Hyundai Heavy Industries Green Finance Framework

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1. Introduction¹

1.1 Business Overview

Since its establishment in 1972, Korea Shipbuilding & Offshore Engineering Co., Ltd. (Formerly known as Hyundai Heavy Industries Co. Ltd., Hereinafter called the "KSOE") has grown into the world's leading integrated heavy industry company by successfully diversifying from shipbuilding into offshore and engineering, industrial plant and engineering, and engine and machinery.

KSOE spun-off practically all of its operational businesses (including shipbuilding, special vessels, offshore & engineering and industrial plant, and engine machinery businesses) to a new whollyowned subsidiary, which will engage in the same line of businesses with the same employees, know-how, technique and facilities. KSOE named this subsidiary Hyundai Heavy Industries Co., Ltd. (a newly formed company pursuant to the Spin-off, Hereinafter called the "HHI").

HHI is the world's number one shipbuilder, leading the global shipbuilding industry with roughly 10% share of the market, despite the prolonged difficulties faced by the global shipbuilding industry and increasingly adverse business environment. In the future, HHI will further strengthen its position as the world's top-tier shipbuilding and offshore group, backed up by its technological prowess in LNG carriers, eco-friendly equipment, special-purpose vessels and many other high value-added vessels.

HHI has a global business network in each of its four business units: Shipbuilding, Naval & Special Ships, Offshore & Engineering, Industrial Plant & Engineering and Engine & Machinery.

- Shipbuilding With over 40 years of experience and know-how in building vessels, diverse product lines, and strong business relationships with world-class shipping companies, HHI has long maintained a reputation as an unparalleled leader in this industry, benefitting from advanced technologies in the fields of eco-friendly ships and smart ships.
- Offshore & Industrial Plant Engineering HHI designs, purchases, manufactures, transports, installs and test-runs marine facilities and offshore installations. Equipped with the best production facilities and technologies, HHI has successfully completed to date more than 170 construction projects around the world.
- Engine & Machinery HHI manufactures large/mid-sized engines for vessels and mid-sized engines for power generation, with a share of 36% in the global market for large engines and 28% for mid-sized engines, which combine to place HHI in first place in global market dominance. HHI is the only Korean engine maker with its own original technology to manufacture mid-sized engines, and plans to expand its eco-friendly equipment business such as gas engines, in active response to IMO's tightened environmental regulations.

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¹ Hyundai Heavy Industries Group – 2019 Integrated Report https://english.hhi.co.kr/img/filedown/2019_HHI_en.pdf



1.2 HHI's Green and Sustainability Vision

HHI has not only played a pivotal role in its own nation's economic development but also has become a responsible global corporate citizen contributing to the sustainable development of the world economy and assuming its responsibility for protecting the environment.

(1) Opportunities Arising From Shipping and Climate Change

Orders for LNG carriers, which are flagship products of HHI, are expected to be on a steady rise thanks to the increasing global demand for LNG, particularly from emerging industrial countries such as India and China. Although LNG fuel does not have the highest reduction potential compared to other alternative fuels and energy, it is one of the best available option to avoid or reduce air pollution and GHG emissions in the global shipping industry. For the two consecutive years from 2017 to 2018, HHI was ranked first place in terms of dominance in the global market for LNG carriers, claiming a share of about 40% each year. This demonstrates HHI's excellence in technology in the market for high value-added vessels.

Meanwhile, the demand for onboard eco-friendly facility installation and the replacement demand for container carriers will likely accelerate due to the tightening environmental regulations by the International Maritime Organization (IMO) such as sulphur oxides (SOx) emissions control.

Effective from January 1, 2020, the IMO plans to enforce strict regulations that significantly lower the global Sulphur cap on fuel content from 3.5% to 0.5%. In response, shipping companies all over the world are installing scrubbers into existing ships or switching to LNG-fueled vessels.

(2) Global Shipbuilding Industry's Finest Technologies

HHI's mid- to long-term growth strategy (by 2022) is to lead the eco-friendly, high-efficiency shipbuilding market with the world's finest technologies. R&D at HHI has been playing a crucial role in HHI's growth since 1983 when the HHI General Research Institute was first established. HHI R&D comprises of the Corporate Research Center, two business division research institutes, and the Technology Administration Office.

Thanks to its enduring efforts to develop cutting-edge technologies that ultimately set HHI apart from all others, HHI is now laying the foundation for a bold leap forward to become an advanced technology-centric group, notably boasting advanced technologies in the fields of eco-friendly vessels and smart ships.

Among R&D achievements in 2018, HHI was the World's first to build a Single Mixed Refrigerant (SMR) testing facility that re-liquefies vaporized gas from LNG carriers and received safety approval from Korea Gas Safety Corporation. HHI also established the World's largest-scale industrial Energy Storage System (ESS) center in Ulsan and developed a proprietary scrubber system (HHI-Scrubber) that meets the requirement under IMO's regulations. HHI was also the World's first to Commercialize IMO Type-B LNG Fuel Tank Design and Fueling System for Ships and the World's first to deliver an LNG-FSRU (floating storage regasification units) in 2014.



(3) Compliance with Global Environment Standards

HHI is making its best efforts to develop products that comply with global environment standards including regulations for the prevention of air pollution from ships of IMO as regards greenhouse gas (GHG), ballast water treatment systems (BWTS), CO₂, NOx, SOx; as well as Norwegian shipping regulations as regards non-methane volatile organic compound (NMVOC).

In 2018, the IMO adopted a high-level strategy on the reduction of GHG emissions in the shipping industry. The strategy lays down the target of reducing emissions by at least 50% by 2050 compared to 2008 levels, while at the same time pursuing efforts to phase them out entirely.

HHI is managing pollutants with an environmental management system established according to global standards (ISO 14001), with the objective of building a reputation as an eco-friendly company. In particular, company-wide efforts are made to reduce GHG emissions in alignment with KPIs, focusing on reducing its carbon footprint on the environment.

Based on the global standard of ISO 50001, HHI established an energy management system to monitor energy consumption. In order to promote efficient energy management, its Factory Energy Management System (FEMS) based on big data is utilized to optimize energy consumption for each factory, while its Energy Storage System (ESS) manages peak power.

HHI established the HHI Greenhouse Gas Management System (HGMS) in 2015, which calculates GHG emissions based on the IPCC global standard and Korea's GHG calculation guideline. The HGMS monitors every GHG emitting facility found in offices, factories and research centers of the Group to manage the emissions of six greenhouse gases.

(4) Sustainability Reporting

Hyundai Heavy Industries Group (HHI Group) publishes annually an Integrated Report introducing sustainable management outcomes and performance achieved by HHI Group's listed companies, including HHI. To provide relevant information to stakeholders, core issues derived from their materiality assessment are reported on the basis of the group's five management philosophies.

The Integrated Report is prepared in accordance with the Global Reporting Initiative Standards² and the International Integrated Reporting Council's (IIRC) integrated reporting framework. Lloyd's Register Quality Assurance Limited was commissioned by HHI Group to provide independent assurance on its '2019 HHI Group Integrated Report'.

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² Appendix 1 – Global Reporting Initiative Standards



(5) HHI and United Nations' Sustainable Development Goals (SDGs)



HHI Group supports the United Nations' Sustainable Development Goals³ ("SDG") as defined in the Sustainable Development Summit of the United Nations in 2015, joining the global partnership which aims to end deprivation, protect the planet and ensure that all people enjoy peace and prosperity.

In particular, HHI Group has identified 8 specific SDGs that are most relevant to its business, environment and people.

- SDG 3: Good Health and Well-Being / Healthy lives and well-being for all at all ages
- SDG 4: Quality Education / Inclusive and equitable quality education and lifelong learning opportunities for all
- SDG 7: Affordable and Clean Energy / Access to affordable, reliable, sustainable and modern energy for all
- SDG 8: Decent Work and Economic Growth / Sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all
- SDG 10: Reduced Inequalities / Reduction of inequality within and among countries
- SDG 12: Sustainable Cities and Communities / Reduction of inequality within and among countries
- SDG 14: Life below Water / Conservation and sustainable use of the oceans, seas and marine resources for sustainable development
- SDG 16: Peace, Justice and Strong Institutions / Peaceful and inclusive societies for sustainable development, access to justice for all and effective, accountable and inclusive institutions at all levels

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³ Appendix 2 – United Nations' Sustainable Development Goals



2. HHI Green Finance Framework Overview

The Green Finance Framework ("GFF") was developed to demonstrate how HHI could, with Green Financing Transactions ("GFT"), fund projects that would deliver positive environmental impacts and foster sustainable practices, and to support HHI's green and sustainability strategy.

GFTs include bonds, loans and other debt or financing structures tailoring to make contribution to sustainable development, the proceeds to Eligible Green Projects will be applied as defined in this Framework.

- With respect to bonds, bonds issued under this GFF will be in alignment with the 2018 Green Bond Principles (GBP)⁴ or as they may be subsequently amended.
- With respect to loans, loans issued under this GFF will be in alignment with the 2018 Green Loan Principles (GLP)⁵ or as they may be subsequently amended.
- Other forms of financing may conform to other sustainable or green finance principles as may have been established at the time of such financing transaction being undertaken.

Each transaction will adopt (1) Use of Proceeds, (2) Project Evaluation and Selection, (3) Management of Proceeds, and (4) Reporting, as set out in this GFF.

GFTs do not place restriction on the tenor and currency; and can include other terms and conditions including covenants, to reflect the financing strategy and plans of HHI as well as the outcome of the commercial discussions between the Issuer/Borrower and Manager/Arranger/Lender.

GFTs may be done in any jurisdiction and market reflecting HHI's current and future business needs.

2.1 Use of Proceeds

(1) Eligible Green Project Categories

An amount equal to the net proceeds of the Green Bonds and Loans will be used to fund and/or refinance, in whole or in part, new or existing eligible green projects that meet one or more of the following categories of eligibility as recognized in the 2018 GBP ("Eligible Green Projects"):

⁴ https://www.icmagroup.org/assets/documents/Regulatory/Green-Bonds/June-2018/Green-Bond-Principles---June-2018-140618-WEB.pdf

⁵https://www.lma.eu.com/application/files/9115/4452/5458/741_LM_Green_Loan_Principles_Booklet_V8.pdf



GBP / GLP Categories and UN SDGs	Eligible Criteria and Description	Environmental Sustainability Objectives
Clean Transportation 9 NOTES TO SERVICE STATE S	Clean and sustainable shipbuilding 1. Investment and expenditure in relation to design (especially direct cost related to designing of the vessels), construction and maintenance of clean and sustainable vessels ("CSV"6) according to IMO7 and Norwegian shipping regulations8. CSVs would represent, but not limited to, the below vessels: • LNG carriers, LNG FSRU • LPG/Ethane carriers • LNG Duel Fuel Container Carriers • LNG Duel Fuel Crude Oil and Product Carriers CSVs would have, but not limited to, the below technology, design, equipment and facilities: • Ballast Water Treatment (BWT) Systems • Selective Catalytic Reduction (SCR) Systems • Exhaust Gas Recirculation (EGR) Systems • Exhaust Gas Cleaning (EGC) Systems • Energy Saving Device(ESD) Systems • Volatile Organic Compounds (VOC) Recovery Systems The design of CSVs would follow the Energy Efficiency Design Index (EEDI) and the Ship Energy Efficiency Management Plan (SEEMP)9. CSVs may have the following features: • Liquefied Natural Gas (LNG), Liquefied Petroleum Gas (LPG) or Ethane burning engine including LNG/LPG Bunkering Vessels	Pollution prevention and control Reduction of air emissions including NOx, SOx and GHG emissions

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⁶ Clean and sustainable vessels ("CSV") in this Framework are vessels built by HHI which have specific features as defined in Section 2.1 Use of Proceeds

⁷ http://www.imo.org/en/About/Pages/Default.aspx

⁸ https://www.sdir.no/en/shipping/legislation/

 $^{^9}$ http://www.imo.org/en/OurWork/Environment/PollutionPrevention/AirPollution/Pages/Technical-and-Operational-Measures.aspx



	Low Sulphur Fuel Oil (LFO) Ultra-Low Sulphur	
	Fuel Oil (ULSFO)	
	 Hybrid powered 	
	 Machinery efficiency and wind assistance powered 	
	 Ability to use onshore power supply when at berth 	
	Hydrogen fuel sell	
	Ammonia or hydrogen in combustion engine	
	 2. Research and Development (R&D) would have, but not limited to, the below technology, design, equipment and facilities: Alternative fuel engine such as LNG, LPG, 	
	Ethane, Ammonia or Methanol in combustion engine	
	 Eco-friendly technology such as electric propulsion, SOx reduction, VOC recovery 	
	system, NOx reductionSailing efficiency improvement such as	
	Energy Storage System, Wind Assistance, Smartship Technologies	
	Construction and maintenance of the below facilities:	Pollution
	 Recycling facility of byproducts such as scrap metals, waste wood, waste paint cans 	prevention and control
Pollution	 Management and treatment facility of chemical 	Waste recycling
Prevention and	substances	Prevention of
Control 12 FERRIGIE 12 FERRIGIE 13 FERRIGIE 14 FERRIGIE 15 FERRIGIE 16 FERRIGIE 16 FERRIGIE 16 FERRIGIE 16 FERRIGIE 17 FERRIGIE 17 FERRIGIE 18 FERRIG	 Air pollution prevention facilities within large- scale painting factories of 50,000m3 and over from 2017 to 2023 in accordance with Management Hazardous Air Pollutants (HAPs) 	pollution from chemical substances used
13 SUMATE	and Fugitive Emissions (The technology of these prevention facilities is Catalytic Oxidation (CO) which reduces Volatile Organic Compounds (VOCs) produced in business sites.)	Reduction of VOCs emissions
	 On-site due diligence/ regular inspection of the above facilities 	
Sustainable Water Management	 Development and installation of wastewater treatment facilities within the business sites 	Pollution prevention and control
6 READ NAMES AND SAMESTAM		Recycling of water recycled
		Reuse of water



Renewable Energy	Construction of new renewable energy generating units such as wind turbines, or installation of solar panels at all domestic work sites	Climate change mitigation GHG emission reduction
Energy Efficiency	 Construction and maintenance of Energy Storage Systems (ESS)¹⁰ center to save energy costs, reduce peak power consumption and increase energy efficiency Reduction of energy consumption such as identifying real-time energy usage through remote heating and cooling control, and energy saving activities Replacement of metals (250kW, 400kW) and other light bulbs in plants with high-efficiency LED lights 	Energy efficiency improvement Energy savings

Eligible Green Projects may include the projects HHI made during the 3 years prior to the issuance or signing date of the respective GFTs and during the life of the GFTs.

(2) Exclusions

The following sectors will be excluded from Green Eligible Categories:

- Coal or non-conventional fossil fuels
- Nuclear energy related
- Biomass and waste to energy projects using feedstock suitable for food production, and that deplete carbon pools, are grown on land with current or prior high biodiversity
- Biomass plants, waste to energy power plants and geothermal plants with CO2 emission level of more than 100g CO2 /kWh
- Large scale hydropower plants (>20MW capacity) and concentrated solar power
- Child labour or forced labour
- Production or trade of weapon
- Production or trade of alcohol
- Production or trade of tobacco
- Conflict Minerals
- Predatory or payday lending
- Palm Oil
- Adult Entertainment
- Military Contracting

¹⁰ Energy Storage Systems (ESS) are manufactured by 3rd party suppliers, some of which are designed and modified by HHI to achieve the best operational outcome



2.2 Process for Project Evaluation and Selection

HHI imposes strict environmental and risk management policy during its normal course of business.

The Eligible Green Projects are identified and selected via a process that involves participants from various functional areas. A Green Finance Working Group ("GFWG") has been set up, with representatives from the below departments:

- Corporate Affairs Team
- Electricity Planning Team
- Environmental Management Team
- Project Planning Department
- Shipbuilding Production Engineering Department
- Technology Planning Departments
- Technology Planning Team
- Treasury Team

Potential Eligible Green Projects will be submitted to GFWG for review by business units. The GFWG will evaluate their compliance with not only the eligibility criteria outlined in the GFF's Use of Proceeds section but also the environmental guidelines which are applicable within HHI. If such project is considered as an Eligible Green Project by the GFWG in accordance with the GFF, it will be presented to the senior management of HHI for final approval.

GFWG will meet every 12 months to review the allocation of the GFT proceeds and to facilitate ongoing reporting. In addition, GFWG will be responsible for managing any future updates of the Framework, including any expansion of requirements of use of proceeds.

Eligible Green Projects may include new projects, projects under construction or in HHI's portfolio, with a disbursement date no older than 36 months.

In case of divestments or if an Eligible Green Project no longer meets the eligibility criteria, the funds will be reallocated to other Eligible Green Projects.

In case of HHI is aware of controversies in regards to a project, the CEO or CFO will make the final decision to exclude such project from Eligible Green Projects.

2.3 Management of Proceeds

The net proceeds from each GFT will be managed by HHI's treasury team, and the proceeds of each GFT will be deposited in the general funding accounts and be earmarked to Eligible Green Projects.

HHI will maintain a register to keep track of the use of proceeds for each GFT. The register will contain the following information:



(1) Type of Funding Transaction

Key information include issuer/borrower entity, transaction date, number of transactions, principal amount of proceeds, repayment or amortization profile, maturity date and interest or coupon (and in the case of bonds, the ISIN number).

(2) Allocation of Use of Proceeds

- Name and description of Eligible Green Projects to which the proceeds of the GFTs have been allocated in accordance with this GFF
- Amount of GFT proceeds allocated to each Eligible Green Project
- The balance of unallocated proceeds
- Information of temporary investment for unallocated proceeds

HHI is committed to allocating all proceeds from GFTs to Eligible Project on a best effort basis within three years of the Green Financing Transactions in accordance with the evaluation and selection process set out above.

Any balance of issuance proceeds which are not yet allocated to Eligible Green Projects will be held in accordance with HHI's liquidity guidelines for expenditures, or investments. HHI also commits that the temporary placements and instruments for unallocated proceeds do not finance activities in 2.1(1) Exclusions.

During the life of the Green Financing Transactions funded, if the designated Projects cease to fulfil the Eligibility Criteria, the net proceeds will be re-allocated to replacement Projects that comply with the Eligibility Criteria, as soon as reasonably practicable.

2.4 Reporting

The GFWG will be responsible for monitoring data on the allocation of proceeds, and collecting, consolidating and reporting data on environmental benefits. Financial aspects of the projects will be monitored by the company's internal accounting system.

HHI will provide information on the allocation of the net proceeds of its GFTs in HHI's Sustainability Report, Annual Report or website. Such information will be provided on an annual basis until all the net proceeds have been allocated. The information will contain at least the following details:

(1) Allocation Reporting

HHI will provide the following information for the net proceeds of all the GFTs during the year:

- Key information includes issuer/borrower entity, transaction date, number of transactions, principal amount of proceeds, maturity date and interest or coupon (and in the case of bonds, the ISIN number)
- The aggregate amount allocated to various Eligible Green Projects



- The remaining balance of funds which have not yet been allocated and type of temporary investment (type and amount)
- The share of refinancing
- The share of co-financing in the case that other finance sources are used, and report environmental benefits to the pro-rata of co-financing
- Examples of Eligible Projects (subject to confidentiality disclosures)

(2) Impact Reporting

Where possible, HHI will report on the environmental and social (where relevant) impacts of the Eligible Green Projects.

Subject to the nature of Eligible Green Projects and availability of information, HHI aims to include, but not limited to, the following Impact Indicators:

Eligible Green Projects Categories	Impact Indicators
Clean Transportation	 Annual emission reduction of NOx, SOx GHG emissions avoided (tCO₂e/year)
Pollution Prevention and Control	 GHG emission avoided (tCO₂e/year) Amount of HAPs(Hazardous Air Pollutants) (kg) Annual emission reduction of VOCs (Volatile Organic Compounds) in business sites
Sustainable Water Management	 Amount of wastewater (ton/year) Amount of BOD (Biochemical Oxygen Demand), COD(Chemical Oxygen Demand) and SS(Suspended Solids) (kg)
Renewable Energy	Renewable energy produced (MWh/year)Renewable energy capacity (MW)
Energy Efficiency	 Amount of energy saved (MWh) Amount of Energy Storage by ESS (Energy Storage System) Centre (MWh)

3. External Review

HHI has engaged an external review of this GFF from Vigeo Eiris, an independent party, to provide a Second Party Opinion. Vigeo Eiris has reviewed the GFF for its sustainability and green qualities as well as its alignment with GBP and GLP. The objective of the Second Party Opinion is to provide investors with an independent assessment.



The Second Party Opinion, as well as the GFF hereof, will be published and made available at http://english.hhi.co.kr/sustain/green.



Appendices

Appendix 1 (Global Reporting Initiative Standards)¹¹

Global Reporting Initiative (GRI) is an independent international organization, based in Amsterdam, which has pioneered sustainability reporting since 1997. GRI helps businesses and governments worldwide understand and communicate their impact on critical sustainability issues such as climate change, human rights, governance and social well-being.

The GRI Standards are the first and most widely adopted global standards for sustainability reporting. In fact, 93% of the world's largest 250 corporations report on their sustainability performance ¹² and thousands of companies across all sectors have published reports that reference GRI's Sustainability Reporting Guidelines. The Sustainability Reporting Standards are made available as free public good and have been continuously developed over 20 years, representing global best practice for reporting on economic, environmental and social issues.

Reporting with the GRI Standards supports companies, public and private, large and small, protect the environment and improve society, while at the same time thriving economically by improving governance and stakeholder relations, enhancing reputations and building trust. Sustainability reporting based on the Standards provides information about an organization's positive or negative contributions to sustainable development. The three universal Standards are used by every organization that prepares a sustainability report and an organization also chooses from the topic-specific Standards to report on its material topics – economic, environmental or social.

¹¹ https://www.globalreporting.org/standards/

¹² KPMG Survey of Corporate Responsibility Reporting 2017



Appendix 2 (United Nations' Sustainable Development Goals)

In 2015, world leaders gathered at the UN to adopt 17 Sustainable Development Goals (SDGs) to achieve several extraordinary things by 2030: end poverty, promote prosperity and well-being for all, and protect the planet. The SDGs set a course to achieve these objectives – for people everywhere. The SDGs cover a broad range of social and economic development issues. These include poverty, hunger, health, education, climate change, gender equality, water, sanitation, energy, urbanization, environment and social justice.





































