

SCOPE

Vigeo Eiris was commissioned to provide an independent opinion on the alignment with the Green Bond Principles voluntary guidelines (hereafter the “GBP”) and on the sustainability credentials of the “Green Bond” (the “Bond”) planned to be issued by Nippon Yusen Kabushiki Kaisha (the “NYK” or the “Issuer”) in May 2018, Unsecured Corporate Bonds No.40, according to Vigeo Eiris’ Environmental, Social and Governance (the “ESG”) assessment methodology.

The opinion is based on the review of the two following components:

- **Issuer:** evaluation of the Issuer’s ESG performance, ESG controversies’ management and capacity to mitigate these risks and the involvement in controversial activities².
- **Issuance:** analysis of the coherence between the Bond and issuer’s sustainability strategy and commitments, and the bond’s alignment with GBP.

Vigeo Eiris gathered information from our rating database, the issuer, press content providers and stakeholders, and complemented by interviews with involved departments and managers. Vigeo Eiris has carried out its due diligence from March 19th to May 7th 2018.

We were able to access all appropriate documents and to speak to all solicited people. We consider that the provided information enables us to establish our opinions with a reasonable level of assurance on their completeness, precision and reliability.

VIGEO EIRIS’ OPINION

Vigeo Eiris is of the opinion that the Bond considered to be issued by NYK is aligned with the Green Bond Principles.

All Eligible Projects to be financed by the Bond are expected to have net positive environmental benefits, with positive contribution to the prevention of air and water pollution, and to the protection of marine biodiversity. Potential alternative fuels and energy to reduce GHG emissions from international shipping include Liquefied natural gas (LNG), advanced biofuels, hydrogen, ammonia, electric ships, and wind assistance. As of today, although LNG fuel has not the highest reduction potential compare to other alternative fuels and energy, LNG is the best available option for full scale application to reduce emissions in the global shipping industry, especially for long-distance navigation purpose. In addition, the issuer has a roadmap for environmentally friendly vessel technologies and has set ambitious medium to long-term CO₂ emission reduction targets toward FY2050. However, LNG fuelled vessels’ contribution to the energy transition and climate change is considered not substantial given the level of GHG reduction this industry should achieve based on a long-term perspective. Consequently, Vigeo Eiris reaches a moderate³ level of assurance on the sustainability of the Bond.

- **Issuer:** NYK displays an overall good³ ESG performance (see Part I).
 - ▶ NYK displays heterogeneous levels of performance on the three ESG pillars: it achieves good performances in the Environment and Social pillars and limited performances in the Governance pillars, although Governance is considered to be good under Japanese standards.
 - ▶ NYK faces frequent allegations regarding Business Behaviour and Corporate Governance. Overall the severity of these events is considered high on average based on the analysis of their impacts on both the issuer and the stakeholders. The issuer is overall reactive.
 - ▶ Regarding the 15 controversial activities analysed by Vigeo Eiris, NYK has a minor involvement in Fossil Fuels industry.

¹ This opinion is to be considered as the “Second Party Opinion” described by the Green Bond Principles (www.icmagroup.org).

² The 15 controversial activities analysed by Vigeo Eiris are: Alcohol, Animal welfare, Chemicals of concern, Civilian firearms, Fossil Fuels industry, Coal, Tar sands and oil shale, Gambling, Genetic engineering, High interest rate lending, Military, Nuclear power, Pornography, Reproductive medicine, and Tobacco.

³ Definition of Vigeo Eiris’ scales of assessment is detailed in the Methodology section of this document.

- **Issuance:** NYK's first Green Bond issuance is considered to be coherent with the company's main sustainability strategic priorities and sector issues (see Part II).

- ▶ The net proceeds of the Bond issuance will be used to finance and refinance Eligible Projects, namely LNG-fuelled vessels, LNG Bunkering Vessels, Ballast Water Management System and SOx scrubber system, which appear likely to contribute to air and water pollution prevention, and marine biodiversity protection objectives, without significantly contributing to energy transition and climate change mitigation objectives.

Vigeo Eiris considers that the defined Eligible categories mostly align with two United Nations Sustainable Development Goals, namely: 9. Industry, innovation and infrastructure, and 14. Life below water. In addition, we estimate that the defined Eligible categories partially align with the UN SDG 13: Climate action.

- The objectives associated with LNG related Projects categories are defined, measurable, precise but partially relevant as regards to environmental objectives.
- The objectives associated with the Ballast Water Management System and SOx scrubber system categories are defined, relevant, measurable and precise.

Vigeo Eiris evaluates that the Eligible Projects categories are clearly defined and in line with NYK's sustainability strategy.

Expected environmental benefits will be assessed and quantified by the issuer for all Eligible Projects categories.

- ▶ The process for project evaluation and selection is clearly defined. The process is good in terms of governance and transparency, and relies on relevant eligibility criteria. The identification and management of environmental and social risks associated with the Eligible Projects is considered to be good.
- ▶ NYK's rules for management of proceeds are clearly defined and would enable a documented and transparent allocation process.
- ▶ The process for data collection, calculation and reporting are clearly defined.

The reporting commitments of the issuer are considered to be good, covering the fund allocation and environmental benefits, leading to a reasonable level of assurance on the issuer's capacity to regularly report on the Green Bond's use and impacts.

EXTERNAL REVIEW

NYK's Green Bond issuance is supported by external reviews:

- A pre-issuance consultant review – the hereby Second Party Opinion performed by Vigeo Eiris as sustainability consultant – on the sustainability credentials of the Bond, based on pre-issuance commitments and covering all features of the Bond.
- Regular post-issuance reviews performed by Vigeo Eiris on the allocation of the net proceeds to Eligible Projects, starting 12 months after the Bond issuance date and until the net proceeds will be fully allocated.
- Furthermore, NYK has applied to "FY2018 The project for promoting best practice of green bond issuance" by Japanese Ministry of Environment (MoE) and it was announced that this bond issuance was selected as the model case from the Ministry on 17th of April, 2018

No external verification of the tracking of the bond proceeds and the reporting metrics is contemplated, which is an area of improvement.

This Opinion is valid as of the date of issuance limited to NYK's Green Bond issued in May 2018.

Paris, May 7th 2018



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Disclaimer

Transparency on the relation between Vigeo Eiris and the Issuer: Vigeo Eiris has not executed any consultancy activity for NYK until so far and no established relationship (financial or other) exists between Vigeo Eiris and NYK.

This opinion aims to explain to the issuer why the Green Bond is considered sustainable, based on the information which has been made available to Vigeo Eiris. Vigeo Eiris has neither interviewed stakeholders out of the Issuer's employees, nor performed an on-site audit nor other test to check the accuracy of the information provided by the Issuer. The correctness, comprehensiveness and trustworthiness of the information collected are a responsibility of the Issuer. Providing this opinion does not mean that Vigeo Eiris certifies the materiality, the excellence or the irreversibility of the projects financed by the Green Bond. NYK is fully responsible for attesting the compliance with its commitments defined in its policies, for their implementation and their monitoring. The opinion delivered by Vigeo Eiris neither focuses on financial performance of the Green Bond, nor on the effective allocation of its proceeds. Vigeo Eiris is not liable for the induced consequences when third parties use this opinion either to make investments decisions or to make any kind of business transaction.

The opinion delivered on stakeholder-related ESG controversies is not a conclusion on the creditworthiness of NYK's or its financial obligations. We do not express an opinion as a score when controversial activities, products and services are not prohibited by international standards or treaties. The controversial activities research provides screening on 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 Vigeo Eiris.

Restriction on distribution and use of this Second Party Opinion: the Second Party Opinion is provided by Vigeo Eiris to the Issuer and is only be used by the Issuer. The distribution and publication is at the discretion of the Issuer, submitted to Vigeo Eiris approval.

DETAILED RESULTS

Part I. ISSUER

Level of NYK's ESG performance

As of May 2018, NYK's overall approach to manage ESG related issues is considered to be good.

[< Table 1 > ESG performance](#)

Domain	Comments	Opinion
Environment	<p>NYK's performance in the Environment pillar is considered good.</p> <p>NYK has a formalised commitment to environmental protection such as the NYK Group's Environmental Management Vision and NYK Group's Environmental Green Policy.</p>	Advanced
	<p>It should be noted that NYK has a long-term roadmap for environmentally friendly vessel technologies, which is symbolised by NYK Super Eco Ship 2030, the future concept ship is expected to achieve 69% CO₂⁴ emission reduction compare to vessels constructed in 2008.</p>	Good
	<p>In addition, in its medium-term management plan "Staying Ahead 2022 with Digitalization and Green" published on March 2018, NYK sets ambitious medium to long-term CO₂ emission reduction targets such as a 70% reduction of CO₂ emission by 2050 compared to 2015 throughout the whole supply chain. NYK is also active in the utilization of IoT and Big Data.</p>	Limited
	<p>NYK bases its environmental management system on the international ISO 14001 standard and more than 80% of its global operation is covered by the certification, according Vigeo Eiris research. Nevertheless, NYK's key environmental performance indicators are relatively limited, which is considered to be a point for future improvement.</p>	Weak
Social	<p>NYK displays an overall good performance in the Social pillar.</p> <p>NYK commits in its Code of Conduct to prevent human rights violations in society and prevent discrimination in the workplace. Moreover, confidential reporting systems are available for employees to report violations on the Code. Mechanisms to promote diversity such as affirmative action programmes and monitoring are reported, and the number of women in management position increased by 2 percentage points between 2014 and 2016.</p>	Advanced
	<p>NYK has a formal group policy on Human Resource and established a organisation structure to promote human resource development globally and grasp the Group's current human resource management situation.</p>	Good
	<p>NYK has a formalised commitment to promote employee safety, which is supported by comprehensive measures. In addition, training and awareness raising programmes are promoted to reduce stress in the workplace. The company has implemented some measures to avoid overtime, including monitoring systems, which appear to have contributed to the positive trend displayed between 2014 and 2016.</p>	Limited
	<p>Regarding vessel operation safety, which is considered one of the most important risk factors in the industry, NYK has been promoting an initiative called NAV9000 since 1998. NAV9000 is an original safety standard, covering about 1,500 items including international treaties, international quality standard, accident prevention measures, and requirements from customers. This standard have been applied to all vessels in operation, and regular audits based on the standard are conducted on not only its vessels but also shipowners and ship management companies.</p> <p>Regarding community involvement, NYK provides financial support to education programmes and promotes social development programmes. In addition, employee matching gifts programmes and volunteering are reported by NYK.</p>	Weak

⁴ Carbon dioxide: CO₂
Sulphur oxides: SO_x
Nitrogen oxides: NO_x
Particulate matter: PM
Greenhouse Gas: GHG

(continued)

Domain	Comments	Opinion
Governance	<p>NYK's performance in the Governance pillar is considered to be limited based on international standards. However, the performance is considered to be above the average compared with other Japanese peers.</p> <p>In Vigeo Eiris' view, the overall Corporate Governance performance of Japanese companies is inferior to the performance of companies in other countries and regions. However, thanks to several public initiatives, such as the Japan's Stewardship Code in 2014 and The Japan's Corporate Governance Code in 2015, there are some upward trends of Japanese companies' performance.</p> <p>NYK's Corporate Governance performance is in tandem with these developments. For instance, NYK has established its Corporate Governance Guidelines in November 2015. NYK's Board now has three external directors, of which one is a woman. NYK introduced a performance-based stock remuneration plan for directors and corporate and established the Nomination Advisory Committee and the Compensation Advisory Committee where external directors hold a majority which are voluntary but an advisory body to the President.</p> <p>NYK's top management states, in the latest medium-term management plan, that NYK will integrate ESG principles into management strategies and contribute to SDGs through its business activities.</p>	Advanced
	Good <i>(based on local standards)</i>	
	Limited <i>(based on international standards)</i>	
	Weak	

Stakeholder-related ESG controversies

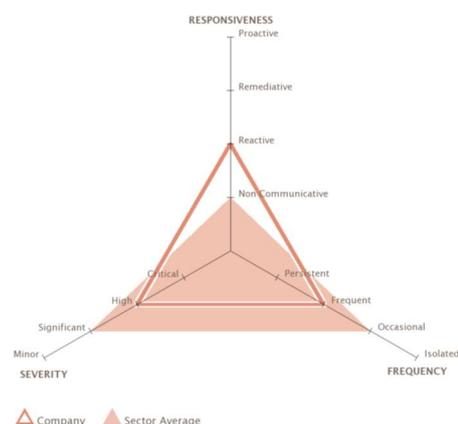
As of May 7th, 2018, NYK is involved in frequent controversies in the following domains analysed by Vigeo Eiris:

- Business Behaviour: 5 cases related to Prevention of anti-competitive practices.
- Corporate Governance: 1 case linked to Audit and internal controls.

Frequency: On average the frequency of controversies is considered frequent.

Severity: The severity ranges from significant (2 cases) to high (4 cases). Overall the severity of these events is considered on average high based on the analysis of their impacts on both the company and the stakeholders.

Responsiveness: NYK is overall reactive: the issuer reports in a detailed way on its position in three cases, from which one is of significant severity and two are of high severity. Corrective measures are reported for one case of high severity.



Involvement in controversial activities

Regarding the involvement in the 15 controversial activities analysed by Vigeo Eiris, NYK has a minor involvement in Fossil Fuels industry.

- Fossil Fuels industry: NYK's Bulk Shipping Business segment, which accounted for 20% of the Group's total revenues in FY2016, includes transportation of fossil fuels as well as automobiles and other products. The Company has an estimated turnover derived from fossil fuels industries which is between 0-10% of total turnover, therefore the company falls in the category "Minor".

NYK has no involvement in any of the other 14 controversial activities analysed by Vigeo Eiris.

Part II. ISSUANCE

NYK plans to publicly offer its first Green Bond (hereafter the “Green Bond” or the “Bond”). With regards to Green Bond Framework, we have suggested developing a framework incorporating the Green Bond Principles as well as NYK’s strategy for sustainability, its objectives and commitments, and making this publicly accessible.

Of note, Vigeo Eiris’ Second Party Opinion will be made publicly accessible.

Coherence of the issuance

NYK’s Green Bond issuance is coherent with the company’s main sustainability strategic priorities, and contributes to achieve its commitments.

Vigeo Eiris has a reasonable level of assurance on NYK’s capacity to address relevant issues in terms of environmental responsibility with its investments.

According to the International Chamber of Shipping (ICS), the international shipping industry is responsible for the carriage of around 90% of world trade. Shipping is considered the most efficient form of commercial transport compared with other forms of transport such air flight and truck. However, according to WWF, it is accepted that whilst shipping is relatively safe and clean, compared with other transport modes, the industry does have a significant impact on the environment. In particular, the sector is energy intensive, generating significant environmental impacts from energy use, and continues to be responsible for producing large amounts of greenhouse gas (GHG) emissions (around 2-3% of the world’s GHG emissions).

The main sustainability challenges of the shipping industry are the energy efficiency, the reduction of emissions related to energy use, the eco-design strategy to reduce environmental impacts of the vessels and the integration of environmental and social factors in the supply chain.

The industry’s efforts to reduce emissions related to energy use in the short term has been rather limited at whole sector level, which is partly due to few technological options available for full scale application to replace Heavy Fuel Oil (HFO). However, in April 2018, the International Maritime Organization (IMO) adopted an initial strategy for the reduction of GHG emissions from ships, with the target of reducing the total annual GHG emissions by at least 50% by 2050, compared to 2008. Besides, the IMO will start to implement a 0.5% Sulphur cap on marine fuel from 2020.

NYK has a formalised commitment to environmental protection, namely NYK Group’s Environmental Management Vision and NYK Group’s Environmental Green Policy, which are considered comprehensive, covering a broad range of issues from climate change to protection of biodiversity and pollution prevention.

In addition, NYK has a long-term roadmap for environmentally friendly vessel technologies, which is symbolised by NYK Super Eco Ship 2030, the future concept ship is expected to achieve 69% CO₂ emission reduction compared to vessels constructed in 2008.

In its medium-term management plan “Staying Ahead 2022 with Digitalization and Green”, NYK has set up a 3-step strategy which explicitly targets the development of LNG-fuelled vessels to reduce CO₂, SO_x, NO_x and PM emissions. In particular, this management plan sets medium to long-term CO₂ emission reduction targets:

- Shipping, Marine Transportation: 30% by 2030, 50% by 2050, compared to 2015
- Whole Supply Chain: 40% by 2030, 70% by 2050, compared to 2015.

NYK states that these quantitative targets are aligned with a 2°C scenario and have been submitted to the Science Based Targets Initiative (SBTi) for assessment. In addition, these targets are considered to contribute to the International Maritime Organization strategy to reduce the greenhouse gas emissions of ships adopted on April 13th 2018.

By issuing the Bond, NYK will finance and refinance four Eligible Project categories, namely LNG-fuelled vessels, LNG Bunkering Vessels, Ballast Water Management System, and Scrubber. Of which, LNG-fuelled vessels and LNG Bunkering Vessels are considered to contribute to climate risk mitigation and to achieve the above-mentioned quantitative targets as well as protection of biodiversity and pollution prevention, while Ballast Water Management System and Scrubber are considered to contribute to protection of biodiversity and pollution prevention.

Use of proceeds

Vigeo Eiris evaluates that the Eligible Projects categories are clearly defined and in line with NYK's sustainability strategy.

The net proceeds of the Bond issuance will be used to finance and refinance Eligible Projects, namely LNG-fuelled vessels, LNG Bunkering Vessels, Ballast Water Management System and SOx scrubber system, which appear likely to contribute to air and water pollution prevention, and marine biodiversity protection objectives, without significantly contributing to energy transition and climate change mitigation objectives.

- The objectives associated with LNG related Projects categories are defined, measurable, precise but partially relevant with regards to environmental objectives.
- The objectives associated with the Ballast Water Management System and SOx scrubber system categories are defined, relevant, measurable and precise.

Expected environmental benefits will be assessed and quantified by the issuer for all Eligible Projects categories.

As a result, the use of proceeds is considered to be aligned with the Green Bond Principles.

The net proceeds of the Green Bond will be used to finance and refinance, in whole or in part, the following four Eligible Project Categories:

- LNG-fuelled vessels
- LNG Bunkering Vessels
- Ballast Water Management Systems
- SOx scrubber system.

NYK is committed to ensure the (re)financed LNG-fuelled vessels will not be used to transport products that relate to controversial activities, namely Alcohol, Animal Welfare, Chemicals of concern, Civilian firearms, Fossil Fuels, Coal, Tar sands and oil shale, Genetically Modified Organisms, Military firearms, Nuclear Power, Pornography, Reproductive Medicine and Tobacco.

The Issuer states that the refinancing share would be around 25%.

Eligible Projects will contribute to defined objectives, have expected environmental benefits and will meet a set of eligibility criteria defined by the Issuer.

< Table 2 > Information from NYK

Eligible Projects categories	Definition	Objectives	Sustainability benefits
LNG-fuelled vessels	<p>Financing and refinancing LNG-fuelled vessels.</p> <p><i>LNG-fuelled vessels use LNG as fuel instead of conventional Heavy Fuel Oil (HFO)</i></p> <p>Date of the refinanced assets: September 2016 and November 2016</p> <p>Schedule: new project to be contracted after 2018</p>	<p>Reducing vessels' air emissions compared to HFO by approximately:</p> <ul style="list-style-type: none"> - CO₂: 30% (11,210 mt/vessel/year). - NO_x: 30% for refinanced assets and 86% for financed assets - SO_x: 99% - PM: 100% - Total GHG: 21% 	<p>Air pollution prevention</p> <p>---</p> <p>Energy transition</p> <p>---</p> <p>Climate change mitigation</p>
LNG Bunkering Vessels	<p>Refinancing LNG Bunkering Vessels (hereafter "LBV") using LNG as fuel.</p> <p><i>LBV are vessels aiming to supply LNG to LNG-fuelled vessels at sea. Only LNG-fuelled LBV is included in this category</i></p> <p>Date of the refinanced asset: February 2017</p>	<p>Both directly and indirectly reducing vessels' air emissions of CO₂, SO_x, NO_x, PM and total GHG. Reducing vessels' air emissions compared to HFO by approximately:</p> <ul style="list-style-type: none"> - CO₂: 30% (1,284 mt/vessel/year). - NO_x: 76% - SO_x: 99% - PM: 100% - Total GHG: 15% 	<p>Air pollution prevention</p> <p>---</p> <p>Energy transition</p> <p>---</p> <p>Climate change mitigation</p>

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Eligible Projects categories	Definition	Objectives	Sustainability benefits
Ballast Water Management Systems	<p>Financing and refinancing Ballast Water Management Systems (hereafter “BWMS”).</p> <p><i>Ships use ballast water to provide stability during a voyage. Usually seawater is pumped into the tank when cargo is unloaded, and the seawater then discharged at another port when cargo is loaded.</i></p> <p><i>The BWMS is a system that disinfects organisms and pathogens carried out by ballast water, using various treatment methods approved by IMO, according to NYK, to prevent the disturbance of an ecosystem, especially by avoiding the spread of invasive marine species potentially present within ballast water.</i></p> <p>Date of the refinanced assets: to be decided with in the scope of thee-year look back period Schedule: new projects completed from 2018 to 2022</p>	<p>Preventing harmful aquatic organisms and pathogens from cross-border transfer by treating 100% of its fleet ballast water</p>	<p>Protection of marine biodiversity --- Water pollution prevention</p>
SOx scrubber system	<p>Financing SOx scrubber system.</p> <p><i>SOx scrubber systems is a system that uses seawater to desulfurize ship exhaust gas in line with the new IMO regulation on sulphurs. NYK reports its SOx scrubber systems do not use chemicals.</i></p> <p>Schedule: new projects completed from 2018 to 2022</p>	<p>Reducing SOx emissions by 86% per vessels compared with non-equipped ships</p>	<p>Air pollution prevention</p>

< Table 3 > Vigeo Eiris' analysis

Eligible Project categories	Comments
LNG-fuelled vessels	<p>The two Eligible Project categories related to LNG vessels are clearly defined and align with NYK's sustainability strategy.</p> <p>Vigeo Eiris is of the opinion that the two Eligible Project categories related to LNG are relevant with regards to air and water pollution prevention and marine biodiversity objective, but only partially relevant for energy transition and climate change mitigation objectives.</p> <ul style="list-style-type: none"> - Fossil fuels energy, i.e. HFO, is considered to be particularly harmful for the climate. - According to International Transport Forum(ITF), considering the industrial and market needs and technology state-of-the-art, LNG is part of the appropriate technological solutions to transition to a low-carbon activity as of today in the shipping industry, compared with other alternative solutions. The CO₂ mitigation potential of LNG is proven to be substantial with CO₂ reduction of 30% compared to HFO. - However, handling and combustion of LNG involves the release of unburnt methane during bunkering and use phase as well as upstream in the fuel production, processing and transmission, which could diminish its overall environmental advantages depending on the volume of the methane emissions (methane being a very potent GHG). - Considering the potential negative impacts of LNGs due to its methane emissions and the relative CO₂ advantages of other cleaner alternative fuels such as biofuels, LNG might not be an attractive solution for longer term. Consequently, LNG is considered as transitional fuel by relevant experts including the European Commission.
LNG Bunkering Vessels (LBV)	<ul style="list-style-type: none"> - In addition, while the individual measures – including alternative fuels such as LNG – can deliver a significant reduction on CO₂ emissions, it is unlikely that one single measure on its own would be the most cost-effective way to achieve objectives such as decarbonisation of shipping by 2035 proposed by ITF. A combination of measures would be needed, which generates different decarbonisation pathways. - NYK's LNG-related projects being expected to reduce GHG emissions by less than 30% (respectively 21% and 15%), the targeted objectives for climate change mitigation and energy transition are not considered significant in terms of the IMO strategy to achieve an absolute reduction in the volume of emissions of at least 50% in 2050 compared with 2008 levels. We consider important to ensure that the Eligible Projects can possibly be converted for the use of alternative fuels in the longer term. However, it's worth mentioning that NYK reports exploring a possibility to use state-of-the-art technologies for managing methane emissions and preventing methane slips. In addition, NYK is reportedly conducting R&D projects on alternative fuels/energy such as hydrogen and wind assistance. - In addition, fossil fuels energy is an important source of other atmospheric emissions of pollutants and particles. The switch from HFO to LNG demonstrates clear benefits in terms of SO_x, NO_x and PM emissions reduction. The targeted objectives for reduction of SO_x, NO_x and PM for the Eligible projects are considered significant compared to HFO. <p>The objectives of the two Eligible Project categories are clearly defined, measurable, precise but partially relevant with regards to environmental objectives. Expected environmental benefits will be assessed and quantified by the issuer.</p>

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Eligible Project categories	Comments
Ballast Water Management System (BWMS)	<p>The Eligible Project category are clearly defined and align with NYK's sustainability strategy.</p> <ul style="list-style-type: none"> - In February 2004 the International Maritime Organization adopted the International Convention for the Control and Management of Ship's Ballast Water and Sediments, aiming to prevent the spread of harmful aquatic organisms from one region to another, by establishing standards and procedures for the management and control of ships' ballast water and sediments. This convention entered into force in September 2017. <p>The objectives associated with the Eligible Project category are clearly defined, measurable, relevant and precise, with quantified objectives.</p> <p>Expected environmental benefits will be assessed and quantified by the issuer.</p>
SOx scrubber system	<p>The Eligible Project category are clearly defined and align with NYK's sustainability strategy.</p> <ul style="list-style-type: none"> - Of note, NYK is committed to install SOx scrubber systems that do not use chemicals to desulfurize ship exhaust gas. <p>The objectives associated with the Eligible Project category are clearly defined, measurable, relevant and precise, with quantified objectives.</p> <p>Expected environmental benefits will be assessed and quantified by the issuer.</p>

In addition, Vigeo Eiris considers that the defined Eligible categories mostly align with two United Nations Sustainable Development Goals, namely: 9. Industry, innovation and infrastructure, and 14. Life below water. In addition, we estimate that the defined Eligible categories partially align with the UN SDG 13: Climate action.



Contribution to achieving the UN SDG 9. Industry, innovation and infrastructure

The UN SDG 9 consists in building resilient infrastructure, promoting sustainable industrialization and fostering innovation. More precisely, UN SDG 9 targets include to greater adopt clean and environmentally sound technologies.

By using the Green Bond proceeds to finance and refinance defined Eligible Project categories, NYK is contributing to the UN SDG 9, with regards to the above-mentioned target.



Contribution to achieving the UN SDG 14. Life below water

The UN SDG 14 consists in conserving and sustainably using the oceans, seas and marine resources. More precisely, UN SDG 14 targets include to prevent and significantly reduce marine pollution of all kinds by 2025.

By using the Green Bond proceeds to finance and refinance defined Eligible Project categories, especially Ballast Water Management System, NYK is contributing to the UN SDG 13, with regards to the above-mentioned target.



Contribution to achieving the UN SDG 13. Climate action

The UN SDG 13 consists in taking urgent action to combat climate change and its impacts. The transportation sector plays a key role in investing in systems, institutions and technology to reduce, mitigate or adapt to climate-induced change.

By using the Green Bond proceeds to finance and refinance LNG-fuelled vessels and LNG Bunkering Vessels, NYK is partially contributing to the UN SDG 13, with regards to the above-mentioned contribution.

Process for project evaluation and selection

Vigeo Eiris estimates that the process for project evaluation and selection is clearly defined. The process is good in terms of governance and transparent. The process relies on relevant eligibility criteria. The identification and management of environmental and social risks associated with the Eligible Projects is considered to be good.

As a result, the process is considered aligned with the Green Bond Principles.

NYK's process for projects evaluation and selection is clearly defined and formalized throughout Vigeo Eiris' Second Party Opinion.

- The evaluation and selection of Eligible Projects is reasonably structured and is based on relevant internal experts with well-defined roles and responsibilities:
 - "Finance Group" to discuss with "Corporate Planning Group" (department in charge of managing all new project investment) and relevant "Business Department" to evaluate and select candidate Green Projects, considering a set of criteria.
 - "Environment Group" (department dedicated to environmental issues) and "Technical Group" (department dedicated for technical issues) to check and confirm the selected candidate Green Projects are appropriate and eligible considering above mentioned criteria and excluding any projects with negative impact which may offset the positive impact.
 - Explain the selected Green Projects to the CFO for the final confirmation.
- The verification and traceability are considered to be ensured throughout the process by relevant internal documentation and reporting.

The process relies on relevant selection criteria, based on the definitions of the Eligible Project categories, NYK's "roadmap for environmentally friendly vessel technologies", and the Green Bond Principles broad categories of Green Projects.

- It is worth mentioning that NYK is committed to participate in a shipping industry working group to be established by the Climate Bonds Initiative and to cooperate in formulating evaluation criteria for Green Bonds issued by shipping companies.

The identification and management of environmental and social risks associated with the Eligible Projects is considered to be good.

- NYK reports that the company is using operational data accumulated during shipping operations to improve its vessels fuel-consumption at design stage, resulting notably in re-examining and rebuilding parts of the vessels.
- NYK has a Safety and Environmental Management Committee – chaired by its President – that coordinates NYK's global efforts and established a Safety & Environmental Management Committee in each region. Offshore and onshore personnel around the world are reported to make a concerted effort to promote the safety and environmental activities.
- NYK has stationed a chief of environmental management. Under the Group's common environmental policy, roughly 80% of the Group's total sales have obtained the ISO 14001 environmental certification, according to Vigeo Eiris research.
- With regard to safety of its vessels operations, which is considered one of the most important risk factors in the industry, NYK promotes its unique initiatives called NAV9000 since 1998. NAV9000 is an original safety standard of NYK and covers approximately 1,500 items, including international treaties, international quality standards, measures to prevent accidents from recurring, and requirements from customers. The standards have been applied to all of the approximately 750 vessels in operation. Audits based on these standards are conducted on over 300 vessels and more than 30 shipowners and ship management companies per year.

Management of proceeds

Vigeo Eiris evaluates that NYK's rules for management of proceeds are clearly defined and would enable a documented and transparent allocation process.

As a result, the management of proceeds is considered to be aligned with the Green Bond Principles.

The net proceeds of the Green Bond will be managed by the Finance Group and be kept in NYK's or group company's account.

The allocation of funds to Eligible Projects will be appropriately tracked, managed and recorded by the Finance Group as follows:

- Finance Group to obtain the planned payment schedule for each project from appropriate Business Department.
- Business Department to inform Finance Group once the payment is completed, then Finance Group to record the payment information (including name of the project / payment date / amount) from Business Department in electronic files.
- Regarding internal control, Finance Group will report quarterly to the CFO by its formal system, which should contain "total funds procured", "total funds allocated to Green Project", "break-downs of allocated funds to each Green Project". And CFO to approve the report in the system."

Funds procured will be fully allocated to Green Projects by maturity of the bond, namely five years from bond issue date. NYK intends to restrict the allocation period to 36 months, in line with market's good practices.

Unallocated proceeds will be kept in the form of cash or cash equivalents.

In the case any of the four projects mentioned above are postponed or cancelled, the issuer will allocate the proceeds to another Eligible Project, which will be duly evaluated and selected by the process previously defined and will report it to Vigeo Eiris.

The entire fund allocation and management processes could possibly fall into the scope of external audit. In addition, NYK agreed to report the situation of fund allocation annually to – at least – Vigeo Eiris (see external reviews).

Reporting

The process for data collection, calculation and reporting are clearly defined.

The reporting commitments of the issuer are considered to be good covering the fund allocation and environmental benefits, leading to a reasonable level of assurance on the issuer's capacity to regularly report on the Green Bond's use and impacts.

As a result, the reporting is considered to be aligned with the Green Bond Principles.

The process for monitoring and reporting is clearly defined. The reporting process is formalized through Vigeo Eiris' Second Party Opinion. NYK has an established system to monitor the situation of vessels in operation, which is considered to contribute an appropriate data collection and consolidations.

The reporting process is based on relevant internal expertise including Finance Group and CSR Team, as follows.

- Funds allocation report:
 - Finance Group to provide latest funds allocation information approved by CFO to CSR Team (IR Group).
 - CSR Team (IR Group) to disclose the funds allocation information.
- Environmental impact report:
 - NYK set out "annual impact assumption model" for each categories of project, of which calculation method duly supervised by Technical Group and Environment Group with their expertise.
 - Finance Group to report the impact for each category using above model multiplied by numbers of the funds allocated vessels or numbers of equipment installed, then CSR Team (IR Group) to disclose the information.

Both reporting will be made publicly accessible on NYK's website, annually and until full allocation. NYK will produce a specific reporting in case of material developments.

The selected reporting indicators related to the funds allocation and environmental benefits are relevant to the Eligible Projects Categories.

The Issuer commits to annually and transparently report on the Green Bond on:

- Use of proceeds (in line with NYK’s confidential agreement with its business partners)

< Table 4 > Use of proceeds reporting

Reporting indicators
<ul style="list-style-type: none"> – A brief description of each Eligible Projects category – Usage of the vessels* – Total amount of proceeds allocated aggregated per sub-groups: (in JP¥) – Total amount of unallocated proceeds – Share of refinancing (in %)

* the company will report at least that LNG-fuelled vessels will not be used to transport the above mentioned controversial products. To disclose actual usage is subject to the clients’ approval.

As for the allocation of the fund, the company will use two sub-groups for reporting, namely LNG-related and Regulation response

NYK agreed to report the details of the fund allocation to Vigeo Eiris during the process of post issuance reviews that will be conducted annually until the full allocation of proceeds.

- Environmental benefits:

< Table 5 > Environmental reporting

Eligible Projects categories	Reporting indicator at Eligible Project category level
LNG-fuelled vessels	<ul style="list-style-type: none"> – Number of LNG-fuelled vessels financed and entered into operations – GHG emission (mt/vessel/year) – GHG emission reduction (%) compared to HFO vessels – CO₂ emission reduction (%) compared to HFO vessels – NO_x emission reduction (%) compared to HFO vessels – SO_x emission reduction (%) compared to HFO vessels
LNG Bunkering Vessels	<ul style="list-style-type: none"> – Number of LNG Bunkering vessels financed and entered into operations – GHG emission (mt/vessel/year) – GHG emission reduction (%) compared to HFO vessels – CO₂ emission reduction (%) compared to HFO vessels – NO_x emission reduction (%) compared to HFO vessels – SO_x emission reduction (%) compared to HFO vessels
Ballast Water Management System	<ul style="list-style-type: none"> – Number of BWMS installed – Volume of treated ballast water (mt/vessel/year)
SO _x scrubber system	<ul style="list-style-type: none"> – Number of systems installed – SO_x emission reduction (%) compared to vessels not equipped with the system.

NYK has defined calculation methodologies called "Annual impact assumption model" that will be duly supervised internally by Technical Group and Environment Group. When feasible, the Issuer uses actual figures for environmental impact calculation.

- The underlying assumptions used in the CO₂ quantitative determination rely on appropriate external sources and has been reviewed by the third parties in the process for MoE selection.
- We have suggested to make the relevancy of the underlying methodology (the “Annual impact assumption model”) verified by an external third-party.

METHODOLOGY

In Vigeo Eiris' 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 organization, activity or transaction. In this sense, Vigeo Eiris writes an opinion on the Issuer's Corporate Social Responsibility as an organization, and on the objectives, management and reporting of the projects to be (re)financed by this transaction.

Vigeo Eiris' methodology to define and to assess corporate's ESG performance is based on criteria aligned with public international standards, in compliance with the ISO 26000 guidelines, and organized in 6 domains: Environment, Human Resources, Human Rights, Community Involvement, Business Behavior and Corporate Governance. The evaluation framework has been customized regarding material issues, based on the Transport é Logistics Asia Pacific assessment framework, projects specificities and emerging issues.

Vigeo Eiris 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 will be considered as long as they are public, documented and traceable. Vigeo Eiris has reviewed documents and websites of the Issuer and interviewed members from several departments of the Issuer.

Our research and rating procedures are subject to internal quality control at three levels (analysts, heads of cluster sectors, and internal review by the audit department for second party opinions) complemented by a final review and validation by the Direction of Methods. A right of complaint and recourse is guaranteed to all companies under our review, including three levels: first, the team linked to the company, then the Direction of Methods, and finally Vigeo Eiris' Scientific Council. All collaborators are signatories of Vigeo Eiris' Code of Ethics.

Part I. ISSUER

NB: the Issuer performance, i.e., commitments, processes, results of the Issuer, related to ESG issues have been assessed through a complete process of rating and benchmark developed by Vigeo Eiris Rating (December 2016). Furthermore, this assessment has been completed by Vigeo Eiris Enterprise based on additional public information and stakeholders' views and opinion collected from public documentation.

Level of the Issuer's ESG performance

The Issuer has been evaluated by Vigeo Eiris on its Corporate Social Responsibility (CSR) performance, based on 26 relevant ESG drivers organized in the 6 sustainability domains. NYKs performance has been assessed by Vigeo Eiris 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.

▶ Scale of assessment of ESG performance: Advanced, Good, Limited, Weak.

Stakeholder-related ESG controversies and involvement in controversial activities

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 on unproven facts.

Vigeo Eiris provides an opinion on companies' controversies risks mitigation based on the analysis of 3 factors:

- Severity: the more a controversy will relate to stakeholders' fundamental interests, will prove actual corporate responsibility in its occurrence, and will have adverse impacts for stakeholders and the company, the highest its severity. Severity assigned at 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).
- Frequency: reflects for each ESG challenge the number of controversies faced. At corporate level, this factor reflects on the overall number of controversies faced and scope of ESG issues impacted (scale: Isolated, Occasional, Frequent, Persistent).

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, Vigeo Eiris' 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.

In addition, 15 controversial activities have been analysed following 30 parameters to verify if the company is involved 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 precise nature of the controversial products or services provided by the company.

Part II. ISSUANCE

The Bond has been evaluated by Vigeo Eiris according to the Green Bond Principles and our methodology based on international standards and sector guidelines applying in terms of ESG management and assessment.

Use of proceeds

The use of proceeds guidelines are defined to ensure that the funds raised are used to finance and/or refinance an Eligible Projects and are traceable within the issuing organisation. Each Project endorsed shall comply with at least one of the Eligible Projects category definition in order to be considered as an Eligible Project. Vigeo Eiris evaluates the relevance, visibility, and measurability of the associated environmental and/or social objectives. The sustainability of the Bond is assessed based on the Issuer's commitments and the estimated benefits associated with the Eligible Projects. The contribution of Eligible Projects to sustainable development is evaluated based on the United Nations Sustainable Development Goals.

Process for project evaluation and selection

The evaluation and selection process has been assessed by Vigeo Eiris regarding its transparency, governance and efficiency. The relevance and exhaustiveness of selection criteria and associated supporting elements, and the coherence of the process are analysed based on material issues considered in Vigeo Eiris' methodology.

Management of proceeds

The rules for the management of proceeds and the allocation process have been evaluated by Vigeo Eiris regarding their transparency, coherence and efficiency.

Reporting

Reporting indicators, processes and methodologies are defined by the Issuer to enable annual reporting on fund allocation, environmental benefits (output and impact indicators) and on the responsible management of the Eligible Projects financed by the Bond proceeds, collected at project level and potentially aggregated at Bond level. Vigeo Eiris has evaluated the relevance of the reporting framework according to three principles: transparency, exhaustiveness and effectiveness.

- ▶ Scale of assessment for processes and commitments: Weak, Limited, Good, Advanced.
- ▶ Scale of level of assurance on Issuer's capacity: Reasonable, Moderate, Weak.

VIGEO EIRIS' ASSESSMENT SCALES

Performance evaluation		Level of assurance	
Advanced	Advanced commitment; strong evidence of command over the issues dedicated to achieving the objective of social responsibility. Reasonable level of risk management and using innovative methods to anticipate emerging risks.	Reasonable	Able to convincingly conform to the prescribed principles and objectives of the evaluation framework
Good	Convincing commitment; significant and consistent evidence of command over the issues. Reasonable level of risk management.	Moderate	Compatibility or partial convergence with the prescribed principles and objectives of the evaluation framework
Limited	Commitment to the objective of social responsibility has been initiated or partially achieved; fragmentary evidence of command over the issues. Limited to weak level of risk management.	Weak	Lack or unawareness of, or incompatibility with the prescribed principles and objectives of the evaluation framework
Weak	Commitment to social responsibility is non-tangible; no evidence of command over the issues. Level of insurance of risk management is weak to very weak.		



Vigeo Eiris is a global provider of environmental, social and governance (ESG) research to investors and public and private corporates. The agency evaluates the level of integration of sustainability factors into organisations' strategy and operations, and undertakes a risk assessment to assist investors and companies' decision-making.

Vigeo Eiris offers two types of services through separate business units

- ▶ **Vigeo Eiris rating** offers databases, sector-based analyses, ratings, benchmarks and portfolio screening, to serve all ethical and responsible investment strategies.
- ▶ **Vigeo Eiris enterprise** works with organisations of all sizes, from all sectors, public and private in order to support them in the integration of ESG criteria into their business functions and strategic operations.

Vigeo Eiris is committed to delivering client products and services with high added value: a result of research and analysis that adheres to the strictest quality standards. Our methodology is reviewed by an independent scientific council and all our production processes, from information collection to service delivery, are documented and audited. Vigeo Eiris has chosen to certify all its processes to the latest ISO 9001 standard. Vigeo Eiris is an approved verifier for CBI (Climate Bond Initiative). Vigeo Eiris' research is referenced in several international scientific publications.

Vigeo Eiris is present in Paris, London, Boston, Brussels, Casablanca, Hong Kong, Milan, Montreal, Santiago, Stockholm and Tokyo and has a team of 200. The agency works with partners through its Vigeo Eiris Global Network.

For more information: www.vigeo-eiris.com