

**Assurance Statement related to
GHG Inventory for Calendar Year 2014
prepared for Northrop Grumman, Incorporated**

Terms of Engagement

This Assurance Statement has been prepared for Northrop Grumman, Incorporated.

Lloyd's Register Quality Assurance, Inc. (LRQA) was commissioned by Northrop Grumman, Incorporated (Northrop Grumman) to assure its GHG Emissions Inventory for the calendar year 2014, (hereafter referred to as "the Inventory").

The Inventory includes direct (Scope 1) GHG emissions, energy indirect (Scope 2) GHG emissions and other indirect (Scope 3) GHG emissions. The Scope 2 GHG emissions were adjusted to account for the purchase of Renewable Energy Credits (RECs). The Scope 3 GHG emissions include air travel, rental cars, and hotel accommodation for business travel.

The following sources were excluded from the Inventory on the basis of their de minimis contribution and sense-checked during the engagement:

- Scope 1 emissions from non-utility data fuel usage for buildings less than 100,000 square feet;
- Mobile emissions at sites with less than 10 vehicles;
- Process emissions for buildings less than 100,000 square feet;
- Process and fugitive emissions of all HFCs;
- Fugitive emissions from PFCs in fire suppression systems; and
- Scope 1 emissions of CH₄ and N₂O from the combustion of fossil fuels.

Management Responsibility

Northrop Grumman's management was responsible for preparing the Inventory and for maintaining effective internal controls over the data and information disclosed. LRQA's responsibility was to carry out an assurance engagement on the Inventory in accordance with our contract with Northrop Grumman.

Ultimately, the Inventory has been approved by, and remains the responsibility of Northrop Grumman.

LRQA's Approach

Our verification was conducted in accordance with ISO14064 – 3:2006 *Specification with guidance for validation and verification of greenhouse gas assertions*, to provide reasonable assurance that the GHG data as presented in the Inventory for Northrop Grumman have been prepared in conformance with the World Resource Institute/World Business Council for Sustainable Development (WRI/WBCSD) GHG Protocol: *A Corporate Accounting and Reporting Standard* and the internal Northrop Grumman GHG Reporting Protocol, Version 2.3.

To form our conclusion, the assurance was undertaken as a sampling exercise and covered the following activities:

- Conducted site visits to Northrop Grumman facilities and reviewed primary data and information related to the Scope 1 and Scope 2 GHG emissions for CY 2014 included in the entity level GHG Emissions Inventory;
- Reviewed the processes for the management of data and information related to the Scope 1, Scope 2, and Scope 3 GHG emissions used at the corporate level and by each Northrop Grumman operating sector;
- Interviewed relevant staff responsible for managing and maintaining data and information and for preparing the Inventory at the sector and corporate levels;
- Verified the Scope 1 and Scope 2 GHG emissions for CY 2014 included in the Inventory back to source using data and information made available at the facility level; and



- Verified the Scope 3 GHG emissions for CY 2014 through a review of aggregated level data and information and calculation spreadsheets provided by Northrop Grumman.

Level of Assurance & Materiality

The opinion expressed in this Assurance Statement for Scope 1 and Scope 2 GHG emissions has been formed on the basis of a reasonable level of assurance and at a materiality of 5%.

For Scope 3 GHG emissions, the opinion has been formed on the basis of a limited level of assurance and at a materiality of the professional judgment of the verifier.

LRQA's Opinion

Based on LRQA's approach, the total Scope 1 and Scope 2 GHG emissions disclosed in the Inventory for CY 2014, as summarized in Table 1 below, are materially correct, and the Inventory has been prepared in accordance with the WRI/WBCSD GHG Protocol and the NG GHG Protocol.

In addition, LRQA did not find any evidence that the Scope 3 GHG emissions disclosed in the Inventory for CY 2014 are not materially correct and are not prepared in accordance with the WRI/WBCSD GHG Protocol and the NG GHG Protocol.

LRQA's Recommendations

Northrop Grumman should:

- Clarify guidance in the NG GHG Protocol, Version 2.3 on when and how emission factors will be updated;
- Consider development of sector specific guidance for the application of Northrop Grumman's GHG Reporting Protocol in order to increase transparency and ensure consistency from year to year;
- Update the REC and Offsets calculation procedure in the Northrop Grumman GHG Reporting Protocol, Version 2.3 to provide more clarity on the appropriate emission factors to use for REC purchases; and
- Use the actual natural gas heat content factor provided in utility bills when calculating Scope 1 GHG emissions from natural gas combustion.

Signed

Dated: April 30, 2014

Heather Moore, P.E.

Lead Verifier

On behalf of Lloyd's Register Quality Assurance, Inc.,
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LRQA Reference: RMA10156A



Table 1. Summary of Northrop Grumman GHG Emissions Inventory CY2014

Scope of GHG emissions	Description	tCO₂e
Scope 1	Direct GHG emissions	142,879
Scope 2	Energy Indirect GHG emissions	463,188
Scope 1 & 2	Total GHG emissions	606,066
Adjusted Scope 1 & 2	Total with RECs and Carbon Offsets	583,490
Scope 3 (business travel)	Other Indirect GHG emissions	119,542

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Due to inherent limitations in any internal control, it is possible that fraud, error, or non-compliance with laws and regulations may occur and not be detected. Further, the verification was not designed to detect all weakness or errors in internal controls so far as they relate to the requirements set out above as the verification has not been performed continuously throughout the period and the verification carried out on the relevant internal controls were on a test basis. Any projection of the evaluation of control to future periods is subject to the risk that the processes may become inadequate because of changes in conditions, or that the degree of compliance with them may deteriorate.

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