production plant, we are promoting technological development and various initiatives with the strategy of various technologies, such as ammonia cracking to produce hydrogen then owners can have a variety of choice.</p> <p>While there may be an impression that the speed is slow, the movement of ammonia has accelerated in the past six months, and methanol has accelerated recently.</p>
<p>I understand that there are many projects under FS and Pre-FEED, but what is the owner's willingness to invest? Is it a correct understanding that projects will be realized gradually in the future?</p>	<p>The question is who will take over the manufactured product. A price difference support subsidy is being considered in Japan, too. To obtain support, it is necessary to thoroughly implement the FS and formulate a roadmap. Compared to two years ago, owners are accelerating their investigation.</p> <p>There is also a feeling that a growing number of owners are trying to make pilot or semi-commercial plants. Since the commercial size is very large, even one-tenth of that size will be some amount of size. We would like to earn revenues from both licensing and EPC for these plants, too.</p>
<p>How much SAF is recognized as SAF when mixed with conventional fuel?</p>	<p>There are various rules, such as up to 50%, depending on the manufacturing method.</p> <p>The current issue is that the supply of SAF is very small. Japan has set a target of 1.71 million kiloliters by 2030, but each company is struggling to create a value chain. Before talking about how much SAF can be mixed, the</p>

	challenge for commercialization is to build a value chain how to manufacture and supply large quantities of SAF.
SAF and green methanol are similar in raw materials and uses. Are they converged or used for different applications respectively?	Methanol has already been used as a fuel, so this is probably ahead of others. In addition to that, process technologies for methanol to gasoline (MTG) and methanol to jet fuel (MTJ) have already been established. On the other hand, the route for producing synthetic fuel directly from CO2 and hydrogen and producing gasoline and jet fuel through FT synthesis reactions is still technically under development. Once direct synthesis catalysts and reaction equipment development progresses around 2050, it may become mainstream.

## 2. Geothermal Power Generation

Questions	Response
Is it correct understanding that closed-loop technology contributes to the resolution of regulatory issues such as hot springs and national parks in Japan?	Your understanding is correct. This technology does not affect the surrounding area, and it is possible to use if there is heat source underground. We would like to increase the maturity of technology through the demonstration in Indonesia and apply it to Japan as well.
I would like to ask you about the scale of your business in the future, the number and the amount of orders received, and your market share.	For example, Indonesia is trying to increase its capacity from 2.3 GW to 5.7 GW by 2030, and the scale of investment on ground facilities alone is several trillion yen. In addition, owners invest in drilling and operations. Plants that make green fuel from generated electricity may also be constructed. As can be seen on page 4, if this technology is applied to other countries such as Japan, the Philippines, Turkey, Kenya, and New Zealand, further market and demand can be expected.
There is a future road map on page 16, what is the number and capacity of commercialization targets for 2026-2027?	It is difficult to give clear figures. Currently, closed-loop technology discussions are being held with several owners. Because the advantages of this technology are significant, once demonstration test will proceed in Indonesia there will be other projects in other countries, too. There are several owners who are interested in this technology in Japan.
In September, it was announced that a memorandum of understanding for joint research was signed with Geo Dipa	At present, we are preparing and discussing various other technologies in addition to closed-loop technology. We are talking about starting FS in FY2024.

Energy in Indonesia. Is it already decided that pilot test will start from 2024?	
Which market do you focus on existing or new plants?	<p>Originally, there was an existing well in which pipes were blocked by the scale and steam was not available, so it was proposed that the wells would be repaired then the amount of electricity generated will increase with lower cost.</p> <p>While there are fields where such existing facilities can be utilized, Indonesia has been actively carrying out new drilling with the goal of increasing power generation capacity. In some cases, there is no steam, but the temperature of the stratum is high. In such cases, closed-loop technology will be applied.</p> <p>Therefore, the conclusions are both existing and new plants.</p>

### 3. Energy conservation and decarbonization solutions for chemical process industries (HERO/SUPERHIDIC ®)

Questions	Response
How much does this business contribute to corporate performance?	Gross profit of nearly 1 billion yen from about five projects annually. These are new technologies, and the number of projects is still small, so we would like to expand it in the future.
What is the duration of performance-based reward?	It depends on customers. Some customers prefer to pay all the money first, while others prefer to pay in several years such as 5 years, the longest case.
I heard that licensing revenues boosted profits in the latest financial results. Did this HERO/SUPERHIDIC contribute?	Urea licenses boosted earnings. We are currently talking with a variety of customers, and we would like to make a significant contribution by HERO/SUPERHIDIC in the future.

(Note)

- In some cases, the order of the contents has been changed to make it easier for readers to understand.