

# LR Independent Assurance Statement

Relating to the Royal Dutch Shell plc Net Carbon Footprint for Calendar Year 2016

## Terms of Engagement

This Assurance Statement has been prepared for Shell Global Solutions International B.V., Lange Kleiweg 40, Rijswijk, 2288 GK, Netherlands ("Shell").

Lloyd's Register Quality Assurance Ltd ("LR") was commissioned by Shell to assure its Net Carbon Footprint Assertion (hereafter referred to as "the NCF Assertion") for the calendar year 2016, which follows:

1. *Our Net Carbon Footprint is estimated as 79 grams of CO<sub>2</sub> equivalent per Megajoule (gCO<sub>2</sub>e/MJ) in 2016.*
2. *The Carbon Intensities per energy product type are estimated as Oil (incl GTL): 89, Gas: 67, LNG: 71, Biofuels: 40, Electricity: 59, reported in grams of CO<sub>2</sub> equivalent per Megajoule (gCO<sub>2</sub>e/MJ) in 2016.*
3. *The share of sales per energy product type as included in the Net Carbon Footprint calculation are estimated as Total: 20.93 (in trillion (10<sup>12</sup>) MJ), Oil (incl GTL): 11.39 Gas: 4.98, LNG: 2.83, Biofuels: 0.22, Electricity: 1.51, reported in trillion (10<sup>12</sup>) Megajoule in 2016. Lower heating values are used for the energy content of the different products and a fossil-equivalence approach is used to account for electrical energy, so that it is assessed on the same basis as our other energy products.*
4. *Estimated total GHG emissions included in the Net Carbon Footprint in 2016: 1645, reported in million tonnes CO<sub>2</sub> equivalent.*
5. *The Net Carbon Footprint is estimated in accordance with the methodology document titled SR.19.00134, The Net Carbon Footprint Model: Methodology .*

*The Net Carbon Footprint is determined by first estimating the emissions intensity for each of the energy product supply chains in Shell's portfolio; this is done using established lifecycle analysis principles and includes both the emissions associated with the production and processing of energy products and the emissions associated with their use. The individual intensities are then aggregated into a single value, with the weighting for each product determined by its sales volume, emissions captured in sinks are deducted to give the final net value.*

*The boundary for the product sales included in the Net Carbon Footprint encompasses not only energy products manufactured and sold by Shell, but also products manufactured by 3rd parties and purchased by Shell for re-sale.*

*The following supply chains and steps in the product lifecycles are included in the Net Carbon Footprint:*

- *Oil products: (i) crude oil production, (ii) transportation of crude oil (pipeline/shipping), (iii) refining, (iv) distribution of oil products, and (v) end use of oil products.*
- *Pipeline gas: (i) gas production, (ii) transportation of gas via pipeline, and (iii) end use of gas.*
- *LNG: (i) gas production, (ii) transportation of gas via pipeline, (iii) liquefaction, (iv) shipping of LNG products, (v) regasification of LNG in recipient terminals, (vi) local distribution of gas, and (vii) end use of gas.*
- *GTL fuels: (i) gas production, (ii) transportation of gas via pipeline, (iii) gas-to-liquid processing, (iv) shipping of GTL products, (v) local distribution of GTL fuel products, (vi) end use of GTL fuels.*
- *Biofuels: (i) production, (ii) transportation (domestic/shipping), (iii) distribution and (iv) end use of biofuels.*
- *Electricity from renewable sources, solar and wind, converted to fossil energy equivalent and electricity purchased and re-sold from the national transmission/distribution networks.*
- *CO<sub>2</sub> reductions: the impact of CO<sub>2</sub> reductions from carbon capture usage and storage (CCUS) projects, nature-based solutions (NBS) and other carbon offsets.*

6. *The boundaries used to estimate the Net Carbon Footprint from production, processing and use of energy products are consistent with those used in Shell's Annual Report.*
7. *The following GHG emissions are not included in the Net Carbon Footprint calculation:*
  - a. *Emissions from production, processing, use and end-of-life treatment of non-energy products, such as chemicals and lubricants;*
  - b. *Emissions associated with construction and decommissioning of production and manufacturing facilities;*
  - c. *Emissions associated with the production of fuels purchased to generate energy onsite;*
  - d. *Other indirect emissions from waste generated in operations, business travel, employee commuting, transmission and distribution losses associated with imported electricity, franchises and investments;*
  - e. *Traded volumes of energy products not destined for use or marketing to end-customers;*
  - f. *Emissions from 3rd party processing of sold intermediate products;*
  - g. *Emissions from capital goods and other goods and services not related to purchased energy feedstocks sourced from 3rd parties or energy products manufactured by 3rd parties and sold by Shell.*
8. *The impact of end-use efficiency on the use of sold energy products is not considered in the estimation of the Net Carbon Footprint.*
9. *Greenhouse gas emissions for assets wholly or partially owned and operated by Shell were derived from direct and energy indirect GHG emissions data verified to a limited level of assurance in February 2017. Greenhouse gas emissions for assets wholly or partially owned by Shell (but operated by a third party) were derived from combination of actual 2016 direct and energy indirect GHG emissions data collected from our partners and estimates based on best available data during the preparation of this assertion. We consider these estimates to have an immaterial impact on our 2016 Net Carbon Footprint value.*
10. *Direct GHG emissions (scope 1) used to estimate the Net Carbon Footprint comprise CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O, HFC, SF<sub>6</sub>, PFC and NF<sub>3</sub> for assets operated by Shell. Energy indirect GHG emissions (scope 2) for assets operated by Shell, scope 1 and 2 GHG emissions from non-operated assets and other indirect (scope 3) GHG emissions include CO<sub>2</sub>. CH<sub>4</sub> and N<sub>2</sub>O are included where data is available. We have not estimated the contribution of HFC, SF<sub>6</sub>, PFC and NF<sub>3</sub> on scope 1, 2 and 3 for assets not operated by Shell because our analysis shows that based on our own data, the contribution of these gases is immaterial to the overall Net Carbon Footprint.*
11. *GHG emissions were calculated using global warming potentials from the IPCCs Fourth Assessment Report*
12. *There were no carbon offsets included in the 2016 Net Carbon Footprint calculation.*
13. *The Shell share of CO<sub>2</sub> sequestered by the Quest carbon capture and storage project was included in the Net Carbon Footprint calculation.*

*The sales data inputs to the Net Carbon Footprint calculation have not been included within the scope of this assurance engagement. The 2016 data is derived from the Royal Dutch Shell plc Annual Report and Sustainability Report.*

LR has not been involved in the preparation of any material included within the NCF Assertion, nor in devising the internal management and reporting systems that yielded the data contained therein. However, LR along with other third parties, has completed other engagements that have contributed to the Shell reasonably assured GHG inventory.

### **Management Responsibility**

Shell's management was responsible for preparing the NCF Assertion and for maintaining effective internal controls over the data and information disclosed. LR's responsibility was to carry out an assurance engagement on the NCF Assertion in accordance with our contract with Shell.

Ultimately, the NCF Assertion has been approved by, and remains the responsibility of Shell.

### **LR's Approach**

Our verification has been conducted in accordance with ISO 14064–3:2006, 'Specification with guidance for validation and verification of greenhouse gas assertions' to provide limited assurance that

data and information as presented in the NCF Assertion have been prepared in conformance with the Shell document entitled SR.19.00134, The Net Carbon Footprint Model: Methodology (hereafter referred to as "SR.19.00134 NCF Methodology").

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

- Reviewed the Net Carbon Footprint model and calculations for the calendar year 2016 to determine conformance with the method document titled SR.19.00134 NCF Methodology. The scope of this verification did not include asset-level data review.
- Verified the scope of the Net Carbon Footprint model, including inclusions and exclusions;
- Confirmed the internal management system surrounding the Net Carbon Footprint model, including peer reviews and internal reviews;
- Investigated the integrity of input data and confirmed the reasonableness of assumptions regarding non-Shell processes;
- Interviewed relevant staff of the organization responsible for managing the Net Carbon Footprint model, calculation and governance processes.

### Level of Assurance & Materiality

The opinion expressed in this Assurance Statement has been formed based on a limited level of assurance and at a materiality of the professional judgment of the Verifier.

### LR's Opinion

Based on LRQA's approach, nothing has come to our attention that would cause us to believe that the NCF data and information as presented in the NCF Assertion are not materially correct or that Shell is not in conformance with the method document titled SR.19.00134 NCF Methodology.

Signed

Dated: May 20, 2021



Heather Moore, P.E.

LR Lead Verifier

On behalf of Lloyd's Register Quality Assurance Ltd (LR)

1 Trinity Park, Bickenhill Lane, Birmingham, B37 7ES, United Kingdom.

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