

Q&A at Fiscal 2020 Business Segment IR Meeting

(Petroleum & Chemicals Group)

Date	October 1, 2020 (Thu.) 16:00 to 17:30	
Presenters	Takeshi Hagiwara	Group CEO
	Osamu Takeuchi	General Manager, Group CEO Office
	Shingo Torii	General Manager, Administration Dept.
	Hiroki Haba	Division COO, Petroleum Div.
	Akifumi Suzuki	Division COO, Petrochemicals Div.
	Eisuke Sasaki	Division COO, Basic Chemicals Div.
	Tatsuhiko Terada	General Manager, Investor Relations Dept.

Questions and Answers

Q. How long is the period remaining in the SHARQ joint venture agreement? What are the risks of Saudi Arabia raising ethane prices, in response to the sluggish oil price? What is the outlook on demand and pricing for polyethylene and MEG?

A.

- The details of the joint venture agreement are confidential, but there is still a certain period left in the contract term.
- As for ethane, we believe there is a fair chance that the cost of competitive resources such as gas as well as utilities could rise in the future, because of the extremely tough fiscal situation which the Saudi Arabian government is currently facing. On the other hand, the current global market environment for raw materials and fuel, which has been mainly affected by shale gas from the U.S., has weakened the overwhelming competitiveness which Saudi Arabia previously had, and therefore Saudi Arabia will have to fully take into consideration the level of its current global competitiveness today.
- Polyethylene is now in a powerful recovery trend, following a period of extreme weakness due to COVID-19, and the demand/supply balance is improving. For MEG, which is used to make polyester, although the demand in the polyester chain is steadily recovering despite COVID-19, supply from the U.S. and China is increasing, and we believe it will take longer for prices to recover for MEG compared to polyethylene.

Q. What are the chances of bio-derived plastics and biodegradable plastics becoming a reality?

A.

- Cost has always been the main obstacle for environment-friendly materials. However, with the global trends in recent years, brand owners around the world are thinking more strategically about making their products more green, even if they have to absorb some of the costs themselves, or shifting to materials that are more compatible with the circular economy in order to improve their brand power. This is making it much easier to overcome the cost barrier in recent years, and we believe the chances of such materials becoming a reality are relatively high.

Q. Companies like Starbucks are addressing the problem of marine plastics by switching their straws from plastic to paper. Do you think public opinion is also heading in the same direction?

A.

- Yes. There is a very strong trend of improving the recycling features of plastics, or switching to environment-friendly materials such as bio-plastics, instead of simply using and disposing plastics. This is encouraging brand owners to overcome challenges on the cost side, or to use such materials despite the higher costs.

Q. Please explain the timeframe for achieving your mid-to-long-term profit target, and how you plan to grow the profit for “new” portion.

A.

- We are planning to reinforce our existing businesses, as well as launch new businesses, in the 6 focus areas. “Mid-to-long-term” means by around the mid-2020’s, and we would like to be generating between a third to a half of our 50 billion yen profit at the time by new portion.
- As of this moment, we are expecting to grow the 6 focus areas while maintaining a good balance. We have especially strong expectations for the next phase of growth in the business areas for which we explained the actual projects in our presentation.
- COVID-19 will have no small impact. Assuming things start going back to normal in the latter half of the next fiscal year, or in the fiscal

year after that, we expect to realize these figures from around the year 2023 or 2024.

Q. Is Chuo Kagaku included in the 6 focus areas? What are your views on the current governance structure of Chuo Kagaku, as well as the parent-child listing?

A.

- Chuo Kagaku is a public company, and there are limits to what we can say.
- Chuo Kagaku is part of “Ethylene and Derivatives”, which is one of the 6 focus areas. This business covers products ranging from olefins to plastics which is its derivative, and Chuo Kagaku is positioned at the very downstream. Chuo Kagaku is part of this value chain, and the importance of owning Chuo Kagaku remains unchanged. Our intention as shareholder is to contribute to and support the growth of Chuo Kagaku.
- In terms of governance, management members of Mitsubishi Corporation’s Petroleum & Chemicals Group are serving on its Board, as part-time Directors, and we believe the governance of Chuo Kagaku is being conducted appropriately.
- Generally speaking, we understand that the parent-child listing of Mitsubishi Corporation and Chuo Kagaku is not exactly appropriate, in several ways. The current structure is the result of the acquisition through a TOB several years ago, and we believe there are numerous options available in the future, including changing the structure if there is a better option. However, as of today we do not have concrete plans to change the current capital structure.

Q. What is the competitive advantage of the tire EC business (TIREHOOD)?

A.

- One major competitive advantage is the fact that we have partnered with AUTOBACS, the most recognized brand in the auto parts and supplies industry in Japan.
- We believe the brand name of AUTOBACS, its broad range of merchandise and network of car maintenance locations will serve as a

strength for TIREHOOD.

Q. What are the chances of the CO₂-free ammonia business actually starting, and how do you plan to monetize? How interested are the electric utilities? Will this not simply be a replacement of thermal coal with ammonia, thereby not contributing to profit growth of Mitsubishi Corporation?

A.

- As was mentioned in the recent statement by Minister Kajiyama of the Ministry of Economy, Trade and Industry, the optimal energy mix for power generation in Japan is starting to be discussed seriously. While we are in the midst of a transitional phase towards a low carbon / zero-carbon society, coal power generation plays an important role in the stable supply of base load electricity. In securing the stable supply of base load electricity using coal power generation, while at the same time reducing the burden on the environment, CO₂-free ammonia is regarded as a high-priority option. Although it will take some time for the business to materialize, we do have a certain degree of confidence in the project.
- As for the point about that using ammonia instead of coal could simply be a replacement of our thermal coal business, we have already lowered the strategic importance of the thermal coal business. Even if the ratio of ammonia is as low as 20% in the mixed combustion in coal thermal power generation, it will create demand for several tens of millions of tons of ammonia. This will lead to significant revenue growth, compared to the revenue currently generated from the trading etc. of thermal coal.

Q. You mention the roughly 10 billion yen of investments in the focus areas during this fiscal year. Are your investments going to increase going forward?

A.

- An investment of around 10 billion yen is not insignificant, especially considering the fact that we are in the midst of the COVID-19 pandemic.
- Generally speaking, economies of scale are very important in the field of chemicals and petroleum. However, the traditional business model

of taking significant country risk and investing huge amounts of capital in countries producing low-priced resources, and manufacturing and selling commodity chemicals products in large volumes, is not going to be the main strategy of our Group.

- The 4 keywords (low carbon & circular economy, new clean energy, DX, downstream & services) will be the central themes in our growth strategy, and we will make investment decisions by prioritizing the projects in these areas. A series of small investments will be made, instead of making an investment of several hundreds of billions of yen in emerging countries.
- On the other hand, a sizeable investment will be needed if the CO₂-free ammonia projects materialize, taking our investments to a different level.

Q. Compared to CO₂-free ammonia, is it easier to make projects in areas such as recycled PET profitable, even without economies of scale?

A.

- Compared to CO₂-free ammonia, our challenge in recycled PET and other circular economy-related projects will be of mid-size both in terms of investments and revenues.
- More important than size is who to form partnerships with, and the type of concept and structure that we can come up with.

Q. Please break down your mid-to-long term profit target of 50 billion yen, especially for the “New” portion, and explain how much profit growth you expect from which business. You mentioned how you are not going to prioritize large investments, but do you not need to make relatively large investments if you are to achieve your target?

A.

- We will be investing between 40-50 billion yen in new business areas, mainly in the 6 focus areas. On the other hand, we will sell assets which are of low priority to us.
- Roughly a third to half of the investments will be in “ethylene and derivatives”, as well as around 10 billion yen each in “refinery chemicals” and “petroleum”.

- “New” profit will mainly consist of businesses such as “petroleum”, “refinery chemicals”, “ethylene and derivatives”, and “alcohol / C1 chemicals”, within the 6 focus areas.

Q. In relation to the replacement of assets (40-50 billion yen) during the current midterm management plan period, will you be able to use most of the cash generated from asset disposals to make new investments within your division? Will you be making similar-sized investments after the current midterm management plan period, until around 2025?

A.

- Yes, that is correct. We cannot disclose the actual figures for FY2022 onwards, but we are planning to make new investments of at least around this size, as part of our asset replacement strategy.

Q. What kind of businesses will be subject to the replacement (of investments)?

A.

- We will not mention the actual names of the businesses, but businesses which i) are not related to the 4 keywords (low carbon & circular economy, new clean energy, DX, downstream & services), and ii) which we anticipate difficulties in growing the business area or making the business lead to our growth, will be the subject of replacement.

Q. The CO₂-free ammonia business is taking a different approach to hydrogen from the MCH (Methylcyclohexane) business of the Industrial Infrastructure Group. How is Mitsubishi Corporation positioning these hydrogen-related businesses?

A.

- At this moment, the different Groups (within Mitsubishi Corporation) are approaching the business from multiple directions.
- MCH (Methylcyclohexane) is a chemicals product which is related to our Group. However, our Group is promoting the CO₂-free ammonia business, in which ammonia plays the role of hydrogen carrier, based on the standpoint of bringing together the Group’s strengths.

- The MCH business is being conducted by the Industrial Infrastructure Group, mainly through Chiyoda Corporation, and we view it as a highly technical project. Each hydrogen-carrier has their strengths as well as challenges, and one of the main challenges for MCH is how to extract hydrogen effectively.

Q. Is ammonia a more dangerous carrier compared to MCH?

A.

- Ammonia is a deleterious substance, and is categorized as a hazardous chemical, and therefore does have its risks related to product characteristics. However, 200 million tons of ammonia are produced around the world each year, as material for fertilizers and industrial use. There exists a logistics network carrying close to 20 million tons of ammonia by sea each year, and the expertise to control the dangerous characteristics of ammonia is already established in the global market, as well as within our Group.

Q. What impact will a global introduction of carbon tax have on the Group?

A.

- There will be both positive and negative effects.
- Much will depend on what kind of process is taken when introducing carbon tax, as well as the details of the tax. The negative effect will be the severe impact which our Group's business partners are likely to suffer as a result of carbon tax, and the impact on our Group should not be underestimated. On the other hand, the positive effect will be carbon tax helping to solve the challenges related to CO₂, which will thereby lead to the creation of various values, and this will be a major business opportunity for us to monetize on our Group's experience. Carbon tax could serve as one of the factors in overcoming the high cost of new technologies mentioned earlier.

Q. What are the cost advantages of liquefied hydrogen and ammonia in terms of carrying hydrogen?

A.

- One way of carrying hydrogen is to carry hydrogen itself, and another is to carry it in the form of a hydrogen derivative (product). The main examples of derivatives are ammonia and MCH.
- Because of its hydrogen density being the highest, ammonia is most efficient in terms of the cost per volume of hydrogen carried.
- Aside from hydrogen density, one other factor which should be considered when comparing the cost with LNG and liquefied hydrogen, is the environment in which the product is transported. LNG and liquefied hydrogen can only be transported at minus 162 and minus 253 degrees Celsius respectively, and both require special vessels for transportation.

Q. How is hydrogen made in ammonia production?

A.

- There are two ways. One is from hydrocarbons, and the main example is natural gas. Hydrogen is separated from hydrocarbons and steam (H₂O), and nitrogen in the air is added to this to create NH₃. This production method accounts for around 98-99% of total global ammonia production. The other method is green hydrogen, which is what we position as the future goal. This is the electrolysis of water, and hydrogen is extracted using renewable energy, to which nitrogen is added to make ammonia.

Q. What role will the Group play in the ammonia value chain?

A.

- We will play a role in all three of “production”, “transportation” and “use”. First, we will produce ammonia from natural gas, bury the CO₂ emitted from the production process by CCS (Carbon dioxide Capture and Storage) or EOR (Enhanced Oil Recovery), and transport the CO₂-free ammonia to storage tanks. We can also use LPG vessels to transport ammonia, since the boiling point is close to that of LPG, and the specifications are similar to that of ammonia vessels. The market has very strong hopes for ammonia, not only for power generation but also for marine fuel, and our plan is to provide the liquid ammonia transported to Japan to electric utilities and other clients.

Q. What is the feedback from electric utilities with regards to CO₂-free ammonia, including the fact that new capex will be required?

A.

- We believe the incremental capex required for the mixed combustion of ammonia in coal power generation is not large.
- All of the power plants in Japan already have denitration facilities, so the NO_x that is emitted from ammonia combustion should not be an issue.
- The first challenge is to maximize the mixed combustion of ammonia, while making the best use of existing facilities to minimize the additional investment needed. We understand that the electric utilities are positioning CO₂-free ammonia as an important option.
- The bottleneck in using hydrogen is the development of infrastructure needed to transport and use hydrogen which only liquefies at minus 253 degrees Celsius. We believe the ammonia business can be launched relatively early, prior to the arrival of a full-fledged hydrogen society.