

SECOND PARTY OPINION

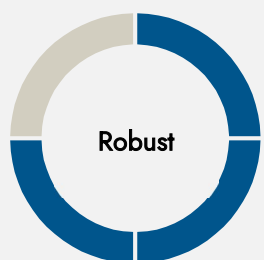
on the sustainability of SK hynix's Green Financing Framework

V.E is of the opinion that SK hynix's Framework is **aligned** with the four core components of the Green Bond Principles 2018 ("GBP") and the Green Loan Principles 2020 ("GLP").



Framework

Contribution to Sustainability:



○ Advanced ○ Limited

○ Robust ○ Weak

	Weak	Limited	Robust	Advanced
Expected impacts				
ESG risks management				

SDG Mapping



Characteristics of the Framework

Green Project Categories	⇒ Sustainable water and wastewater management ⇒ Energy Efficiency ⇒ Pollution prevention and control ⇒ Terrestrial and aquatic biodiversity conservation
Project locations	South Korea
Existence of framework	Yes
Share of refinancing	Approximately 50% for the first issuance
Look back period	36 months

Issuer

Controversies

Number of controversies	None
Frequency	NA
Severity	NA
Responsiveness	NA

Controversial Activities

The Issuer appears to not be involved in any of the 17 controversial activities screened under our methodology:

- | | | | |
|---|--|---|--|
| <input type="checkbox"/> Alcohol | <input type="checkbox"/> Fossil fuels industry | <input type="checkbox"/> High interest rate lending | <input type="checkbox"/> Pornography |
| <input type="checkbox"/> Animal welfare | <input type="checkbox"/> Coal | <input type="checkbox"/> Human embryonic stem cells | <input type="checkbox"/> Reproductive medicine |
| <input type="checkbox"/> Cannabis | <input type="checkbox"/> Gambling | <input type="checkbox"/> Military | <input type="checkbox"/> Tar sands and oil shale |
| <input type="checkbox"/> Chemicals of concern | <input type="checkbox"/> Genetic engineering | <input type="checkbox"/> Nuclear power | <input type="checkbox"/> Tobacco |
| <input type="checkbox"/> Civilian firearms | | | |

Coherence

Coherent
Partially coherent
Not coherent

We are of the opinion that the Framework is coherent with SK hynix's strategic sustainability priorities and sector issues and contribute to achieving the Issuer's sustainability commitments.

Keys findings

V.E is of the opinion that SK hynix's Framework is **aligned** with the four core components of the GBP and GLP.

Use of Proceeds – aligned with GBP and GLP

- Eligible Categories are clearly defined. The Issuer has communicated the nature of the expenditures, the eligibility criteria, and the location of Eligible Projects.
- The Environmental Objectives are clearly defined, which are relevant for all the Eligible Categories and set in coherence with sustainability objectives defined in international standards.
- The Expected Environmental Benefits are clear and precise, which are considered relevant, measurable, and will be quantified for all the Eligible Categories in the reporting.
- The Issuer has transparently communicated the estimated share of refinancing for the first bond issuance to be approximately 50%. The look-back period for refinanced Eligible Projects will be equal or less than 36 months from the date of the Green Financing Instrument transaction, in line with market practices.

Evaluation and Selection - aligned with GBP and GLP

- The Process for Project Evaluation and Selection has been clearly defined by the Issuer, which is considered structured. The roles and responsibilities are clear and include relevant internal expertise. The Process will be publicly disclosed in the Framework.
- Eligibility criteria (selection and exclusion) for project selection have been clearly defined by the Issuer for a majority of Eligible Projects.
- The process applied to identify and manage potentially material E&S risks associated with the projects is publicly disclosed in the herewith SPO and in the Framework. The Process is considered robust: it combines monitoring, identification and corrective measures for a majority of projects.

Management of Proceeds - aligned with GBP and GLP

- The Process for the Management and Allocation of Proceeds is clearly defined and is publicly available in the Framework.
- The allocation period will be shorter or equal to 36 months, on a best efforts basis.
- Net proceeds of the Bond will be placed in general funding accounts and earmarked via a Green Financing Register by the Issuer in an appropriate manner and attested in a formal internal process.
- Information on the intended types of temporary placement for the balance of the unallocated net proceeds is publicly disclosed.
- The Issuer has committed that as long as the Bond is outstanding, the balance of the tracked net proceeds will be periodically adjusted to match allocations to Eligible Projects made during that period.
- The Issuer has provided information on the procedure that will be applied in case of project divestment or postponement and it has committed to reallocate divested proceeds to projects that are compliant with the Green Financing Framework.

Reporting - aligned with GBP and GLP

- The Issuer has committed to report on the Use of Proceeds annually, until full allocation and on a timely basis in case of material developments. The report will be publicly available until bond/loan maturity.
- The reporting will cover relevant information related to the allocation of Green Financing Instrument proceeds and to the expected sustainable benefits of the projects.
- The reporting methodology and assumptions used to report on environmental benefits of the Eligible Projects will be publicly disclosed.
- The Issuer has not given information on whether funds tracking and allocation or indicators used to report on environmental benefits of the Eligible Projects will be verified.

Contact

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SCOPE

V.E was commissioned to provide an independent opinion (thereafter “Second Party Opinion” or “SPO”) on the sustainability credentials and management of the Green Financing Instruments¹ to be issued by SK hynix (the “Issuer”) in compliance with the Framework (the “Framework”) created to govern their issuances.

Our opinion is established according to V.E’s Environmental, Social and Governance (“ESG”) exclusive assessment methodology and to the latest version of the ICMA’s Green Bond Principles (“GBP”) - edited in June 2018 - and the Loan Market Association’s Green Loan Principles (“GLP”) - edited in May 2020 - voluntary guidelines (referred together as the “GBP & GLP”).

Our opinion is built on the review of the following components:

- Framework: we assessed the Framework, including the coherence between the Framework and the Issuer’s environmental commitments, the Bond’s potential contribution to sustainability and its alignment with the four core components of the GBP 2018 & GLP 2020.
- Issuer: we assessed the Issuer’s management of potential stakeholder-related ESG controversies and its involvement in controversial activities².

Our sources of information are multichannel, combining data (i) gathered from public sources, press content providers and stakeholders, (ii) from V.E’s exclusive ESG rating database, and (iii) information provided from the Issuer, through documents and interviews conducted with the Issuer’s managers and stakeholders involved in the Bond issuances, held via a telecommunications system.

We carried out our due diligence assessment from December 16th, 2020 to January 5th, 2021. We consider that we were provided with access to all the appropriate documents and interviewees we solicited. Reasonable efforts have been made to verify data accuracy.

Scope of External Reviews

<input checked="" type="checkbox"/>	Pre-issuance Second Party Opinion	<input type="checkbox"/>	Independent verification of impact reporting
<input type="checkbox"/>	Independent verification of funds allocation	<input type="checkbox"/>	Climate Bond Initiative Certification

¹ As per the Framework, the “Green Financing Instruments” refer to green bonds, loans, private placements or any other financing instruments, subject to the discretion of the Issuer. The name “Green Bond” or “Green Loan” has been decided by the Issuer: it does not imply any opinion from V.E.

² The 17 controversial activities screened by V.E are: Alcohol, Animal welfare, Cannabis, Chemicals of concern, Civilian firearms, Coal, Fossil Fuels industry, Unconventional oil and gas, Gambling, Genetic engineering, Human embryonic stem cells, High interest rate lending, Military, Nuclear Power, Pornography, Reproductive Medicine and Tobacco.

COHERENCE

Coherent
Partially coherent
Not coherent

We are of the opinion that the contemplated Framework is coherent with SK hynix's strategic sustainability priorities and sector issues and contribute to achieving the Issuer's sustainability commitments.

The Information Communication and Technology (ICT) sector is responsible for around 2-4% of global GHG emissions in 2015.³ According to one estimation, if left unchecked, ICT's relative GHG emissions contribution could exceed 14% of the 2016-level worldwide GHG emissions by 2040.⁴ Greener products, especially those with lower energy consumption, might be an important area of competitiveness in the future.

The Technology Hardware sector is also characterised by short product life cycles due to rapidly changing technologies. Therefore, electronic waste has become one of the fastest growing waste streams in the world. Technology Hardware companies need to promote the integration of environmental factors in their supply chain, since they have to comply with specific design requirements (in terms of use of hazardous substances), improve the recycling of their products and provide customers with energy efficient products.

SK hynix appears to acknowledge its role and its responsibility in achieving a low carbon and sustainable society.

SK hynix has established and taken into action the following goals as part of its 2022 ECO Vision in order to reduce greenhouse gas emission, expand recycling of water, waste, and establish clean campuses:

1. Reduction of Water Usage: annual water recycling of 20,000,000 tons achieved; expansion of water recycling and advancement of waste water processing technology
2. Expansion of Waste Recycling: 98% waste recycling rate achieved
3. Expansion of Usage of Renewable Energy: 100% usage rate of renewable energy in overseas sites; promotion of renewable energy production/application in domestic sites
4. Reduction of Greenhouse Gas Emission: 40% reduction of greenhouse gas emission (compared to BAU (Business as usual) in '16); Support to greenhouse gas reduction projects in developing countries (300,000 tCO₂) (Myanmar cook-stove supply project)
5. Establishment of Clean Campus: Establishment of 'Household disposables-free' site

In addition, on December 4th 2020, SK Group companies, which include SK hynix, became the first from South Korea to become members of the global RE100 initiative, committing to transition to 100% renewable power.⁵ For SK hynix, the target year for reaching 100% renewable energy is set at 2050.

By creating a Framework to issue Green Financing Instruments to invest in Eligible Projects under the four Eligible Categories (as defined in Table 1 in the Use of Proceeds section below), SK hynix transparently supports its sustainability strategy and commitments, and addresses important sustainability issues of the sector.

³ <https://c2e2.unepdtu.org/wp-content/uploads/sites/3/2020/03/greenhouse-gas-emissions-in-the-ict-sector.pdf>

⁴ <https://www.sciencedirect.com/science/article/abs/pii/S095965261733233X>

⁵ <https://www.there100.org/our-work/press/south-korean-companies-join-global-race-clean-energy>

FRAMEWORK

The Issuer has described the main characteristics of the Bonds and Loans within a formalized Green Financing Framework which covers the four core components of the GBP 2018 and GLP 2020 (the last updated version was provided to V.E on January 4th, 2021). The Issuer has committed to make this document publicly accessible on SK hynix's website⁶, in line with good market practices.

Alignment with the Green Bond Principles and the Green Loan Principles

Use of Proceeds



The net proceeds of the Green Financing Instruments will exclusively finance or refinance, in whole or in part, projects falling under four Green Project Categories ("Eligible Categories"), as indicated in Table 1.

- Eligible Categories are clearly defined. The Issuer has communicated the nature of the expenditures, the eligibility criteria and the location of Eligible Projects.
- The Environmental Objectives are clearly defined, which are relevant for all the Eligible Categories and set in coherence with sustainability objectives defined in international standards.
- The Expected Environmental Benefits are clear and precise, which are considered relevant, measurable, and will be quantified for all the Eligible Categories in the reporting.
- The Issuer has communicated the estimated share of refinancing for the first issuance to be approximately 50%. The look-back period for refinanced Eligible Projects will be equal or less than 36 months from the date of the Green Financing Instrument transaction, in line with market practices.

BEST PRACTICES

- ⇒ Relevant environmental benefits are identified and measurable for all project categories
- ⇒ The Issuer has transparently communicated the estimated share of refinancing for the first bond issuance

⁶ <https://www.skhynix.com/eng/ir/greenFinancing.jsp>

Table 1. V.E' analysis of Eligible Categories, Sustainability Objectives and Expected Benefits as presented in the Issuer's Framework

- Nature of expenditures: construction / installation, operation and/or maintenance of projects / assets
- Location of Eligible Projects: South Korea

ELIGIBLE GREEN CATEGORIES	GREEN CRITERIA	SUSTAINABILITY OBJECTIVES AND BENEFITS	V.E'S ANALYSIS
Sustainable water and wastewater management	<p>Investment into construction / installation, operation and/or maintenance of projects / assets that materially reduce the amount of water consumed or wasted, allow for greater water volumes to be efficiency treated, including but not limited to:</p> <ul style="list-style-type: none"> ▪ Regional Waterworks ▪ Wastewater treatment facilities /plant ▪ Wastewater reduction trickling filter ▪ Cooling tower drain water recycling system 	<p>Pollution prevention and control</p> <p>Wastewater treatment</p> <p>Sustainable water management</p> <p>Improving water efficiency</p>	<p>The Eligible projects are clearly defined. The Issuer has communicated the nature of the expenditures and the eligibility criteria and the location of Eligible Projects.</p> <p>The Environmental Objectives are clearly defined and are relevant for all the Eligible Projects and set in coherence with sustainability objectives defined in international standards.</p> <p>The Expected Environmental Benefits are clear, which are considered relevant, measurable, and will be quantified for all the Eligible Projects in the reporting.</p> <p>An area for improvement consists in setting a minimum recycling rate or efficiency target for the water recycling system.</p>
Energy Efficiency	<p>Investment into research / development, construction / installation, operation and/or maintenance of projects / assets that materially reduce the amount of energy consumed, improve energy efficiency, including but not limited to:</p> <ul style="list-style-type: none"> ▪ LED lighting for office and machine rooms to reduce energy consumption ▪ Low-power solid-state drives (SSDs) to improve energy performance and reduce energy consumption ▪ Investment into booster pump in cooling tower pipes and heat exchange system within cooling towers to 	<p>Energy conservation</p> <p>Improving energy efficiency</p> <p>Reducing energy usage</p>	<p>The Eligible projects are clearly defined. The Issuer has communicated the nature of the expenditures and the eligibility criteria and the location of Eligible Projects.</p> <p>The Environmental Objectives are clearly defined and are relevant for all the Eligible Projects and set in coherence with sustainability objectives defined in international standards.</p> <ul style="list-style-type: none"> • Regarding the relevance of "Low-power solid-state drives (SSDs)", it has been found that data storage alone is estimated to be

	increase heat taken from cooling process to use for maintaining level of temperature and humidity of clean room and office buildings		<p>responsible for, for instance, about 25% to 35% of data centre power consumption.⁷ Hence, supplying data storage products that consume less energy is relevant to improve energy performance of the ICT sectors as well as for all the users of such products.</p> <p>The Expected Environmental Benefits are clear, these are considered relevant, measurable, and will be quantified for all the Eligible Projects in the reporting.</p> <ul style="list-style-type: none"> For “Low-power solid-state drives (SSDs)”, SK hynix reports that compared to hard disk drive (HDD), typical SSDs reduces energy consumption by 50% while low-power SSDs could achieve 94% of reduction. Although no third-party evidence (e.g. test report) was received regarding the estimation of energy consumption, the advantage of SSD over HDD in terms of energy consumption has been widely proven and reported.^{8,9,10,11}
Pollution prevention and control	<p>Investment into construction / installation, operation and/or maintenance of projects / assets that materially reduce the emissions/ waste created from operations, including but not limited to:</p> <ul style="list-style-type: none"> Establishment of Environmental Analysis Center and investment into environment analysis system Installation of automatic water quality measurement equipment Procurement and installation of automatic water quality measurement equipment and measuring equipment Tele Monitoring System (TMS) Establishment of nitrogen oxide (NOx) reduction infrastructure 	<p>Pollution prevention and control</p> <p>Pollution monitoring and prevention</p> <p>NOx emission reduction</p>	<p>The Eligible Projects are clearly defined. The Issuer has communicated the nature of the expenditures and the eligibility criteria and the location of Eligible Projects.</p> <p>The Environmental Objective is clearly defined and are relevant for all the Eligible Projects and set in coherence with sustainability objectives defined in international standards.</p> <p>The Expected Environmental Benefits are clear, which are considered relevant, measurable, and will be quantified for all the Eligible Projects in the reporting.</p>

⁷ <https://ieeexplore.ieee.org/document/8048983>

⁸ <http://www.ijitee.org/wp-content/uploads/papers/v9i7/G5693059720.pdf>

⁹ <https://ieeexplore.ieee.org/document/8048983>

¹⁰ <http://cecs.louisville.edu/nihat/papers/CLUSTER2017.pdf>

¹¹ <http://www.cse.psu.edu/~buu1/papers/ps/park-isa11.pdf>





<p>Terrestrial and aquatic biodiversity conservation</p>	<p>Investment into construction / installation, operation and/or maintenance of projects / assets that materially enhance the wellbeing of local terrestrial and aquatic biodiversity, and aid in their long term conservation, including but not limited to:</p> <ul style="list-style-type: none"> Construction and ongoing maintenance of ecological park and wetland that are created and managed in accordance with the: <ul style="list-style-type: none"> Building Act Act on urban parks and green areas 	<p>Biodiversity conservation</p> <p>Increasing green areas/wetland areas</p>	<p>The Eligible projects are clearly defined. The Issuer has communicated the nature of the expenditures and the eligibility criteria and the location of Eligible Projects.</p> <ul style="list-style-type: none"> For both ecological parks and wetlands, the Issuer reports that examples of species of focus include tree frogs and large egret; For wetlands, the Issuer reports that they will be man-made, rather than naturally formed; The Building Act¹² and the Act on urban parks and green areas¹³ are both relevant national regulations in South Korea. <p>The Environmental Objective is clearly defined and are relevant for the Eligible Projects and set in coherence with sustainability objectives defined in international standards. The Issuer further clarified that the Eligible Projects aim to connect ecological corridor by restoring forest topography, reduce temperature by creating an ecological channel and stream, restore environment of damaged areas.</p> <p>The Expected Environmental Benefits are overall clear, which are considered measurable and will be quantified for all the Eligible Projects in the reporting. However, we consider it of minor importance for the Company and the sector. An area for improvement is to provide either example of already selected projects, and/or details on the Eligible Projects (e.g. location (whether in any ecological zones/protected areas), expected land area, etc.) in order to assess the magnitude of expected benefits.</p>
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¹² https://elaw.klri.re.kr/kor_service/lawView.do?hseq=51253&lang=ENG

¹³ https://elaw.klri.re.kr/kor_service/lawView.do?hseq=50020&lang=ENG

SDG Contribution

The Eligible Categories are likely to contribute to four of the United Nations' Sustainable Development Goals ("SDGs"), namely:

ELIGIBLE CATEGORY	SDG	SDG TARGETS
Sustainable water and wastewater management		6.3 By 2030, improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally
Pollution prevention and control		6.4 By 2030, substantially increase water-use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity and substantially reduce the number of people suffering from water scarcity
Energy Efficiency		9.4 By 2030, upgrade infrastructure and retrofit industries to make them sustainable, with increased resource-use efficiency and greater adoption of clean and environmentally sound technologies and industrial processes, with all countries taking action in accordance with their respective capabilities
		9.5 Enhance scientific research, upgrade the technological capabilities of industrial sectors in all countries, in particular developing countries, including, by 2030, encouraging innovation and substantially increasing the number of research and development workers per 1 million people and public and private research and development spending
Sustainable water and wastewater management		11.6 By 2030, reduce the adverse per capita environmental impact of cities, including by paying special attention to air quality and municipal and other waste management
Terrestrial and aquatic biodiversity conservation		11.7 By 2030, provide universal access to safe, inclusive and accessible, green and public spaces, in particular for women and children, older persons and persons with disabilities
Terrestrial and aquatic biodiversity conservation		15.1 By 2020, ensure the conservation, restoration and sustainable use of terrestrial and inland freshwater ecosystems and their services, in particular forests, wetlands, mountains and drylands, in line with obligations under international agreements



Evaluation and Selection of Eligible Projects



- The Process for Project Evaluation and Selection has been clearly defined by the Issuer, which is considered structured. The roles and responsibilities are clear and include relevant internal expertise. The Process will be publicly disclosed in the Framework.
- Eligibility criteria (selection and exclusion) for project selection have been clearly defined by the Issuer for a majority of Eligible Projects.
- The process applied to identify and manage potentially material E&S risks associated with the projects is publicly disclosed in the herewith SPO and in the Framework. The Process is considered robust: it combines monitoring, identification and corrective measures for a majority of projects (see detailed analysis on pages 16 - 18).

Process for Project Evaluation and Selection

- SK hynix has established an internal ESG Working Group, which is composed of representatives from Finance Management organization, ESG-related departments, and environment-related departments.
- Any department related to ESG activities can propose a green investment project.
- The internal ESG Working Group evaluates and selects potential Eligible Projects, with the following responsibilities:
 - Review, select and validate the pool of Eligible Projects based on the Framework on an annual basis;
 - Monitor the Eligible Projects portfolio during the lifetime of any Green Financing Instrument. The team will be responsible for replacing an Eligible Green Project if it no longer meets the eligibility criteria or if the Eligible Project has matured;
 - Monitor for controversies of the selected Eligible Projects, and in case of any controversy, review to determine if the Eligible Project should be removed from the Green Financing Instrument that it is allocated to;
 - Create and validate the annual reporting on Green Financing Instruments issued under this Framework for investors and lenders; and
 - Monitor on-going evolution related to the sustainable financing market practices in terms of disclosure / reporting in order to be in-line with best market practices.
- The existing ESG Management Committee, which includes the CEO, will review the preliminarily selected potential Eligible Projects for final approval.
- The traceability and verification of the selection and evaluation of the projects is ensured throughout the process:
 - SK hynix's Finance Management, in collaboration with internal stakeholders, including the Company's in-house sustainability team, will conduct annual review of outstanding Green Financing Instruments and Eligible Projects, exclude projects that no longer comply with the Eligibility Criteria or have been disposed of, and replace them on a best effort basis with new Eligible Projects;



- Minutes of meeting, which will take place at least every 12 months, will be recorded to trace the decisions on the selection of projects.

Eligibility Criteria

The process relies on explicit eligibility criteria (selection and exclusion), relevant to the environmental objectives defined for the Eligible Categories.

- The selection criteria are based on definitions in Eligible Categories defined Table 1 in the Use of Proceeds section.
- The exclusion criteria are defined as below in the Framework, which is considered clear and relevant although could be extended to all GHG intensive activities and other controversial activities:
 - Projects that do not fall into the Eligible Green Categories as listed above will not be eligible under this Framework. Explicitly, the type of projects related to the generation or transmission of energy from fossil fuel and sectors listed in the IFC Exclusion List (2007)¹⁴ shall be excluded from this Framework.

BEST PRACTICES

- ⇒ The Issuer reports that it will monitor compliance of selected projects with eligibility and exclusion criteria specified in the Framework throughout the life of the instrument and has provided details on content/ frequency/duration and on procedure adopted in case of non-compliance
- ⇒ The Issuer reports that it will monitor potential ESG controversies associated with the projects throughout the life of the instrument and has provided details on frequency, content and procedures in case a controversy is found on a project

¹⁴ https://www.ifc.org/wps/wcm/connect/topics_ext_content/ifc_external_corporate_site/sustainability-at-ifc/company-resources/ifcexclusionlist



Management of Proceeds



- The Process for the Management and Allocation of Proceeds is clearly defined, and is publicly available in the Framework.
- The allocation period will be shorter or equal to 36 months, on a best efforts basis.
- Net proceeds of the Bond will be placed in general funding accounts and earmarked via a Green Financing Register by the Issuer in an appropriate manner and attested in a formal internal process.
- Information on the intended types of temporary placement for the balance of the unallocated net proceeds is publicly disclosed.
- The Issuer has committed that as long as the Bond is outstanding, the balance of the tracked net proceeds will be periodically adjusted to match allocations to Eligible Projects made during that period.
- The Issuer has provided information on the procedure that will be applied in case of project divestment or postponement and it has committed to reallocate divested proceeds to projects that are compliant with the Green Financing Framework.

Management Process

- The net proceeds of the Green Financing Instruments will be initially deposited into the general funding accounts of SK hynix. A Green Financing Register will be established to earmark the proceeds of the Green Financing Instruments against assessed and selected Eligible Projects.
- In case the Eligible Projects portfolio is smaller than the Green Financing Instruments' net proceeds outstanding, SK hynix has committed to fill the gap and add new Eligible Projects to the Green Financing Register within 36 months on a best effort basis.
- The unallocated funds would be held in cash and/or cash equivalent and/or other liquid marketable instruments, as per SK hynix's treasury policy and the Exclusion Criteria (as per section 2.1 of the Framework).
- In case of projects postponement, cancelation, divestment or ineligibility, or in case an Eligible Project has matured, the Issuer has committed to replace the no longer Eligible Project by a new Eligible Project.

BEST PRACTICES

- ⇒ The Issuer has provided information on the procedure that will be applied in case of project/asset divestment or postponement and it has committed to reallocate divested proceeds to projects that are compliant with the Green Financing framework

Monitoring & Reporting

Not Aligned	Partially Aligned	Aligned	Best Practices
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- The Issuer has committed to report on the Use of Proceeds annually, until full allocation and on a timely basis in case of material developments. The report will be publicly available until bond/loan maturity.
- The reporting will cover relevant information related to the allocation of Green Financing Instrument proceeds and to the expected sustainable benefits of the projects.
- The reporting methodology and assumptions used to report on environmental benefits of the Eligible Projects will be publicly disclosed.
- The Issuer has not given information on whether funds tracking and allocation or indicators used to report on environmental benefits of the Eligible Projects will be verified.

Indicators

The Issuer has committed to transparently communicate at Eligible Category level, on:

- Allocation of proceeds: The indicators selected by the Issuer to report on the allocation of proceeds are clear and relevant.

REPORTING INDICATORS
<ul style="list-style-type: none"> ⇒ The amounts allocated in the respective Eligible Green Categories ⇒ A qualitative description of key Eligible Projects funded by the Green Financing Instrument proceeds ⇒ The proportion of new financing versus re-financing ⇒ Project expected construction completion date, subject to confidentiality disclosure ⇒ The proportion of co-financing and types of temporary unallocated funds placements on a best effort basis, subject to confidentiality disclosure ⇒ The balance of unallocated proceeds

- Environmental benefits: The indicative indicators selected by the Issuer to report on the environmental benefits are clear and relevant although not exhaustive.

ELIGIBLE CATEGORIES	ENVIRONMENTAL BENEFITS INDICATORS	
	OUTPUTS AND OUTCOMES	INDICATIVE IMPACT INDICATORS
Sustainable water and wastewater management	<ul style="list-style-type: none"> • Number of regional waterworks/ Wastewater treatment facilities /plant built 	<ul style="list-style-type: none"> • Annual volume (m³) of waste water treated • Water grade quality of waste water treated and released (m³) • Annual volume (m³) of water recycled (metric for cooling tower drain water recycling system)



Energy Efficiency	<ul style="list-style-type: none"> Energy consumption per Gb of product produced for low-power SSD products and equivalent investments 	<ul style="list-style-type: none"> Annual GHG emissions reduced/avoided in tons of CO₂ equivalent Annual energy savings achieved in MWh/GWh/GJ/TJ Amount of steam usage reduced (metric for waste heat recovery)
Pollution prevention and control	<ul style="list-style-type: none"> Number of environment analysis system / water quality measurement system installed 	<ul style="list-style-type: none"> Annual emissions reduced/avoided in tons of NO_x equivalent Water quality metrics (Chemical Oxygen Demand (COD), Biochemical Oxygen Demand (BOD) (metric for automatic water quality measurement equipment))
Terrestrial and aquatic biodiversity conservation	<ul style="list-style-type: none"> Location of ecological park and wetland to the extent once it becomes a public information Area (m³) of ecological park and wetland created 	<ul style="list-style-type: none"> Prior to completion report on the probability of inhabitation Prior to completion report on the number of species (plant and animal) living in ecological park and wetland

An area for improvement is to commit to an external verification of the tracking and allocation of funds to Eligible Categories, as well as the indicators used to report on environmental benefits of the Eligible Projects.

BEST PRACTICES

- ⇒ The issuer report will be publicly available
- ⇒ The indicators selected by the Issuer are exhaustive with regards to allocation reporting
- ⇒ The reporting methodology and assumptions used to report on environmental benefits of the Eligible Projects will be disclosed publicly.

Contribution to sustainability

Expected Impacts

The potential positive Impact of the Eligible Projects on environmental and social objectives is considered to be robust.

ELIGIBLE CATEGORY	EXPECTED IMPACT	ANALYSIS
Sustainable water and wastewater management	ROBUST	The Eligible Projects are expected to contribute to two of the important environmental issues of the sector, pollution control (wastewater treatment) and natural resource utilisation (waste use efficiency). There is no specific technical standards or thresholds defined at the category level. For wastewater treatment, it is expected to comply at least with national standards; while for water recycling in cooling tower, there is no visible information to assess the expected positive impacts in terms of water saving.
Energy Efficiency	LIMITED	The Eligible Projects are expected to contribute to one of the important environmental issues of the sector related to energy efficiency. One of the projects will also offer energy efficient products (i.e. SSDs) to downstream manufacturers and consumers. However, potential risks still remain in the manufacturing process (e.g. use of chemicals) and in the supply chain (e.g. sourcing of key materials). The waste heat recovery could potentially reduce the Company's energy demand, however it cannot mitigate all the negative impacts embedded in the cooling process due to its high demand for both energy and water and the fact that the installed system will use grid electricity where fossil fuels still dominates the electricity mix in South Korea. ¹⁵ In addition, there is no specific technical standard or thresholds set at the Category level that the Eligible Projects need to adhere to.
Pollution prevention and control	ROBUST	The Eligible Projects will address the important environmental issues of the sector related to air and water pollution. Although there is no specific technical criteria or threshold set for the Eligible Projects, establishment of environmental analysis centre and installation of environmental analysis system will help monitor the compliance with relevant national environmental standards and prevent potential pollution violation.
Terrestrial and aquatic biodiversity conservation	LIMITED	This Category is of minor importance to the sector. The Issuer reports that the Eligible Projects will comply with relevant regulation in South Korea, and ecological park projects will follow the Habitat Evaluation Procedure (HEP). Examples of target species include tree frogs and large egrets. However, due to lack of either example of already selected projects and/or details of the Eligible Projects (e.g. location (whether in any ecological zones/protected areas), expected land area, etc.), there is insufficient information to assess the magnitude of expected impacts and potential risks (e.g. land dispute; introduction of foreign/invasive species).
OVERALL ASSESSMENT	ROBUST	

¹⁵ <https://www.iea.org/countries/korea>

ESG Risks Identification and Management systems in place at project level

The identification and management of the environmental and social risks associated with the Eligible Projects are considered robust¹⁶.

	ELIGIBLE CATEGORIES			
	SUSTAINABLE WATER AND WASTEWATER MANAGEMENT	ENERGY EFFICIENCY	POLLUTION PREVENTION AND CONTROL	TERRESTRIAL AND AQUATIC BIODIVERSITY CONSERVATION
Environmental Management System and Environmental Impact Assessment	X	X	X	X
Eco-design and decommissioning	X	X	X	X
Energy use and energy efficiency	X	N/A	X	X
Reduction of GHG emissions	X	X	X	X
Pollution prevention and control and mitigation of inconveniences	X	X	N/A	X
Integration of social and environmental factors in supply chain	X	X	X	X
Fundamental human rights and labour rights	X	X	X	X
Health and safety of all the workers	X	X	X	X
OVERALL ASSESSMENT	Robust	Robust	Robust	Robust

Environmental Management System and Environmental Impact Assessment

SK hynix has established Sustainability Guidelines¹⁷, which applies to all of its employees, subsidiaries, subcontractors, suppliers, and J/V employees and hence also include all the Eligible Projects to be included under this Framework. SK hynix recognises the importance of managing environmental impacts from its operations, and has set up board-level Sustainability Management Committee to oversee overall ESG risks management, ESG issues as well as ESG strategy.

SK hynix reports that it has established an advanced Environmental Management System (EMS) in accordance with ISO 14001. All four of its worksites including Icheon & Cheongju in South Korea and two other in China (*note: the Eligible Projects will only be in South Korea*), have received the ISO 14001 certification.¹⁸ SK hynix also reports that it has established a set of environmental management policies at the company report for chemical control, pollutant emissions, waste treatment and energy with quarterly compliance reviews and annual Safety, Health & Environment (SHE) internal reviews, which will cover all the Eligible Projects. It reports to conduct environmental impact assessment of projects and

¹⁶ The "X" indicates the E&S risks that have been activated for each Eligible Category.

¹⁷ <https://www.skhyunx.com/eng/sustain/sustainManage.do>

¹⁸ <https://www.skhyunx.com/eng/sustain/sustainManage.do#tg04>



implement pollution prevention measures following relevant regulations in South Korea as well as its internal safety and environment standards.

Specifically, for the last Eligible Category, SK hynix reports that the construction of ecological parks follows the Habitat Evaluation Procedure (HEP). HEP is a standard approach, commonly used in the US and several other countries, for impact assessment and evaluation of measures and management activities that cause changes in the environmental conditions of the habitats for fauna species.¹⁹

Eco-design and decommissioning

Related to Eligible Projects under the second category “Energy Efficiency”, especially the low-power SSDs, SK hynix reports that it is planning to expand its product coverage of eco-labelling, which will include carbon footprints and water footprints through a national certification system managed by the Korea Environmental Industry & Technology Institute of the Ministry of Environment. This national institute analyses and discloses the environmental impact throughout the entire production process from raw material supply to manufacturing. So far, two DRAM products have received such certification. SK hynix also reports that it is working on receiving Environmental Product Declaration (EPD) certification for its products.²⁰

For the other Eligible Categories, although there is no dedicated certification or life-cycle assessment in place, the existing EMS and environmental measures taken (such as HEP for wetland projects) are expected to cover some elements of the life-cycle impact assessment and management.

For the last Eligible Category, since the wetland will be man-made, there is potential risk of introducing non-local species, which may be mitigated by implementing HEP. However, there is no evidence on concrete measures in mitigating such risk.

Energy use and energy efficiency

SK hynix reports that its Energy Management System is based on ISO50001 certification to ensure efficient energy management and energy reduction across all its operations including the Eligible Projects under this Framework. SK hynix reports that it retains the ISO50001 certification every year. One Eligible Category is also dedicated to projects and measures to improve energy efficiency in its operations.

SK hynix also reports that it has an energy portal to monitor its energy consumption in real time and has established an internal Energy Savings Task Force (TF) and a Renewable Energy TF to lead relevant efforts.

Reduction of GHG emissions

At the company level, SK hynix has set the target in its Eco Vision 2022 to achieve 40% reduction of greenhouse gas (GHG) emissions by 2022 compared to 2016 BAU (business as usual). The reporting of GHG emissions covers scope 1 and 2 emissions. This company-wide target is especially relevant to Eligible Projects that are directly linked to SK hynix’s business operations.

SK hynix reports that its ESG Management Committee serves as the supervising body and oversees the management of GHG emissions. Relevant departments are in charge of monitoring and reviewing GHG emissions against the company-level mid & long-term targets. SK hynix also reports that it operates a management system that complies with the recommendations of TCFD for relevant climate information disclosure.

In addition, as part of SK Group companies, SK hynix has become members of the global RE100 initiative, committing to transition to 100% renewable power by 2050.²¹

¹⁹ <https://www.sciencedirect.com/science/article/abs/pii/S0273122395003954>; <https://www.fws.gov/policy/ESM102-1.PDF>

²⁰ <https://www.environdec.com>

²¹ <https://www.there100.org/our-work/press/south-korean-companies-join-global-race-clean-energy>



Pollution prevention and control and mitigation of inconveniences

At the company level, SK hynix commits to minimise or eliminate emissions and discharges of pollutants and generation of waste at the source or by practices such as installing pollution control equipment, modifying production, and maintenance, etc. Two Eligible Categories are dedicated to monitoring environmental performance (e.g. water quality) and installation pollution control facilities/equipment (e.g. for wastewater treatment and NO_x emission reduction).

In terms of waste management, SK hynix reports that it has acquired Zero Waste to Landfill certification for all its domestic and overseas worksites in 2019, a clear demonstration of its effort to reduce waste (including both hazardous and non-hazardous waste) ending up in landfills. SK hynix also reports that it requires its contractors to acquire permits related to waste collection/transportation from the government.

For the last Eligible Category, since the wetland will be man-made, there are potential risks of pollution and waste generation as well as inconveniences (e.g. noise) during the construction stage. There is no evidence on concrete measures in mitigating such risks.

Integration of environmental and social factors in supply chain

SK hynix reports that it requires all new contractors/suppliers to undergo environmental audit including use of hazardous substances. All contractors/suppliers are required to abide by SK hynix Supplier Code of Conduct²² that includes environmental requirements as part of their contractual obligation. This SK hynix Supplier Code of Conduct that includes social factors such as Labour & Human Rights, Safety & Health, Ethics, Responsible sourcing of minerals and Management system as part of their contractual obligation.

As a member of RBA (Responsible Business Alliance),²³ SK hynix requires all members of supply chains to comply with the RBA Code of Conduct and labour laws of all countries/regions where they operate. SK hynix reports that it manages potential labour and human rights risks throughout its supply chain based on the RBA VAP (Validated Audit Process).

Fundamental human rights and labour rights

At the company level, SK hynix has a “Human Rights & Labour Policy” comprising of guiding principles on the prohibition of forced labour, the prohibition of child labour, work of minors, work hours, wage, non-discrimination, freedom of association, responsible procurement of minerals, and protection of stakeholder information.²⁴ This company-level policy also respects freedom of association, collective bargaining and the right to join labour unions, and requires compliance with local laws and regulations. SK hynix reports having a risk assessment process in place to analyse risks associated with human rights and labour practices. In addition, the company also operates whistle blower systems.²⁵

Health and safety of all the workers

The mitigation of potential health and safety risks of the Eligible Projects is covered by company-level internal safety and environmental standards, the ESG Management Committee and by legal compliance. At the company level, SK hynix has set up a separate ESG Management Committee to ensure the implementation of its SHE strategy at the field-level, and to check on SHE issues and makes strategic decisions through monthly meetings. SK hynix also reports to conduct annual SHE internal reviews. SK hynix also reports that it monitors accident rate per month and per worksite from its internal SHE portal.

SK hynix also reports that it operates a BCP (Business Continuity Plan) framework, organises a company-wide BCP TF and conducts biannual company-wide drills for the scenario of earthquake/power failure/fire. SK hynix maintains ISO 22301 Business Continuity Management (BCM) certification for all of its worksites.

In addition, SK hynix has a “Safety and Health Policy” and requires its supplier and contractors to sign and comply with ‘Supplier Code of Conduct’ as part of contractual agreement.

²² <http://www.skhynix.com/eng/support/buyMaterial.jsp>

²³ <http://www.responsiblebusiness.org>

²⁴ <https://ethics.sk.co.kr/Eng/Report/OnlineReportAn.aspx#>

²⁵ <https://ethics.sk.co.kr/Eng/Report/Protection.aspx>



ISSUER

SK hynix (SK) was founded in 1983 and is headquartered in Icheon, South Korea. The Company provides products and services for the electronic components industry. The Company manufactures semiconductors, such as Dynamic Random Access Memory chips ("DRAM"), flash memory chips ("NAND flash") and CMOS Image Sensors ("CIS").

Management of ESG Controversies

As of today, the review conducted by V.E did not reveal any ESG controversy against SK hynix over the last four years.

Involvement in Controversial Activities

The Issuer appears to be not involved in any of the 17 controversial activities screened under our methodology, namely: Alcohol, Animal welfare, Cannabis, Chemicals of concern, Civilian firearms, Coal, Fossil Fuels industry, Unconventional oil and gas, Gambling, Genetic engineering, Human embryonic stem cells, High interest rate lending, Military, Nuclear Power, Pornography, Reproductive Medicine and Tobacco.

The controversial activities research provides screening of companies to identify involvement in business activities that are subject to philosophical or moral beliefs. The information does not suggest any approval or disapproval on their content from V.E.

METHODOLOGY

In V.E's view, Environmental, Social and Governance (ESG) factors are intertwined and complementary. As such they cannot be separated in the assessment of ESG management in any organisation, activity or transaction. In this sense, V.E provides an opinion on the Issuer's ESG performance as an organisation, and on the processes and commitments applicable to the intended issuance.

Our Second Party Opinions (SPOs) are subject to internal quality control at three levels (Analyst, Project Manager and Quality Reviewer). If necessary, this process is complemented by a final review and validation by the Expertise Committee and Supervisor. A right of complaint and recourse is guaranteed to all companies under our review, following three levels: first, the team in contact with the company; then the Executive Director in charge of Methods, Innovation & Quality; and finally, V.E's Scientific Council. All employees are signatories of V.E's Code of Conduct, and all consultants have also signed its add-on covering financial rules of confidentiality.

COHERENCE

Scale of assessment: not coherent, partially coherent, coherent

This section analyses whether the activity to be financed through the selected instrument is coherent with the Issuer's sustainability priorities and strategy, and whether it responds to the main sustainability issues of the sector where the Issuer operates.

FRAMEWORK

Alignment with the Green Bond Principles and the Green Loan Principles

Scale of assessment: Not aligned, Partially aligned, Aligned, Best Practices

The Framework has been evaluated by V.E according to the ICMA's Green Bond Principles - June 2018 ("GBP"), and the Loan Market Association's Green Loan Principles - May 2020 ("GLP"), and on our methodology based on international standards and sector guidelines applicable in terms of ESG management and assessment.

Use of proceeds

The definition of the Eligible Projects and their sustainable objectives and benefits are a core element of Green/Social/Sustainable Bonds and Loans standards. V.E evaluates the clarity of the definition of the Eligible Categories, as well as the definition and the relevance of the primary sustainability objectives. We evaluate the descriptions of the expected benefits in terms of relevance, measurability and quantification. In addition, we map the potential contribution of Eligible Projects to the United Nations Sustainable Development Goals' targets.

Process for evaluation and selection

The evaluation and selection process is assessed by V.E on its transparency, governance and relevance. The eligibility criteria are assessed on their clarity, relevance and coverage vs. the intended objectives of the Eligible Projects.

Management of proceeds

The process and rules for the management and the allocation of proceeds are assessed by V.E on their transparency, traceability and verification.

Reporting

The monitoring and reporting process and commitments defined by the Issuer are assessed by V.E on their transparency, exhaustiveness and relevance, covering the reporting of both proceeds' allocation and sustainable benefits (output, impact indicators).

Contribution to sustainability

Scale of assessment: Weak, Limited, Robust, Advanced

V.E's assessment of activities' contribution to sustainability encompasses both the evaluation of their expected positive impacts on environmental and/or social objectives, as well the management of the associated potential negative impacts and externalities.

Expected positive impact of the activities on environmental and/or social objectives

The expected positive impact of activities on environmental and/or social objectives to be financed by the Issuer or Borrower is assessed on the basis of:

- i) the relevance of the activity to respond to an important environmental objective for the sector of the activity; or to respond to an important social need at country level;²⁶
- ii) the scope of the impact: the extent to which the expected impacts are reaching relevant stakeholders (i.e. the issuer, its value chain, local and global stakeholders); or targeting those populations most in need;
- iii) the magnitude and durability of the potential impact of the proposed activity on the environmental and/or social objectives (capacity to not just reduce, but to prevent/avoid negative impact; or to provide a structural/long-term improvement);
- iv) only for environmental objectives, the extent to which the activity is adopting the best available option.

Activities' ESG risk management

The identification and management of the potential ESG risks associated with the eligible projects/activities are analysed on the basis of V.E's ESG assessment methodology, international standards and sector guidelines applicable in terms of ESG management and assessment.

ISSUER

Issuer's ESG performance

Scale of assessment of ESG performance: Weak, Limited, Robust, Advanced

NB: The Issuer's level of ESG performance (i.e. commitments, processes, results of the Issuer related to ESG issues), has been assessed through a complete process of rating and benchmarking developed by V.E.

The Issuer's ESG performance has been assessed by V.E on the basis of its:

- Leadership: relevance of the commitments (content, visibility and ownership).
- Implementation: coherence of the implementation (process, means, control/reporting).
- Results: indicators, stakeholders' feedbacks and controversies.

Management of stakeholder-related ESG controversies

A controversy is an information, a flow of information, or a contradictory opinion that is public, documented and traceable, allegation against an Issuer on corporate responsibility issues. Such allegations can relate to tangible facts, be an interpretation of these facts, or constitute an allegation based on unproven facts.

V.E reviewed information provided by the Issuer, press content providers and stakeholders (partnership with Factiva Dow Jones: access to the content of 28,500 publications worldwide from reference financial newspapers to sector-focused magazines, local publications or Non-Government Organizations). Information gathered from these sources is considered as long as it is public, documented and traceable.

V.E provides an opinion on companies' controversies risks mitigation based on the analysis of 3 factors:

- Frequency: reflects for each ESG challenge the number of controversies that the Issuer has faced. At corporate level, this factor reflects on the overall number of controversies that the Issuer has faced and the scope of ESG issues impacted (scale: Isolated, Occasional, Frequent, Persistent).

²⁶ The importance of a specific social need at country level is assessed on the basis of the country performance on the priority SDG that the project is targeting using data from Sachs, J., Schmidt-Traub, G., Kroll, C., Lafortune, G., Fuller, G., Woelm, F. 2020. The Sustainable Development Goals and COVID-19. Sustainable Development Report 2020. Cambridge: Cambridge University Press.

- **Severity:** the more a controversy is related to stakeholders' fundamental interests, proves actual corporate responsibility in its occurrence, and have caused adverse impacts for stakeholders and the company, the higher its severity is. Severity assigned at the corporate level will reflect the highest severity of all cases faced by the company (scale: Minor, Significant, High, Critical).
- **Responsiveness:** ability demonstrated by an Issuer to dialogue with its stakeholders in a risk management perspective and based on explanatory, preventative, remediating or corrective measures. At corporate level, this factor will reflect the overall responsiveness of the company for all cases faced (scale: Proactive, Remediate, Reactive, Non- Communicative).

The impact of a controversy on a company's reputation reduces with time, depending on the severity of the event and the company's responsiveness to this event. Conventionally, V.E.'s controversy database covers any controversy with Minor or Significant severity during 24 months after the last event registered and during 48 months for High and Critical controversies.

Involvement in controversial activities

17 controversial activities have been analysed following 30 parameters to screen the company's involvement in any of them. The company's level of involvement (Major, Minor, No) in a controversial activity is based on:

- An estimation of the revenues derived from controversial products or services.
- The specific nature of the controversial products or services provided by the company.

V.E.'S ASSESSMENT SCALES

Scale of assessment of Issuer's ESG performance or strategy and financial instrument's Contribution to sustainability		Scale of assessment of financial instrument's alignment with Green and/or Social Bond and Loan Principles	
Advanced	Advanced commitment; strong evidence of command over the issues dedicated to achieving the sustainability objective. An advanced expected impact combined with an advanced to robust level of E&S risk management & using innovative methods to anticipate new risks.	Best Practices	The Instrument's practices go beyond the core practices of the ICMA's Green and/or Social Bond Principles and/or of the Loan Market Association's Green Loan Principles by adopting recommended and best practices.
Robust	Convincing commitment; significant and consistent evidence of command over the issues. A robust expected impact combined with an advance to robust level of assurance of E&S risk management or an advanced expected impact combined with a limited level of assurance of E&S risk management.	Aligned	The Instrument has adopted all the core practices of the ICMA's Green and/or Social Bond Principles and/or of the Loan Market Association's Green Loan Principles.
Limited	Commitment to the objective of sustainability has been initiated or partially achieved; fragmentary evidence of command over the issues. A limited expected impact combined with an advanced to limited level of assurance of E&S risk management; or a robust expected impact combined with a limited to weak level of assurance of E&S risk management; or an advance expected impact combined with a weak level of assurance of E&S risk management.	Partially Aligned	The Instrument has adopted a majority of the core practices of the ICMA's Green and/or Social Bond Principles and/or of the Loan Market Association's Green Loan Principles, but not all of them.
Weak	Commitment to social/environmental responsibility is non-tangible; no evidence of command over the issues. A weak expected impact combined with an advanced to weak level of assurance of E&S risk management or a limited expected impact with a weak level of assurance of E&S risk management.	Not Aligned	The Instrument has adopted only a minority of the core practices of the ICMA's Green and/or Social Bond Principles and/or of the Loan Market Association's Green Loan Principles.



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