NIPPON STEEL ENGINEERING

News Release

December 15th, 2022

Nippon Steel Engineering Co., Ltd.

Adoption of JCM Feasibility Study (FS) for GHG Emission Reduction Project by Installation of Tundish Plasma Heater at Electric Arc Furnace (Steel Making) Plant in Indonesia

Nippon Steel Engineering Co., Ltd. (Representative Director and President: Yukito Ishiwa; Head Office: Shinagawa-ku, Tokyo; hereinafter "NSE") announced that its proposal "GHG Emission Reduction Project by Installation of Tundish Plasma Heater (TPH) at Electric Arc Furnace (Steel Making) Plant (Study Target Country: Republic of Indonesia)" (hereinafter "the Project") has been selected for the second round of the "Feasibility Study project for the JCM (Decarbonization Field) as part of the FY 2022 Study on the infrastructure development project for acquisition of JCM credits※1" conducted by the Global Environment Affairs Office, Industrial Science and Technology Policy and Environment Bureau, Ministry of Economy, Trade and Industry (METI).

This Project aims to contribute to the realization of a decarbonized society by introducing our Tundish Plasma Heater to the Republic of Indonesia for the purpose of reducing greenhouse gas (GHG) emissions in the iron and steel industry (steelmaking process) in Indonesia and the ASEAN region. We will conduct a feasibility study for the realization of the JCM Project.

The Tundish Plasma Heating System ("NS-TPH")※2 developed and commercialized by NSE is capable of maintaining the temperature of molten steel in the tundish※3 of a continuous caster at a steel mill at a constant temperature. By introducing the NS-TPH to an existing continuous casting machine, the temperature can be lowered in the process prior to the continuous casting machine, leading to a reduction in the energy consumption rate of the entire steelmaking plant, which is expected to reduce CO_2 emissions by approximately 6% per ton of production.

There are numerous electric arc furnace manufacturers in the ASEAN region, with large power-consuming facilities (ex. About 85 continuous casting facilities). Indonesia, in particular, is expected to become the world’s third largest country in terms of steel demand after China and India in the future due to its expected population growth, and its crude steel production is also expected to increase significantly. On the other hand, as NDC※4 has set a target of “reducing GHG emissions by 29%

(unconditional) to 41% (conditional)” by 2030, the introduction (promotion) of the NS-TPH to existing continuous casting facilities is expected to contribute to the promotion of the country's energy policy.

In addition to the NS-TPH, NSE also provides steelmaking equipment which contributes greatly to energy conservation and reduction of environmental impact such as "Coke Dry Quenching (CDQ) System," "Top-Combustion Hot Stoves." As the engineering company of the Nippon Steel Group, we will continue to contribute to the realization of carbon neutrality in the steel industry.

※1: The Joint Crediting Mechanism (JCM) is a system under which Japan contributes to sustainable development, including the reduction of greenhouse gases in developing countries, by providing superior low-carbon technologies, products, systems, services, and infrastructure to developing countries, and the achievements are shared between the two countries. The Government of Japan has been in discussions with developing countries on JCM since 2011, and has so far established JCMs with 25 countries (Mongolia, Bangladesh, Ethiopia, Kenya, Maldives, Vietnam, Laos, Indonesia, Costa Rica, Palau, Cambodia, Mexico, Saudi Arabia, Chile, Myanmar, Thailand, the Philippines, Senegal, Tunisia, Azerbaijan, Moldova, Georgia, Sri Lanka, Uzbekistan, and Papua New Guinea).

※2: The Tundish Plasma Heater generates a plasma arc between a proprietary long-life torch inserted from above the tundish and the molten steel in the tundish, thereby controlling the molten steel heating temperature with high efficiency, which not only saves energy but also achieves higher quality (e.g., fewer inclusions) and higher productivity. It has been highly evaluated by Nippon Steel Corporation and other Japanese and Chinese specialty steel manufacturers.

※3: A receptacle that temporarily receives molten steel and removes inclusions before casting begins in a continuous casting facility.

※4: National reduction targets to be submitted to the UN by each country participating in the Paris Agreement (NDC: Nationally Determined Contributions).

[For more information, please contact below]

https://www.eng.nipponsteel.com/english/contact/index.html