



GREENHOUSE GAS EMISSIONS ASSURANCE REPORT

Assurance of 2019 GHG Emissions for Cairn Energy PLC

Client:	Cairn Energy Plc
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1. Verification Statement

1.1 Introduction

This verification statement has been prepared for Cairn Energy PLC (Cairn) to provide assurance of the greenhouse gas (GHG) emissions reported for its 2019 operational and support activities as well as Cairn's obligations and commitments to report GHGs as a UK listed company.

Cairn's GHG emissions are reported in its Annual Report and Accounts 2019, Corporate Responsibility Report 2019 and Data Appendix 2019. These three documents will collectively be referred to as the "Cairn GHG Report" in this document.

1.2 Responsibility of ITP Energised

Verification has been directed by Andrew Bright, Director, ITP Energised, using the principles in BS EN ISO 14064-3:2012 for GHG verification and with reference to the WBCSD/WRI GHG Protocol and the Defra Corporate GHG Reporting Guidance. The data verified by this exercise was provided by Cairn employees, contractors and service providers. It covers all operated activities undertaken by Cairn during the reporting year as referred to by the Annual Reports and Accounts 2019. ITP Energised personnel undertaking this verification and assurance have not been involved in any data collection activities for Cairn, contractors or service providers during the reporting period. ITP Energised confirms that there is no conflict of interest arising and this verification statement and the assurance process has been undertaken independently.

1.3 Scope

The assurance engagement was to verify and comment on Cairn's GHG emissions as reported in the Cairn GHG Report, to show that the data is materially correct and representative of the available GHG emissions data and information and that it has been prepared in line with Cairn's reporting methodology.

The scope of the work focused on the following objectives:

- To provide assurance to Cairn's Management Team, the PLC Board and particularly external stakeholders about the accuracy and completeness of its GHG emissions data – Scope 1, 2 and 3 as well as GHG emissions normalised to the number of hours worked;
- To obtain feedback on the quality of Cairn's GHG emissions data reporting processes, including recommendations for improvement.

The assurance process centred on checking the GHG Reporting Database Credit360 (CR360). This included a review of the data collection methodology, a cross check of data manually entered into CR360, an independent calculation of the emissions and a check of the emissions factors in the system. The assurance looked at the organisational boundary to ensure this aligned with the stated data points.

1.4 Assurance

ITP Energised has provided verification of Cairn's 2019 greenhouse gas emissions as stated in the Cairn GHG Report. Within the scope of the limited assurance engagement, the GHG statements made are found to be materially correct. ITP Energised found that Cairn's data collection process and the data reporting platform, CR360, are robust and provide consistent and accurate output data when tested. ITP Energised are satisfied the GHG data is reliable and has been prepared in accordance with Cairn's defined reporting methodology.

1.5 Limitations and Responsibilities

Cairn is responsible for preparing the Cairn GHG Report. ITPE is responsible for verifying the data and reporting methodology and presenting the findings in the form of conclusions and recommendations. This



provides the limited assurance that the data is materially correct, is representative of available GHG data and information and has been prepared in accordance with the methodology defined for reporting by Cairn.

The majority of the GHG emissions data reported by Cairn are collected from activity undertaken by its contractors. While it is recognised that every effort is made by Cairn to ensure that the data received from contractors is correct, no assurance statement regarding verification of primary data collection and control is made.



2. Verification Approach

2.1 Introduction

Cairn uses the GHG data it records to report emissions in a number of internal and external forums. It publishes data in its Annual Reports & Accounts 2019, Corporate Responsibility Report 2019 and the associated Data Appendix 2019 (Cairn GHG Report) and follows the requirements of the Mandatory Carbon Reporting Regulations as set out in the Companies Act 2006 (Strategic Directors' Reports) Regulations 2013. In addition, Cairn reports to the CDP.

2.2 Mandatory Carbon Reporting Regulations requirements

The Mandatory Carbon Reporting Regulations require that reporting companies specify a base year and provide reporting for scope one (direct emissions) and scope two (indirect emissions from purchased energy flows) in the base year and the current reporting year. The emissions must be reported in total and normalised to the company's activities insofar as data is practicably available. The Regulations are non-specific concerning the methodology to be used but require that the chosen methodology be stated.

2.3 CPD requirements

The CDP requires that reporting companies specify a base year and provide reporting for scope one (direct emissions) and scope two (indirect emissions from purchased energy) in the base year and the current reporting year. It requires that an emissions reporting boundary is selected (financial control, operational control, equity share or other) and applied consistently to the data reported.

2.4 Organisation boundary

The Cairn GHG Report applies an operational control approach to boundary-setting, reporting all emissions from activities it controls (including those undertaken by contractors to Cairn). Non-operating ventures in which Cairn may hold equity but does not have operational control are excluded. This is consistent with the approach adopted in the previous year's GHG Report and the oil and gas industry in general.

2.5 Emissions scope and operational boundary

The operational boundary is set based on categories of GHG producing activities within the organisational boundary, defined by Cairn. A cross-check against operations reported in Cairn's 2019 Half-Yearly Report Announcement and Annual Report & Accounts 2019 indicates that activities generating material emissions (principally exploration drilling, seismic surveys, supply vessels, and business travel flights) have been included.

2.5.1 Scope 1

Direct emissions included in the GHG Report arise from fuel combustion on contractor operated assets. A minor contribution to the total emissions is also made by natural gas-fired heating. Emissions factors that include CO₂, CH₄ and N₂O from the "Kyoto basket" have been used for the Cairn GHG Report. These are relevant to the various forms of fuel combustion reported, and hence consistent with CDP and the Mandatory Carbon Reporting Regulations concerning the relevant GHGs for fuel combustion.

Cairn does not currently undertake any operated oil or gas production therefore fugitive scope 1 emissions are not included as an estimate within the Cairn GHG Report scope. Fugitive emissions associated with exploration drilling are unlikely to be material to the reported GHG emissions total, based on the default values for fugitive gas emissions from offshore oil and natural gas activities published by the Intergovernmental Panel on Climate Change (IPCC). Hydrofluorocarbon emissions (that could arise from fugitive refrigerant releases, for example) are not reported. Given the magnitude of other reported emissions



sources, it is unlikely that these fugitive emissions, if occurring, would be material. This is in line and consistent with previous GHG reporting undertaken.

2.5.2 Scope 2

Indirect emissions from purchased energy are reported for electricity consumption in the UK headquarters in Edinburgh, and for Cairn's offices in London (UK), Stavanger (Norway), Dakar (Senegal) and Mexico City (Mexico). Indirect emissions from purchased district heating and cooling in the Stavanger office are also reported. Electricity consumption of the Edinburgh office was calculated based on the available electricity invoices for 2019 (January-July) and estimated for the remaining 5 months. The missing information is related to the change of the building management company during 2019. The emissions associated with the use of electricity are not considered to be material.

2.5.3 Scope 3

Indirect emissions that are reported comprise of business air and rail travel (excluding London Underground) by Cairn employees and contractors and electricity transmission and distribution losses. No other scope 3 emissions (such as employee/contractor commuting in non-company vehicles) are reported. An inconsistent approach has been taken to using transmission and distribution emissions factors used within CR360. For some operational locations, country specific emissions factors have been used, for other operational locations generic emissions factors have been used despite country specific factors being available. This has resulted in a non-material impact on the reported scope 3 emission.

2.6 Baseline, reporting year, and previous reporting

Cairn reports emissions trends from a base year of four years earlier than the current reporting year (five years of data are reported each year), requiring that emissions are recalculated if there is a material change in calculation methodology, emissions factors, or approach to setting the organisation boundary. This is in line with the CDP's requirements, represents good practice GHG reporting and ensures that genuine emissions trends over time are reported.

Previous years' emissions prior to 2019 are outside the scope of this verification engagement. No material restatement of emissions in 2019 due to methodology or boundary changes has been required.

2.7 Normalised Emissions

Cairn normalises GHG emissions per 1,000 hours worked in order to identify and compare trends. Summary records of employee and contractor hours have been reviewed and the normalisation of GHG emissions to reported hours verified.

2.8 Calculations verification

Verification of GHG emissions calculations has been undertaken across all scopes. 98.3% percent of total reported GHG emissions arise from the following sources:

- Scope 1 fuel consumption (92.3%) predominantly comprising marine diesel consumption (91.4%) during the Suriname seismic campaign and the Lynghaug, Chimera and Mexico B9 drilling operations; and
- Scope 3 business air travel (7.0%).

2.9 Fuel Combustion

Monthly fuel consumption records are provided by seismic vessel, drilling rig, marine vessel and helicopter contractors to Cairn. Records are also provided for onshore vehicle diesel and petrol consumption. The emission factors used from the American Petroleum Institute (2009) are appropriate, with reference for



cross-comparison to those provided for company reporting in the UK by the Department for the Environment & Rural Affairs (Defra) and the Department for Business, Energy & Industrial Strategy (BEIS).

Activity data used in the GHG emission calculations has been verified against the monthly fuel records provided by the contractors. The majority of fuel combustion was derived from contractors undertaking activities during the Suriname seismic campaign and the Lynghaug, Chimera and Mexico B9 drilling operations. Additional fuel combustion was associated with a small amount of gas consumption at its Edinburgh office and fuel utilised in vehicles in Dakar.

2.10 Business Travel

Air and rail travel activity data is collected primarily by Cairn's travel agents in the UK and Norway, supplemented by trip data recorded through staff expense claims. For air travel, kilometres per passenger are recorded in categories consistent with those in the Defra and BEIS reporting guidance, allowing appropriate emission factors per category including uplift for additional non-GHG radiative forcing to be applied.

Rail travel by London Underground is excluded. This is not material to total Cairn GHG emissions.

2.11 Hours worked

GHG data has been normalised against hours worked. As Cairn is not currently an oil & gas producer, but is focused on exploration, hours worked is the only consistent year on year metric which can sensibly be utilised to normalise the GHG data and assess performance trends. The normalisation of GHG emissions to working hours has been accurately calculated.

Cairn records the employee hours (worldwide) and long-term UK and Norway-based contractor hours in a time writing system, which is an established tool of its HR and finance teams. The time writing system has not been assured as part of this verification scope.

The hours of short term contractors are estimated from lists of contractors and days worked. Records of hours worked by contractors in field operations are provided by rig, vessel and helicopter operators.

No material errors in data entry for hours worked has have been identified.

2.12 Electricity consumption

Electricity consumption in Cairn's Edinburgh, London, Stavanger, Dakar and Mexico City offices is recorded in kWh based on meter readings and suppliers' invoices. The electricity consumption of the Edinburgh office was calculated based on the available electricity invoices for 2019 (January-July) and estimated for the remaining 5 months. These uncertainties are not material to total GHG emissions reported by Cairn.

Scope 2 electricity consumption emissions are calculated using grid mix factors for each country published by the International Energy Agency (IEA) in 2019, the latest IEA factor set that is readily available, for each country concerned, excluding transmission and distribution losses. Market-based emissions for the Edinburgh and London offices are reported as zero, based on suppliers' certification of providing 100% renewable energy.

No material errors or discrepancies in electricity data input or calculations have been identified.

2.13 Data collection and control

Data collection is by Cairn employees, contractors and service providers in the UK and internationally, overseen by the HSE team based in Cairn's head office in Edinburgh.

Verification of primary data collection accuracy, by sampling or audit of primary data collection records and methods, is outside the scope of this verification report, save in respect of the data cross-checks detailed in



the calculation section. No assurance statement regarding verification of primary data collection and control is therefore made.

Cairn's Data Manager describes a thorough data collection and control process, with records retained of data entry spreadsheets, queries and primary data sources that have been reviewed. Data is entered into the CR360 database which is a 3rd party product, by the Cairn Data Manager. CR360 is used by Cairn as a tool for managing all its corporate responsibility data.

ITPEnergised has identified three minor risk observations during the assurance and verification process. These are:

- **Data input:** data was input in the wrong units resulting in incorrect GHG calculation; however this was corrected during the assurance and verification process;
- **CR360 database emission factors:** the emission factors within the CR360 database were revised part way through the assurance process and in some cases are not being used consistently in the calculation of CO₂ emissions (scope 3 non-material issues, Section 2.5.3 above); and
- **Data control:** direct auditing or calibration of instrumentation. Cairn is reliant on contractors to ensure that all metering equipment is calibrated and accurate.

Through the assurance process, ITPEnergised recognises that the processes in place within Cairn are well managed and robustly monitored. Our view is that the risks outlined above are not material.

2.14 Verifier qualifications and independence

Verification has been directed by Andrew Bright, Director of ITPEnergised. Andrew is a Chartered Environmentalist and Member of the Institute of Environmental Management and Assessment (IEMA). Scott Chambers is a Principal Consultant and managed the data analysis and sampling.

ITPEnergised is an independent professional services company that specialises in environmental and energy consulting and advisory services. ITPEnergised operates a certified Quality Management System which complies with the requirements of ISO 9001:2015, and accordingly maintains a comprehensive system of quality control including documented policies and procedures regarding compliance with ethical requirements, professional standards and applicable legal and regulatory requirements.

ITPE performed the assurance using the principles in BS EN ISO 14064-3:2012 for GHG verification. We also referred to the WBCSD/WRI GHG Protocol and the Defra Corporate GHG Reporting Guidance in conducting our assurance work.

ITPEnergised has previously supported Cairn with a review of the applicable emission factors utilised in the CR360 database procured by Cairn. Our data assurance lead, Scott Chambers, was not previously involved with this project. Our assurance team was not involved in data gathering.



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