

## INDEPENDENT VERIFICATION STATEMENT

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### Introduction

DNV GL Business Assurance India Private Limited has been commissioned by the management of The Great Eastern Shipping Company Limited ('Great Eastern' or 'the Company') to carry out a verification engagement of its Greenhouse Gas (GHG) assertion (Scope 1 and Scope 2 emission data, 'the GHG assertion') in its *'Assertion Report of GHG Emissions for Financial Year 2016-2017'* (the Report). The Assertion Report has been prepared by the Company based on ISO 14064-1 (2006) *'Greenhouse Gases – Part 1: Specification with Guidance at the Organization Level for Quantification and Reporting of Greenhouse Gas Emissions and Removals'*, and the *'Greenhouse Gas Protocol – A Corporate Accounting and Reporting Standard (Revised edition)'* published by World Business Council for Sustainable Development and World Resources Institute.

The verification exercise has been carried out for the Company's GHG emissions assertions during the period 1st April 2016 to 31st March 2017. Great Eastern is responsible for the collection, analysis, aggregation and presentation of GHG data provided in the Report. Our responsibility of performing this work is to the management of the Company only and in accordance with scope of work agreed with the Company. The verification engagement is based on the assumption that the data and related information provided to us is complete, sufficient and true. This verification provides a moderate level of verification and applies a  $\pm 5\%$  materiality threshold for errors and omissions. DNV GL disclaims any liability or co-responsibility for any decision a person or entity would make based on this verification statement. The verification was carried out in May-June 2017 by qualified GHG assessors.

### Scope, Boundary and Limitations of Verification

The scope of work agreed upon with the Company includes the following:

- The verification of GHG (Scope 1 and Scope 2) data covering the period 1st April 2016 to 31st March 2017:
  - Scope 1 emissions of company owned and managed vessels arising from a) combustion of fuel oil in main engines, auxiliary engines, boilers, inert gas generators and auxiliary engines for Framo pumps, and b) unintentional releases of hydro fluorocarbons (HFCs) used as refrigerants for air-conditioning, and provision refrigeration.
  - Scope 2 emissions from consumption of purchased electricity used at Ocean House, the Head Office of the Company located at Mumbai, Maharashtra, and Great Eastern Institute of Maritime Studies, the training academy of the Company located at Lonavala, Maharashtra.
- Verification of the company's internal protocols, processes and controls related to the collection and collation of GHG emission data.

The organisational boundary decided by the Company includes vessels owned and managed by Great Eastern on voyage and time charter, i.e. 44 vessels of 3.69 million deadweight tonnes and as brought out in Section 2.1.1 of the Company's Assertion Report of GHG Emission, and the Company's Head Office at Mumbai and Training Academy at Lonavala.

During the verification process, we did not come across limitations to the scope of the agreed engagement except:

- Emissions related to the assets of Greatship (India) Limited, a wholly owned subsidiary of Great Eastern,
- Vessels hired by Great Eastern under time charter over which it has no technical management control, and,
- Emissions from incineration of oil residue and MARPOL Annex V Garbage of Categories C (domestic waste), D (used cooking oil) and F (operational waste) on board vessels, and the use of diesel oil in diesel generator sets and liquefied petroleum gas used for cooking at the training academy in Lonavala and at Ocean House, which have been estimated and found to be not materially significant.

### **Verification Methodology**

The verification was conducted by DNV GL for a moderate level of verification. As part of the verification process, we obtained an understanding of:

- the systems used to generate, aggregate and report GHG emission data, and,
- the GHG data management system, including review of the completeness, accuracy and reliability of the data.

During the verification engagement, we have taken a risk-based approach, and we have verified the GHG assertion made in the Report and assessed the robustness of the underlying data management system, information flow and controls. In doing so, we have carried out desk review and examined the following information made available to us during our verification visit to the Head Office at Mumbai:

- Data related to fuel consumptions and unintentional releases of HFCs used as refrigerants in company owned and managed vessels on a sampling basis as per Noon Reports obtained from the Live Vessel Information System (LIVIS), for the Financial Year 2016-17.
- Data related to purchased electricity at the Head Office and training academy on a sampling basis based on month-wise consolidated data from electricity bills.
- Review of emission factors used:
  - Emission Factors for different type of fuels used from MEPC.281(70) – Amendment 2016 Guidelines on the Method of Calculation of the Attained Energy Efficiency Design Index (EEDI) for New Ships;
  - Emission factors for Methane and Nitrous oxide from 3<sup>rd</sup> IMO GHG Study 2014;
  - CO<sub>2</sub> emission Factor as per CO<sub>2</sub> Baseline Database for the Indian Power Sector (Version 11.0, April 2016) published by the Government of India.
- Review of calculation methodology as detailed in the Report and referenced to calculation procedures as detailed in the Fleet Operation Manual (Chapter 7, Rev. No. 22) Section 7.7.1.4.

### **Conclusions**

On the basis of our verification methodology nothing has come to our attention that would cause us not to believe that the GHG assertions brought out in the 'Assertion Report of GHG Emissions for Financial Year 2016-2017' and as detailed below are not materially correct and is not a fair representation of the GHG data and information.

Some data inaccuracies identified during the verification process were found to be attributable to transcription, interpretation and aggregation errors and the errors have been corrected. The data for the period 1<sup>st</sup> April 2016 to 31<sup>st</sup> March 2017 as verified during this verification assignment is as presented below:

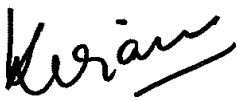
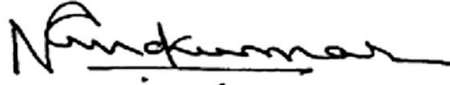
Scope	Source	1 <sup>st</sup> April 2016 to 31 <sup>st</sup> March 2017 in tonnes of CO <sub>2</sub> e
<b>Scope 1</b>	1. Combustion of fuel oil in company owned and managed vessels' main engines, auxiliary engines, boilers, inert gas generators and auxiliary engines for frame pumps  2. Unintentional releases of hydro fluorocarbons (HFCs) used as refrigerants for air-conditioning and provision refrigeration plants on company owned and managed vessels.	7,38,153.488 MT
<b>Scope 2</b>	1. Use of purchased electricity at Ocean House, the Head Office of the Company located at Mumbai, Maharashtra, and Great Eastern Institute of Maritime Studies, the training academy of the Company located at Lonavala, Maharashtra.	703.406 MT
	<b>Total Scope 1 &amp; 2 Emissions</b>	<b>7,38,856.894 MT</b>

\* Scope 2 emission of 703.406 tCO<sub>2</sub>e is based on the weighted average emission factor of 0.82 tCO<sub>2</sub>/MWh as per Central Electricity Authority's CO<sub>2</sub> Baseline Database for the Indian Power Sector, User Guide Version 11.0, April 2016.

**DNV GL's Competence and Independence**

DNV GL is a global provider of sustainability services, with qualified environmental and social assurance specialists working in over 100 countries. DNV GL states its independence and impartiality with regard to this verification engagement. We were not involved in the preparation of any statements or data related to GHG emissions except for this Verification Statement. While we did conduct other certification and assessment work with the Company in 2016-17, in our judgment this does not compromise the independence or impartiality of our engagement or associated findings, conclusions and recommendations. DNV GL maintains complete impartiality toward any people interviewed.

For DNV GL Business Assurance India Private Limited,

	
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Bengaluru, India, 20<sup>th</sup> June 2016.

