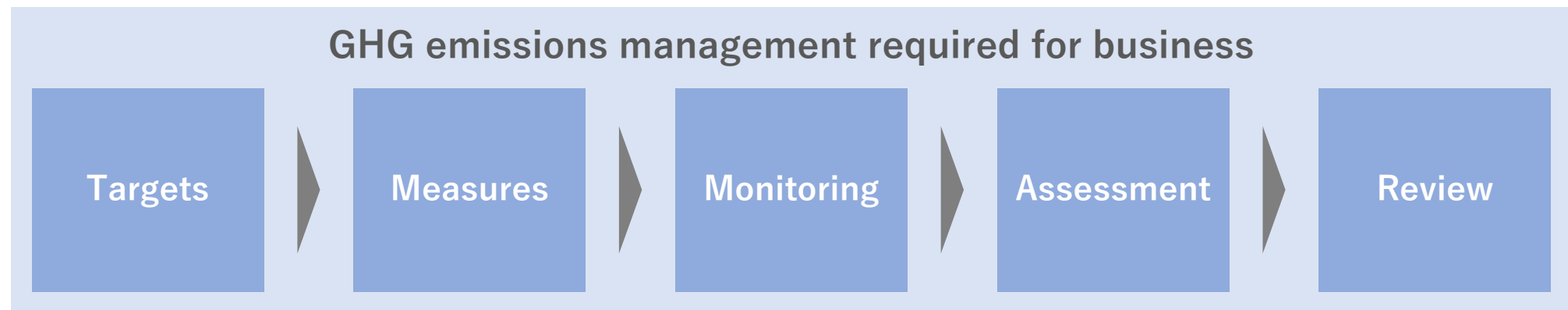


# ClassNK Decarbonization Support Services

April 2023



- With the global acceleration of the efforts to achieve a decarbonized society, such as the reinforcement of GHG reduction targets and the development of transition finance, the time has come for business to systematically manage the GHG emissions from the daily operations
- ClassNK supports your efforts to zero-emission by providing a comprehensive services to enable the management of the GHG emissions



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	For Shipping Companies
	For All Business Companies
	For Financial Institutions
	For Aviation

# Targets



## What is GHG emissions management?

Management system to achieve GHG reduction targets

- Companies are required to further promote their efforts in GHG reductions to realize a decarbonized society
- Appropriate management system needs to be established for the achievement of the GHG reduction targets



## Our services

Development & certification of management system

- We certify your efforts to set a target for the reduction of GHG emissions from ships and to develop/implement an appropriate management system for its achievement

Why ClassNK? – Value build-up for shipping business

- The certification is expected to add further values to your business by making GHG reduction efforts appeal to the market

For more details:

[https://www.classnk.or.jp/hp/en/info\\_service/ghg/](https://www.classnk.or.jp/hp/en/info_service/ghg/)



## Contact

Zero-Emission Transition Center

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## What is SBTs?

### GHG reduction targets based on science

- Established to promote the achievement of Science-Based Targets (SBTs), the SBT initiative certifies companies' targets
- SBT certification is given to the near-term GHG reduction targets over the next 5-10 years scientifically ensured to be consistent with a 1.5-degree pathway in the Paris Agreement
- Obtaining the certification enables companies to publicly promote their initiatives and to earn high CDP scores\*

\*Scoring of companies' environmental initiatives conducted by CDP, a global non-profit environmental organization.



## Our services

### Providing support to obtain SBT certification

- Set up targets and identify the actions to be taken for your obtaining certification, such as:
  - ✓ Boundary setting
  - ✓ Calculation of the current emissions, reduction target setting, disclosure of progress against the target
  - ✓ Making inquiries to the SBT initiative and advise

### Why ClassNK? – Know-how as a certification body

- Staff well-informed in SBTs and the GHG Protocol support the process of obtaining
- We support the calculation of emissions in supply chain (Scope 1, 2 and 3) and the analysis of sector-specific issues as the first step toward SBT certification

## Contact

GX Section, Certification Department

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# Measures



## What is TCFD?

### Disclosure of climate-related financial information

- The TCFD\* announced in 2017 the recommendations to understand and disclose the financial impacts of climate-related risks and opportunities (TCFD recommendations)  
\*Task force on Climate-related Financial Disclosures
- Companies listed on the Tokyo Stock Exchange Prime Market are practically required to disclose the information in accordance with the TCFD recommendations

Core Elements of Recommended Climate  
Related Financial Disclosures



(Source : TCFD)

## Our services

### Advisory support for TCFD compliance

- Support disclosure with the TCFD recommendation, including:
  - ✓ Identification and assessment of risks and opportunities as well as scenario analysis of uncertain future
  - ✓ Business impact assessment and information disclosure

### Why ClassNK? – Scenario analysis

- We are well-versed in TCFD compliance as represented by its “Support for Response to CDP questionnaire”, which has integrated the requirements in the TCFD recommendations
- We provide sophisticated analysis in line with your strategy by leveraging our insights in the transportation and energy fields, bearing in mind that scenario analysis is a key to TCFD compliance

## Contact

GX Section, Certification Department

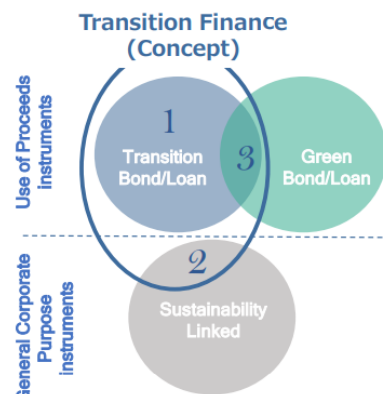
e-mail : [gx@classnk.or.jp](mailto:gx@classnk.or.jp) Tel : +81-3-5226-2175



## Sustainable finance

### Finance to support efforts toward decarbonization

- Sustainable finance is a financial method, which considers the environmental, social and governance (ESG) factors, leading to investments in sustainable economic activities
- It is becoming more common to have an external body conduct a third-party assessment to confirm the eligibility of ESG strategies, initiatives and purpose for funds



Transition finance must meet the four elements of these Guidelines, as well as other elements such as the issuance process, defined in the existing principles and guidelines\*.

- 1 An Instrument where Use of Proceeds does not fall under Green Projects\* but meets the four elements of transition
- 2 General Corporate purpose instrument that meets the four elements of transition, sets targets in line with the transition strategy, and changes the terms and conditions of financing depending on the achievement of predefined objects
- 3 An instrument where Use of Proceeds falls under Green Projects\* and meets the four elements of transition

\*contents of Green Bond Principles/Guidelines, Social Bond Principles/Guidelines (including those to be issued in future)

(Source: Financial Services Agency, Ministry of Economy, Trade and Industry, Ministry of Environment)

## Our services

### Assessment of eligibility

- Provide second-party opinions, including:
  - ✓ Confirmation of the compliance with international principles and national guidelines
  - ✓ Advise of ESG investment plans
- Support to develop targets toward decarbonization, indicators and measures to achieve the targets

### Why ClassNK? – Insights as a third-party organization

- ClassNK, as a third-party organization with extensive experience, properly assesses the eligibility of ESG strategies, initiatives and purpose for funds
- Shipping companies that have set targets to reduce GHG emissions from ships can use ClassNK ZETA to check the progress against the targets

## Contact

GX Section, Certification Department

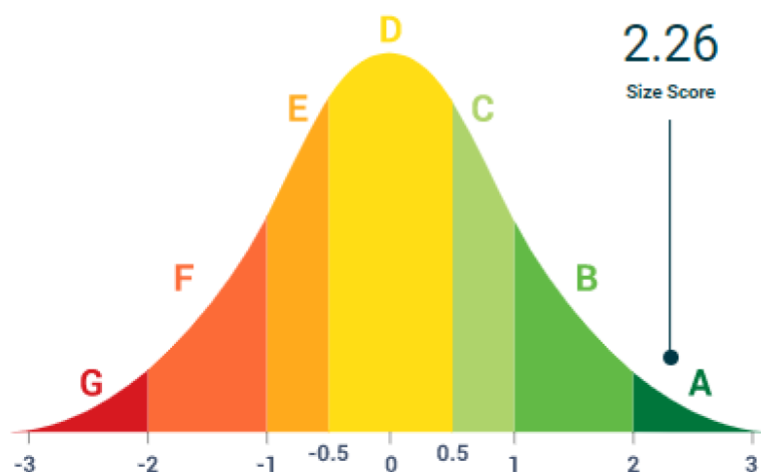
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## RightShip's GHG Rating

### Rating to measure vessels' efficiency

- RightShip, a ship rating company in Australia, rates vessels' fuel efficiency (on A to G scale) based on its own methodology and publicizes the grades
- GHG Rating is becoming more influential with some shippers potentially refusing to charter vessels with low ratings

$$\frac{\left( \prod_{j=1}^n f_j \right) \left( \sum_{i=1}^{nME} P_{ME(i)} \cdot C_{FME(i)} \cdot SFC_{ME(i)} \right) + (P_{AE} \cdot C_{FAE} \cdot SFC_{AE}) + \left( \left( \prod_{j=1}^n f_j \right) \cdot \sum_{i=1}^{nPTI} P_{PTI(i)} - \sum_{i=1}^{nEff} f_{eff(i)} \cdot P_{AE_{eff(i)}} \right) C_{FAE} \cdot SFC_{AE} }{f_i \cdot f_c \cdot f_i \cdot Capacity \cdot f_w \cdot V_{ref} \cdot f_m} - \left( \sum_{i=1}^{nEff} f_{eff(i)} \cdot P_{eff(i)} \cdot C_{FME} \cdot SFC_{ME}^{**} \right)$$



(Source : RightShip)

## Our services

### Improvement of GHG Rating

- Support the improvement from various aspects, including:
  - ✓ Calculation of energy efficiency (Existing Vessel Design Index: EVDI)
  - ✓ Identification of the potential engine power limitation
  - ✓ Assessment of minimum propulsion power
  - ✓ Issuance of an appraisal statement

### Why ClassNK? - EEDI certification body

- RightShip's EVDI is calculated by a similar formula as the IMO's energy efficiency design index (EEDI)
- Based on the insights gained through EEDI certification services, we can recommend custom-made measures to improve the GHG Rating suitable for each customer

## Contact

EEDI Section, Marine GHG Certification Department  
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# Monitoring





## What is ClassNK MRV Portal?

### Data management platform

- ClassNK MRV Portal is a data platform to store and manage voyage data and vouchers (such as Bunker Delivery Note) sent from ships

Port	Cargo	Distance and time	Fuel
<div> <div>Organization Name</div> <div>Distance 2176.0 nm (4030.0km)</div> <div>Time Spent at sea 167.00 h</div> <div>Distance(AIS) 2581.4nm 84.3%</div> <div>Time Spent at sea (AIS) 202.0h 82.7%</div> <div>Ratio of distance (AIS) in the whole reporting period distance</div> </div>			
Place	Rep.Time(UTC)	Lat./Long.	Distance (nm)
Departure	2021/02/10 23:18	118N,10410.2E	N.A.
SOOP	2021/02/10 23:18		
Noon	2021/02/11 04:00	143.8N,10443.2E	14
Noon	2021/02/12 04:00	546.2N,10746.2E	316
Noon	2021/02/13 04:00	930N,11058.8E	295
Noon	2021/02/14 04:00	1343.2N,11437.8E	331
Noon	2021/02/15 04:00	1748N,11818E	323
Noon	2021/02/17 03:00	2540.2N,12458.8E	305
Noon	2021/02/18 03:00	2904.2N,12840.8E	287
Noon	2021/02/19 02:00	3251N,13215E	305
EOGP	2021/02/19 02:00		
Other event	2021/02/19 02:00		
Arrival	2021/02/19 10:48	3404.8N,13252.2E	
Adjustment Distance/Time from arrival to berth			0 0

- You can use ClassNK MRV Portal for the certification under the IMO-DCS and EU MRV regulations, not only for ClassNK classed ships but also for other classed ships

For more details of ClassNK MRV Portal:

<https://www.classnk.or.jp/hp/en/activities/portal/nk-mrvportal.html>



## Our services

### Support for ClassNK MRV Portal users

- Provide a comprehensive support, such as:
  - ✓ Provision of templates for data collection
  - ✓ Data reporting from ships and data management on shore
  - ✓ Application for certification, issuance of Document of Compliance, invoice management
- ClassNK MRV Portal is also available for Carbon Intensity Indicator (CII)

### Why ClassNK? – Smooth response to the requirements

- ClassNK MRV Portal can be linked to reporting systems owned by customers or by third-parties
- By using ClassNK MRV Portal, you can mitigate the workload to comply with the regulations by the IMO and the EU

## Contact

DCS Section, Marine GHG Certification Department

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## What is ClassNK ZETA?

### GHG emissions management tool

- ClassNK ZETA\* is a tool for visualizing emissions from ships and supporting for emissions reduction efforts

\* Zero Emission Transition Accelerator

- ClassNK ZETA enables you to check the emissions and CII ratings of individual ships or of the entire fleet at any time, and to simulate the changes in emissions in case some measures such as slow steaming are taken

#### Four main features

1	Vessel Monitoring
2	Fleet Monitoring
3	Simulation
4	Periodical Report



For more details of ClassNK ZETA:

[https://www.classnk.or.jp/hp/en/info\\_service/ghg/nk-zeta.html](https://www.classnk.or.jp/hp/en/info_service/ghg/nk-zeta.html)



## Our services

### GHG emissions management support

- ClassNK ZETA assists emissions management, including:
  - ✓ Support for a trial before starting the use
  - ✓ Simulation of the emissions reduction (slow steaming, installation of energy-saving devices, fuels switching)
  - ✓ Issuance of custom-made emissions report upon request

### Why ClassNK? – Accurate data

- ClassNK ZETA is linked to ClassNK MRV Portal (a database to store and manage data including ships' fuel consumptions)
- Accurate GHG emissions are obtained based on the actual voyage data collected through ClassNK MRV Portal, not on the pre-defined emissions intensity

## Contact

DCS Section, Marine GHG Certification Department

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# Assessment

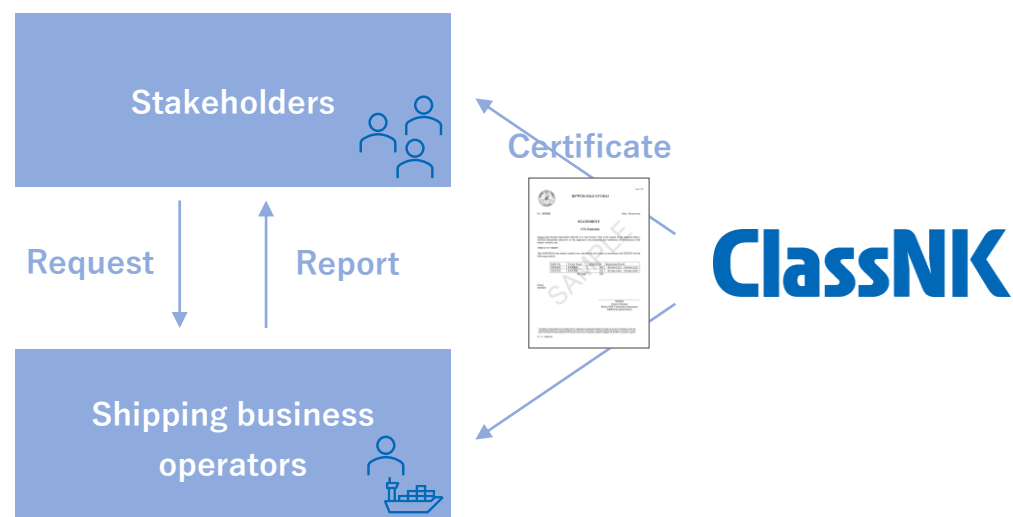




## Voluntary monitoring of GHG emissions

### Growing demand for reporting

- There is a growing demand for disclosure and report of GHG emissions toward a decarbonized society
- GHG emissions calculated and verified by an independent third-party organization is becoming to be used for carbon-offsetting



## Our services

### GHG emissions calculation, verification & assessment

- Calculate and verify emissions with a minimum order of one ship, and can carry out in various scopes, such as:
  - ✓ Gross amount, transportation efficiency (AER, EEOI, etc.)
  - ✓ Onboard emissions, fuel life cycle emissions\*
  - ✓ On a per-cargo, per-voyage or an annual basis
  - ✓ Carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), dinitrogen monoxide (N<sub>2</sub>O)
- \* Aligned to the Global Logistics Emissions Council (GLEC) Framework
- Assess the alignment with the pathway toward your GHG reduction target on an annual basis upon request

### Why ClassNK? – Voyage data verification

- Extensive insights and experience as a verification body under the IMO and the EU regulations
- Ensure transparency and accuracy based on verified data

## Contact

DCS Section, Marine GHG Certification Department  
e-mail : [dcsc@classnk.or.jp](mailto:dcsc@classnk.or.jp) Tel : +81-3-5226-3025

## What are the Poseidon Principles?

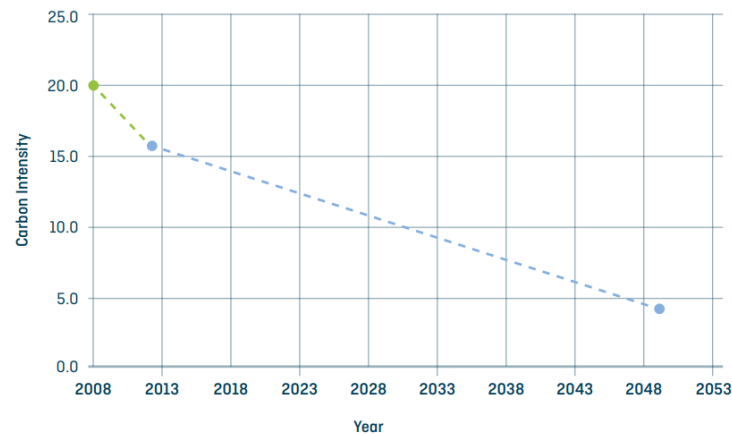
### Voluntary framework by financial institutions

- The Poseidon Principles are a framework for assessing and disclosing the climate alignment of ship finance portfolios of Signatories



- The decarbonization trajectory specified under the Poseidon Principles is produced based on the GHG reduction targets\* by the International Maritime Organization (IMO)

\*To reduce the total GHG emissions by at least 50% by 2050 (compared to 2008 levels)



(Source: Poseidon Principles)

## Our services

### Calculation & assessment of CO<sub>2</sub> emissions

- Provide related services to financial institutions, such as:
  - ✓ Calculation of the climate alignment scores
  - ✓ Preparation of documents for reporting to the Secretariat
  - ✓ Development of analysis report
  - ✓ Estimation of the climate alignment (in case you have not yet become a Signatory)

### Why ClassNK? – Data check, analysis & forecast

- Check operational data for financial institutions
- Provide advice on how to improve the climate alignment in addition to the analysis of the current status

For more details:

[https://www.classnk.or.jp/hp/en/info\\_service/Poseidon\\_Principles/](https://www.classnk.or.jp/hp/en/info_service/Poseidon_Principles/)



## Contact

Zero-Emission Transition Center

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## What are the PPMI?

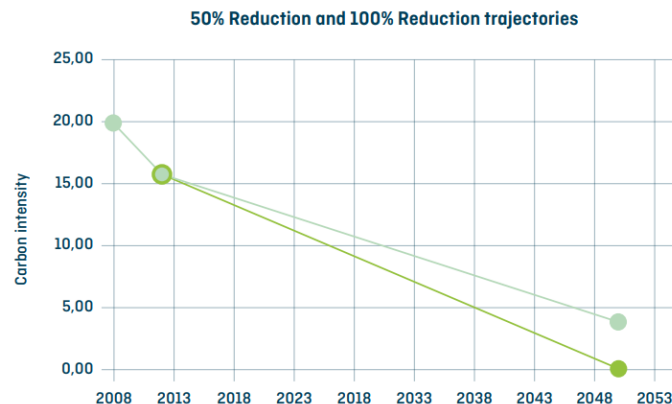
### Voluntary framework by marine insurers

- The Poseidon Principles for Marine Insurance (PPMI) are a framework for assessing and disclosing the climate alignment of ship insurance portfolios of Signatories



- Two decarbonization trajectories specified under the PPMI are produced based on the GHG reduction targets\* by the IMO and 2/1.5 degrees goal in the Paris Agreement

\*To reduce the total GHG emissions by at least 50% by 2050 (compared to 2008 levels)



(Source: Poseidon Principles for Marine Insurance)

## Our services

### Calculation & assessment of CO<sub>2</sub> emissions

- Provide related services to marine insurers, such as:
  - ✓ Calculation of the climate alignment scores
  - ✓ Preparation of documents for reporting to the Secretariat
  - ✓ Development of analysis report
  - ✓ Estimation of the climate alignment (in case you have not yet become a Signatory)

### Why ClassNK? – Data check, analysis & forecast

- Check operational data for marine insurers
- Provide advice on how to improve the climate alignment in addition to the analysis of the current status

## Contact

Zero-Emission Transition Center

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## What is the Sea Cargo Charter?

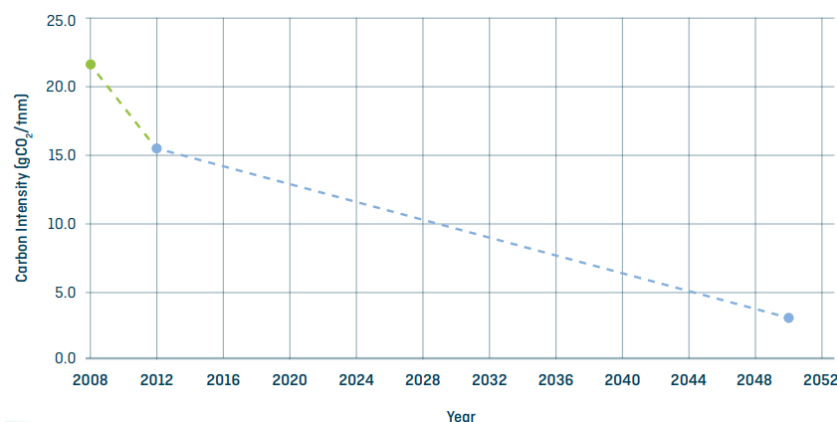
### Voluntary framework by cargo owners and charterers

- The Sea Cargo Charter is a framework for assessing and disclosing the climate alignment of cargo transportation by Signatories



- The decarbonization trajectory specified under the Sea Cargo Charter is produced based on the GHG reduction targets\* by the IMO

\* To reduce the total GHG emissions by at least 50% by 2050 (compared to 2008 levels)



(Source: Sea Cargo Charter)

## Our services

### Calculation & assessment of CO<sub>2</sub> emissions

- Provide related services in cargo transportation, such as:
  - ✓ Calculation of the climate alignment scores
  - ✓ Preparation of documents for reporting to the Secretariat
  - ✓ Development of analysis report
  - ✓ Estimation of the climate alignment (in case you have not yet become a Signatory)

### Why ClassNK? – Data check, analysis & forecast

- Provide advice on how to improve the climate alignment in addition to the analysis of the current status

For more details:

[https://www.classnk.or.jp/hp/en/info\\_service/Sea\\_Cargo\\_Charter/](https://www.classnk.or.jp/hp/en/info_service/Sea_Cargo_Charter/)



## Contact

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## What is the Clean Shipping Index?

### Tool to assess environmental performance of ships

- The Clean Shipping Index is a tool to assess environmental performance of ships developed by Smart Shipping Project, a non-profit organization in Sweden, and run by Clean Shipping Network, a group of cargo owners



- Environment-conscious cargo owners refer to the results of the assessment in selecting their carriers

### Scoring Parameters

1	Sulphur oxides (SOx), Particulate matters (PM)
2	Nitrogen oxides (NOx)
3	Carbon dioxide (CO <sub>2</sub> )
4	Chemicals
5	Water and waste

## Our services

### Verification of environmental performance

- Verify the ship's environmental performance self-assessed by the shipowner

### Why ClassNK? – Approved verifier

- We are a verifier of the Clean Shipping Index approved by the Board of the Clean Shipping Network Association
- Experts well-informed in the Clean Shipping Index conduct verification

For more details:

<https://www.classnk.or.jp/hp/en/authentication/csi/>



## Contact

GHG Section, Certification Department

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## What is Clean Cargo?

### Partnership for decarbonization of container shipping

- Clean Cargo is a partnership to support the decarbonization of containerized ocean cargo transportation run by Smart Freight Centre, a non-profit organization in Netherlands



- Clean Cargo members monitor and report the CO<sub>2</sub> emissions from their container transportation, which are used as a reference by cargo owners and freight forwarders in selecting their carriers



(Source: Smart Freight Centre)

## Our services

### Verification of emissions data

- Provide verification of CO<sub>2</sub> emissions from containerships based on the standards of Clean Cargo

### Why ClassNK? – Extensive experience in verification

- We have extensive insights and experience as a verification body under the IMO and the EU regulations
- Experts well-informed in Clean Cargo methodology conduct verification

## Contact

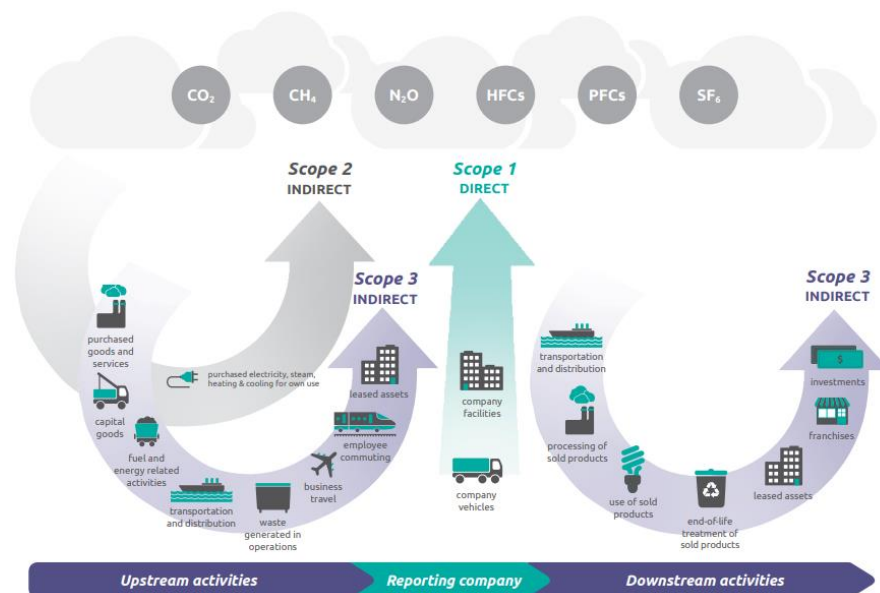
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## What is Scope 1, 2 and 3?

### All GHG emissions related to business activities

- With the growing demand of society for corporate climate action, companies are required to disclose all GHG emissions, not just those directly from their operations
- GHG Protocol, an international standard for accounting and reporting of GHG emissions, defines the scope of emissions as Scope 1, 2 and 3



(Source: GREENHOUSE GAS PROTOCOL)

## Our services

### Verification of supply chain emissions

- Verify the GHG emissions calculation methods used as well as the amounts of emissions and reductions calculated from a fair and neutral standpoint in accordance with the ISO international standards (ISO14064-1, ISO14064-2) and others
- We are a verification body accredited by the Japan Accreditation Board (JAB) based on ISO14065 to be compliant with ISO14064-1 and ISO14064-2

### Why ClassNK? – Extensive experience in verification

- We have accumulated experience in verification for businesses across a wide range of industries including shipping, aviation, and manufacturing of steels and foods

## Contact

GHG Section, Certification Department

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## What is the CDP Questionnaire?

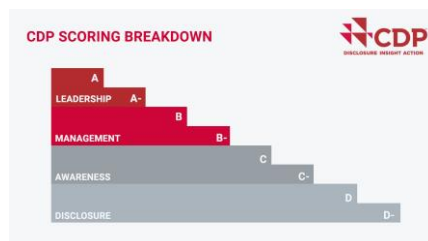
### Survey for disclosure of environmental impact

- CDP, a global non-profit organization, sends questionnaires (on climate change, water security and forest) to companies upon requests from their investors and purchasers in order to collect environmental information



(Source: Developed by ClassNK based on CDP's materials)

- Based on the responses to the questionnaire, companies' climate actions are scored and publicized by CDP



(Source: CDP)

- Responding to the questionnaire serves to the preparation for disclosure in accordance with the TCFD recommendations

## Our services

### Support for response to CDP questionnaire

- Help you advise a response to the questionnaire (climate change) toward obtaining high scores
  - ✓ Review of the previous response, preparation for a response and proposals for further improvement
  - ✓ Assessment in advance with sectoral weight given and proposals for the achievement of high levels

### Why ClassNK? – GHG validation & verification body

- We support the acquisition of high scores through a provisional assessment according to the scoring criteria
- Previous year's response is examined in an effective manner to explore the reasons for losing points and to review the response

## Contact

GX Section, Certification Department

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## What is ICAO CORSIA?

### Scheme for reducing emissions from international aviation

- ICAO\* is introducing CORSIA\*\* in a phased manner to achieve the CO<sub>2</sub> reduction goal

\*International Civil Aviation Organization

\*\*Carbon Offsetting and Reduction Scheme for International Aviation

Aspirational goal for CO<sub>2</sub> reduction

✓ Net-zero CO<sub>2</sub> emissions by 2050



- Member states are required to report their emissions to ICAO from 2019 and to start the reduction from 2027

### Participation in CORSIA

Pilot Phase (2021-2023)	Voluntary participation by ICAO Member States (107 states joined as of January 2022)
First Phase (2024-2026)	
Second Phase (2027-2035)	Participation by all ICAO Member States except Least Developed Countries

## Our services

### Verification of CO<sub>2</sub> emissions

- ClassNK, as an accredited verification body under CORSIA, conducts verification of CO<sub>2</sub> emissions for aircraft operators

### Why ClassNK? – Accredited verification body

- ClassNK is the only accredited verification body\* under CORSIA in Japan

\* Accredited by the Japan Accreditation Board (JAB)

- We have carried out verification of emissions for all aircraft operators in Japan as well as for airlines across the world

## Contact

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