

Q&A at the Conference on Group Vision 2030 · Progress Report Meeting 9th,December,2021

Question	Answer
<p>Q1 : What are your projections for the licensing sales in hydrogen related business in FY2030 and FY2040?</p>	<p>A1 : In consideration of the relationship with the licensees, we will refrain from disclosing the details. As for large liquefied hydrogen carriers, however, we expect to record sales by licensing if demand exceeds our company's production capacity (approximately 1 vessel per year). The licensing business includes not only hardware but also the installation and operation of core components and systems.</p>
<p>Q2 : What is the forecast for the operating profit margin of the hydrogen-related business in FY2025, in which equipment sales account for the majority?</p>	<p>A2 : We expect an operating profit margin of 5 ~ 8% in FY2025, but we do not insist on achieving profit margins because we place importance on the speedy implementation of our commercial launch in FY2030. After commercialization in FY2030, we are targeting that of 15% or more.</p>
<p>Q3 : What is your stance on Direct Air Capture (DAC) ?</p>	<p>A3 : Once DAC is put into practical use, it will be possible to reduce CO₂ emissions as long as there is a storage place, and it will also be possible to produce synthetic fuels by combining captured CO₂ with hydrogen. DAC has the potential to become a very large market in the future, and we are focusing on the development of technologies to commercialize DAC for industrial applications.</p>
<p>Q4 : Why did you set a target for achieving carbon neutrality in 2030, while many other companies around the world aim to achieve it by 2050?</p>	<p>A4 : In order to support our customers in achieving carbon neutrality, it is very important for us to present our own achievement. Therefore, we aim to become carbon neutral in line with the commercialization in FY2030.</p>
<p>Q5 : When and where will the 100 MW power plant that our company will use for its hydrogen power generation business be built? Also, please tell the amount of capital investment.</p>	<p>A5 : We will not comment on the specific timing and location, capital expenditures are expected to be several 10 billion yen.</p>

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<p>Q6 : “Blue Hydrogen” derived from brown coal is low cost, but is there any concern that it is difficult to introduce it due to the strong aversion to coal mainly in Europe?</p>	<p>A6 : At COP 26 held in the United Kingdom in November 21, the goal of limiting the temperature increase to within 1.5 °C compared to the pre-industrial period was firmly maintained.</p> <p>At the same time, there was a discussion that it would be difficult to achieve the target using only “Green Hydrogen”, and that it was necessary to utilize “Blue Hydrogen”.</p> <p>We feel that “Blue Hydrogen” is more acceptable than before, and there are no barriers to introduction.</p>
<p>Q7 : There are several options for hydrogen carriers, such as liquefied hydrogen, ammonia, and organic hydrides. Will these options converge in the future?</p>	<p>A7 : We expect each option to be beneficial and coexisting for some time. Eventually, however, liquefied hydrogen will become the mainstream for the following reasons.</p> <ol style="list-style-type: none"> 1) Not toxic 2) No additional energy is required to use hydrogen (available only by evaporation) 3) As it is pure hydrogen, it is suitable for all applications.
<p>Q8 : How do you reduce costs for hydrogen production processes, liquefaction processes, and loading terminals toward the commercial launch in FY2030?</p>	<p>A8 : Essentially, the cost per unit volume is reduced by scaling up, as with liquefied hydrogen carriers.</p> <p>Based on the experience and knowledge we have accumulated in the LNG-related business, we believe that it is highly feasible.</p>
<p>Q9 : In order to increase the amount of hydrogen introduced into Japan in a short period of time, do you intend to promote initiatives beyond business tie-ups in the heavy industry?</p>	<p>A9 : We will not comment on other initiatives beyond the announcement today, but we have received many inquiries regarding cooperation in the hydrogen business.</p> <p>We will disclose as much information as possible not only with heavy industries but also with partners in other fields, in order to promote cooperation toward the early realization of a hydrogen society.</p>

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<p>Q10 : The global CO₂ separation and capture market in 2030 is expected to be approximately 6 trillion yen per year. How much sales are you expecting at that time?</p>	<p>A10 : We will not comment on future sales figures, as we haven't yet entered the market. However, we believe that Kawasaki CO₂ capture (KCC) system using solid absorbent, will be accepted as the most efficient method.</p>
<p>Q11 : What incentives do customers have until the CIF price of hydrogen becomes to a competitive 30 yen/Nm³?</p>	<p>A11 : Japanese Government Green Innovation Fund was awarded for several hydrogen power projects, and which will reduce their burden.</p>
<p>Q12 : How will the expected decline in the global share of thermal power generation affect your company's performance?</p>	<p>A12 : The impact on our company's business performance is limited, as the scale of our thermal power generation related business is not large.</p>
<p>Q13 : How many patents related to hydrogen have been filed at this time?</p>	<p>A13 : Nearly 1,000 patents have already been filed for liquefied hydrogen carrier, hydrogen gas turbine, liquefied hydrogen storage tank, carbon dioxide capture, and entire system.</p>