



Greenhouse Gas Inventory

Contact Energy Ltd

Prepared by: Nakia Randle, Sustainability Advisor

Approved by: Kaapua Smith, Head of Sustainability

1 Introduction

Contact Energy (Contact) is one of the largest electricity suppliers in New Zealand. We utilise many natural resources to generate electricity and recognise the important role we play in protecting our natural environment. We believe that climate change is real and that its effects are significant and wide-ranging. We also believe that New Zealand can harness its natural advantages and turn one of the world's greatest challenges into New Zealand's greatest opportunity.

As part of our commitment to help New Zealand transition to a low-carbon economy, we are also looking at our own operations and processes and working to continually reduce our emissions.

This is Contact's second annual greenhouse gas (GHG) emissions inventory report. The inventory is a complete and accurate report of the GHG emissions that result from Contact's operations within the declared boundary and scope for the reporting period. The inventory has been prepared in accordance with the Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (2004) (the GHG Protocol).

Contact has reported its Scope 1 – direct – emissions since 2012. Scope 2 and 3 indirect emissions have been reported since 2018. 2018 is used as the base year because of the inclusion of all scopes.

No facilities, operations and/or emissions sources have been excluded from the inventory.

The reporting period covered is from 1 July 2018 to 30 June 2019.

2 Organisational boundaries

The organisational boundary determines the parameters for GHG reporting and ensures a consistent approach is applied when assessing which factors to include. Contact's boundaries have been set following the GHG protocol methodology.

Contact has applied the operational control consolidation approach. This allows us to focus on those emissions sources that we have control over and therefore the ability to improve upon. The boundary encompasses all operations owned or controlled by Contact and Rockgas Limited (until the date of sale)¹.

¹ Contact sold its LPG business Rockgas on 30 November 2018. Emissions data relating to Rockgas are included in this inventory where appropriate.

3 Operational boundaries

Contact has chosen to include Scope 1, 2 and 3 emissions in this GHG inventory.

Scope 1 – Direct GHG emissions

Scope 1 includes GHG emissions from sources that are owned or controlled by Contact. These include all of the electricity generation sites, fuel used in vehicles owned or leased by Contact and any fugitive emissions released (SF6).

Scope 2 – Electricity indirect GHG emissions

Scope 2 accounts for GHG emissions from the generation of purchased electricity consumed by the company. Purchased electricity is defined as electricity that is purchased or otherwise brought into the organisational boundary of the company. For Contact, this means that power consumed at generation sites is not included as the electricity is not yet exported to the grid, except in cases where the operating plant is down and backup electricity is being drawn from the grid. Electricity that is consumed at other relevant sites include utility sites used for the generation of electricity (e.g Water intake pumps), LPG branches, corporate offices and LPG fixed assets.

Scope 2 emissions have been reported using location based emissions factors as market based emissions factors are not available in New Zealand.

Scope 3 – Other indirect GHG emissions

Scope 3 emissions are a consequence of the activities of the company, but occur from sources not owned or controlled by the company. Reporting on these emissions is optional under the GHG protocol.

Contact has determined which categories are relevant using the following criteria:

- Relevance to our operations;
- A significant contributor to overall GHG emissions;
- Connected to stakeholder interests;
- Availability of data; and
- Able to be influenced/reduced.

The following table details which categories have been included.

Table 1: Scope 3 categories

Category	Included/excluded	Justification	Information source
Category 1 – Purchased goods and services	Included	Estimation using the spend based approach.	Spend based approach
Category 2 – Capital goods	Included	All capex activity over \$500k within reporting period. This is approximately 76% of the total capital spend.	Spend based approach using emissions factors by relevant project type.
	Included	Upstream emissions of purchased fuels for generation sites.	Fuel records

Category 3 – Fuel and energy		(Transportation of fuel, transmission and distribution, extraction, production)	Method of transportation and distance
		Transmission and Distribution Losses from electricity purchased.	Electricity bills
		Generation of purchased electricity that is sold to end users. (Genesis swaption)	Trading records/contracts
Category 4 – Upstream transportation and distribution	Included	Freight of major operating materials.	Spend based approach
Category 5 – Waste	Included	Waste from all operational and office sites.	Waste collection provider where possible, estimate where data not available.
Category 6 – Business travel	Included	Air travel (domestic and international)	Travel provider
		Car travel (rental cars)	Travel provider
		Car travel (taxis and private vehicles)	Finance records
Category 7 – Employee commuting	Included	Estimate using average country data.	Staff numbers for each site
Category 8 – Upstream leased assets	Excluded	All leased sites electricity consumption data is included in Scope 2 – operational control.	
Category 9 – Downstream transportation and distribution	Excluded	There is no transportation or distribution of products after the point of sale.	
Category 10 – Processing of sold products	Excluded	There is no processing of sold products by the reporting company.	
Category 11 – Use of sold products	Included	LPG sales. (Including sales made on behalf of NZ First Gas after the sale of Rockgas)	LPG purchases/sales
Category 12 – End of life treatment of sold products	Excluded	There is no remaining product to be disposed of at the end of use.	
Category 13 – Downstream leased assets	Included	Contact has on-leased property – estimates provided by lessee.	Estimates
Category 14 – Franchises	Included	Rockgas Franchises (branches are included in Scope 1 & 2). Included until sale of Rockgas	Estimated based on FY18 results (as Contact can no longer access Rockgas data post sale)
Category 15 – Investments	Excluded	Investments deemed to be minimal and no data available.	

4 Base Year

FY18 emissions reporting (Scope 1, 2 and 3) form the base year for all GHG emissions. FY18 was the first year that the full emissions suite were recorded and reported.

As per the Contact policy for the recalculation of base year emissions data, any structural, methodological or other changes identified that change the emissions reported by more than 5% will trigger a recalculation of the base year and the current reporting year.

5 Greenhouse gas inventory

Table 2: Greenhouse gas emissions inventory summary 1 July 2018 – 30 June 2019

Scope	Category	FY19 tCO ₂ e	FY18 tCO ₂ e
Direct emissions (Scope 1)	Stationary Combustion	984,903	1,174,698 ²
	Mobile combustion	880	1072 ³
	Fugitive emissions ¹	122	2
	Subtotal	985,905	1,175,772
Indirect emissions (Scope 2)	Electricity consumption (location based)	1374	1397 ⁴
	Subtotal	1374	1397
Scope 1 & 2	TOTAL	987,279	1,177,169
Indirect emissions (Scope 3)	Purchased goods and services	35,267	47,507
	Capital goods	6,536	13,899
	Fuel and energy related activities	175,811	77,049
	Upstream distribution and transportation	628	116
	Waste	148	134
	Business travel	1,256	1182
	Employee commuting	2	2
	Use of sold products	301,640	370,168 ⁵
	Downstream leased assets	445	586
	Franchises	2,069	4,536
	Subtotal	523,802	515,179
Scope 1, 2 & 3	TOTAL	1,511,081	1,692,348

¹ SF₆ data is only collected once annually. Any leakages from 01 Jan 2019 – 30 Jun 2019 will be reported in FY20 report.

² FY18 figure updated due to finalised data becoming available (estimates were used previously).

³ FY18 figure updated due to finalised data becoming available (estimates were used previously).

⁴ FY18 figure restated due to an additional data set being identified.

⁵ FY18 figure restated due to an additional data set being identified.

This information is shown by scope in the following graph:

Figure 1: Total greenhouse gas emissions by scope

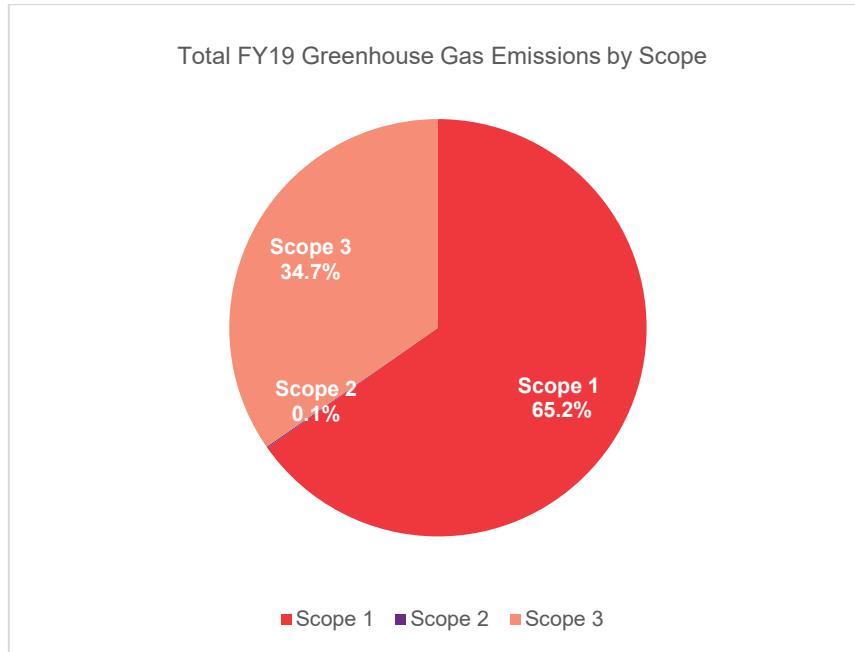


Table 3: Total greenhouse gas emissions by greenhouse gas

GHG Gas	Volume (tonnes)	tCO ₂ e
CO ₂	1,510,960	1,510,960
CH ₄	0	
N ₂ O	0	
HFCs	0	
SF ₆	0.005	122
TOTAL		1,511,082

Table 4: Ratio performance indicators

Emissions	FY19	FY18
Total generation emission intensity (tCO ₂ e per MWh)	0.111	0.136
Thermal generation emission intensity (tCO ₂ e per MWh)	0.547	0.530

Table 5: Activity data

Activity amount	FY19	FY18
Scope 1 activity amount (MWh)	8,908,000	8,613,687
Scope 2 activity amount (kWh)	13,767,741	13,577,798

6 Methodologies and emission factors

Table 1 provides some detail on the source of the data and how it was collected for each scope. All data is maintained by the Sustainability Team however data is contributed from other parts of the business including Accounts, Geothermal Resources, Operations, Trading and our suppliers.

Most scope 2 data is calculated using e-bench, an online database provided and maintained by EnergyTS. Data is automatically uploaded from individual connection points for all of Contacts electricity usage. EnergyTS maintain a database of emissions factors, the original source for purchased electricity is the Ministry for the Environment.

All other emissions calculations are completed within Microsoft Excel, using the emissions source data multiplied by an emissions factor.

Emissions factors were sourced from the Ministry for the Environment's *Guidance for Voluntary Greenhouse Gas Reporting – 2019*, except in the following cases:

Scope 1:

- Gas field specific emissions factors are provided by the supplier
- Geothermal field specific factors approved under the *Climate Change (Unique Emissions Factor) regulations 2009*.
- SF₆ is sourced from the Intergovernmental Panel on Climate Change (IPCC) fifth assessment report.

Scope 3:

- Categories 1, 2 and 4 include emissions factors sourced from the Carnegie Mellon University *Economic Input-Output Lifecycle Assessment* at www.eiolca.net.

7 Emission Reduction Targets

Contact has set emission reduction targets as part of the Science Based Targets initiative (SBTi), and these were approved in April 2019. The sectoral decarbonisation methodology has been used to set emissions targets in line with limiting global warming to two degrees. Our verified targets are as follows:

- (a) 30% reduction of 2018 Scope 1 and 2 emissions by 2030 (Absolute emissions reduction target)
- (b) 15% reduction of 2018 Scope 3 GHG emissions from use of sold products

We have also set an internal conversion target of:

- 1PJ of industrial heat converted to electricity by 2022 (Electrification target)

These targets do not include any offsetting from domestic or international schemes.

Since these targets were set, the Science Based Targets initiative has recommended that targets be updated to align with the science required to meet 1.5 degrees of global temperature increase. We are in the process of having our new targets verified by the initiative.

8 Assurance

FY19 Scope 1, 2 and 3 emissions underwent limited assurance by an independent third party assurance provider.

A handwritten signature in cursive script, appearing to read "Kaapua Smith".

Kaapua Smith
Head of Sustainability
Contact Energy



INDEPENDENT LIMITED ASSURANCE REPORT TO THE BOARD OF DIRECTORS OF CONTACT ENERGY LIMITED

Report on Greenhouse Gas Emissions Report

We have undertaken a limited assurance engagement in relation to the Greenhouse Gas Inventory Report (the 'Inventory Report') of Contact Energy Limited for the year ended 30 June 2019.

The Inventory Report provides information about the greenhouse gas emissions of Contact Energy Limited for the year ended 30 June 2019 and is based on historical information. This information is stated in accordance with the requirements of the Greenhouse Gas Protocol: *A Corporate Accounting and Reporting Standard (2004)* ('the GHG Protocol').

Board of Directors' Responsibility

The Board of Directors are responsible for the preparation of the Inventory Report, in accordance with the GHG Protocol. This responsibility includes the design, implementation and maintenance of internal control relevant to the preparation of an Inventory Report that is free from material misstatement, whether due to fraud or error.

Our Responsibility

Our responsibility is to express a limited assurance conclusion on the Inventory Report based on the evidence we have obtained. We conducted our limited assurance engagements in accordance with International Standard on Assurance Engagements (New Zealand) 3410: *Assurance Engagements on Greenhouse Gas Statements* ('ISAE (NZ) 3410'), issued by the New Zealand Auditing and Assurance Standards Board. That standard requires that we plan and perform the engagement so as to obtain limited assurance within the Inventory Report.

A limited assurance engagement undertaken in accordance with ISAE (NZ) 3410 involves assessing the suitability in the circumstances of the Company's use of the GHG Protocol as the basis for the preparation of the inventory report, assessing the risks of material misstatement of the inventory report whether due to fraud or error, responding to the assessed risks as necessary in the circumstances, and evaluating the overall presentation of the inventory report. A limited assurance engagement is substantially less in scope than a reasonable assurance engagement in relation to both the risk assessment procedures, including an understanding of internal control, and the procedures performed in response to the assessed risks.

The procedures we performed were based on our professional judgement and included enquiries, observations of processes performed, inspection of documents, analytical procedures, evaluating the appropriateness of quantification methods and reporting policies, and agreeing or reconciling with underlying records.

Given the circumstances of the engagement, in performing the procedures listed above we:

- Reviewed of adherence to the principles and requirements outlined in the GHG Protocol, which included a consideration of completeness and balance;
- Obtained an understanding of the process of compiling and validating information received from data owners for inclusion in the Inventory Report;
- Reviewed material quantitative data, including corroborative enquiry and examined selected supporting documentation and calculations;
- Compared the Inventory Report to the reporting requirements of the GHG Protocol; and
- Reviewed the contents of the Inventory Report against the findings of our work and, as necessary, and provided recommendations for improvement.

Inherent Limitations

Non-financial information, such as that included in the Inventory Report, is subject to more inherent limitations than financial information, given both its nature and the methods used and assumptions applied in determining, calculating and sampling or estimating such information. Specifically, GHG

quantification is subject to inherent uncertainty because of incomplete scientific knowledge used to determine emissions factors and the values needed to combine emissions of different gases.

As the procedures performed for this engagement are not performed continuously throughout the relevant period and the procedures performed in respect of the Company's compliance with the GHG Protocol are undertaken on a test basis, our assurance engagement cannot be relied on to detect all instances where the company may not have complied with the GHG Protocol. Because of these inherent limitations, it is possible that fraud, error or non-compliance may occur and not be detected.

The Company uses publicly available emissions factors in preparation of the Greenhouse Gas Inventory. We have agreed these to their source, but the scope of the engagement does not provide assurance over the emissions factors.

Our Independence and Quality Control

We have complied with the independence and other ethical requirements of Professional and Ethical Standard 1 (Revised): *Code of Ethics for Assurance Practitioners* issued by the New Zealand Auditing and Assurance Standards Board, which is founded on fundamental principles of integrity, objectivity, professional competence and due care, confidentiality and professional behaviour.

Our firm provides other services to Contact Energy Limited. In addition, principals and employees of our firm deal with Contact Energy Limited on arm's length terms within the ordinary course of trading activities of Contact Energy Limited. These services have not impaired our independence for the purposes of this engagement. Other than these engagements and arm's length transactions, we have no relationship with, or interests in Contact Energy Limited.

The firm applies Professional and Ethical Standard 3 (Amended): *Quality Control for Firms that Perform Audits and Reviews of Financial Statements, and Other Assurance Engagements* issued by the New Zealand Auditing and Assurance Standards Board, 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.

Use of Report

Our assurance report is made solely to the directors of Contact Energy Limited in accordance with the terms of our engagement. Our work has been undertaken so that we might state to the directors those matters we have been engaged to state in this assurance report and for no other purpose. Our report is provided solely for your exclusive use and solely for the purpose outlined above. Our report is not to be used for any other purpose, recited or referred to in any document, copied or made available (in whole or in part) to any other person without our prior written express consent. We accept or assume no duty, responsibility or liability to any other party in connection with the report or this engagement, including without limitation, liability for negligence in relation to the opinion expressed in this report.

Limited Assurance Conclusion

Based on the procedures we have performed and the evidence we have obtained, nothing has come to our attention that causes us to believe that Contact Energy Limited's Inventory Report for the year ended 30 June 2019 are not prepared, in all material respects, in accordance with the requirements of the GHG Protocol.

Deloitte Limited

Auckland, New Zealand
18 September 2019