NIPPON STEEL

Sustainability Briefing
(Held on December 17, 2019)
Summary of Q&A

Note: Based on information available as of the date of the Briefing

Presenter: Hideo Suzuki, Managing Executive Officer

****

Q What could be obstacles in realizing zero-carbon steel?

A There are two major obstacles. If zero carbon, rather than reduction in CO_2 emissions, will be a target, a hydrogen reduction steelmaking process needs to be developed. However, unlike an exothermic reaction of the current carbon reduction method, the hydrogen reduction method is an endothermic reaction, which requires a separate heat source for melting. This is a technological challenge. In addition, a system to produce and supply a huge volume of hydrogen at low stable cost and in a process that does not generate CO_2 must be established. There is overseas research on hydrogen reduction by using a solid reduction method, but iron ore that matches this method is a high-grade rare iron ore of which there are limited reserves, and hence, this method is too limited in economic term for steelmaking. If we are to aim at zero-carbon steel, we need to develop a hydrogen reduction method in which the same iron ore we use today can be used.

Q Wouldn't it be better to promote use of the electric arc furnace route of steelmaking as a measure to reduce CO_2 emissions?

A Considering the most likely future supply/demand structure of steel, we believe that we need to continue production and supply of steel made by the blast furnace route. There is no difference in CO_2 emission value between the blast furnace route and the electric arc furnace route in Life Cycle Assessment analysis, which includes consideration of recycling impact. In addition, steel products made by the electric arc furnace route are mainly for construction products, and high-grade steel products need to be made by the blast furnace route. Therefore, the both routes will need to co-exist.

Q Are you increasing overseas transfer of energy-saving technologies, such as your Eco Solutions?

A Energy-saving technologies have not yet been fully adopted in India, Vietnam, and other emerging countries, while steel production is expected to continue expanding in these countries. For example, annual crude steel production in India is expected to rise from the

current approximate 100 million tons to around 300 million tons by 2030. We therefore anticipate more overseas transfer of energy-saving technologies, which will provide business opportunities to us, while also making a contribution to restraining CO_2 emissions.

Q What is your view on the EU's action plan to introduce taxonomy?

A Keidanren (Japan Business Federation) strongly opposes the current taxonomy recommended by the EU and Nippon Steel has the same opinion.

Q What about your view on an EU carbon border tax?

A We are against this tax as we believe that this carbon border tax would be extremely difficult to be taken as compatible with WTO rules. Concerning steel, CO_2 emission intensity differs by product and by company and it is difficult to levy each product by clarifying its CO_2 emission intensity, while it is also not fair to levy a flat rate tax.

Q Japan's blast furnace steelmakers have strived for energy conservation and have reached the world's top-class level in energy efficiency. Don't you think that your energy-saving efforts are approaching the limit and further CO_2 emission reduction may not be economically rational?

A As you pointed out, we have already explored conventional measures for energy conservation to the fullest. Going forward, innovative technologies are needed for further CO_2 emission reduction. This will most likely be a development project which cannot be conducted by a single company. Japan's steel industry is therefore promoting it as a national project in cooperation with the government. Moreover, we can think of other ways to improve energy efficiency, such as use of the leading ICT, including AI and big data processing, to further boost productivity.

Q There has been an increase in your seaside integrated steelworks being damaged by typhoons, heavy rain, and other natural phenomena, which greatly affected your financial results. Can you think about risk reduction by rethinking location of steelworks?

A We intend to remain in the current locations as seaside integrated steelworks are most efficient and competitive in terms of raw material imports and product exports, and as it is difficult to newly locate a steelworks in Japan. As measures against typhoons and heavy rains, in addition to hard measures, such as strengthening drain systems, we have been implementing soft measures. They include preemptive suspension of operation to minimize potential damage, and standardization of priorities to resume operation after an event. We

are also establishing a system to use the strength of our multi-mill framework and to shift production from a damaged steelworks to another one.

End