



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 third 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 2019 to 30 June 2020.

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.

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) and corporate offices.

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 87% of the total capital spend.	Spend based approach using emissions factors by relevant project type.
Category 3 – Fuel and energy	Included	Upstream emissions of purchased fuels for generation sites. (Transportation of fuel, transmission and distribution, extraction, production)	Fuel records 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	Natural gas sales.	Volume sold records
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	Excluded	There are no franchise arrangements (Rockgas franchises were sold on 30 November 2018).	
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 2019 – 30 June 2020

Scope	Category	FY20 tCO ₂ e	FY19 tCO ₂ e
Direct emissions (Scope 1)	Stationary Combustion	920,403	984,903
	Mobile combustion	270	880
	Fugitive emissions ¹	4 ¹	122
	Subtotal	920,677	985,905
Indirect emissions (Scope 2)	Electricity consumption (location based)	1,258	1374
	Subtotal	1,258	1374
Scope 1 & 2	TOTAL	921,935	987,279
Indirect emissions (Scope 3)	Purchased goods and services	39,397	35,267
	Capital goods	18,052	6,536
	Fuel and energy related activities	91,857	175,811
	Upstream distribution and transportation	14	628
	Waste	123	148
	Business travel	719	1,256
	Employee commuting	606	514 ²
	Use of sold products	166,310	301,640
	Downstream leased assets	306	445
	Franchises	0 ³	2,069
	Subtotal	317,384	524,314
Scope 1, 2 & 3	TOTAL	1,239,319	1,511,081

¹ SF₆ data is only collected once annually. Any leakages from 01 January – 30 June 2020 will be reported in FY21 report.

² Figure restated due to calculation error.

³ No emissions from Franchises. Contact sold Rockgas Franchises (LPG business) on 30 November 2018.

This information is shown by scope in the following graph:

Figure 1: Total greenhouse gas emissions by scope

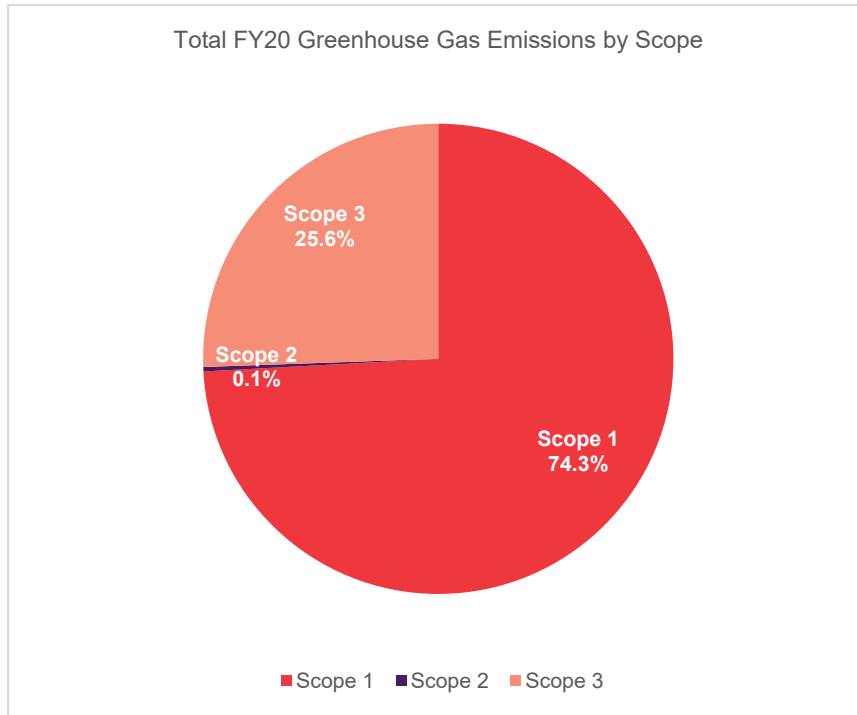


Table 3: Total greenhouse gas emissions by greenhouse gas

GHG Gas	Volume (tonnes)	tCO ₂ e
CO ₂	1,239,315	1,239,315
CH ₄	0	
N ₂ O	0	
HFCs	0	
SF ₆	0.0002	4
TOTAL		1,239,319

Table 4: Ratio performance indicators

Emissions	FY20	FY19
Total generation emission intensity (tCO ₂ e per MWh)	0.109	0.111
Thermal generation emission intensity (tCO ₂ e per MWh)	0.532	0.550

Table 5: Activity data

Activity amount	FY20	FY19
Scope 1 activity amount (MWh)	8,524,000	8,908,000
Scope 2 activity amount (kWh)	12,598,506	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 CarbonEMS. Data is automatically uploaded from individual connection points for all of Contacts electricity usage. Carbon EMS 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). In September 2019 we updated our targets to the highest level of ambition for the energy industry globally and in line with limiting global warming to well-below two degrees. Our verified targets are as follows:

- (a) 34% reduction of 2018 Scope 1 and 2 emissions by 2026 (Absolute emissions reduction target)
- (b) 30% reduction of 2018 Scope 3 GHG emissions from use of sold products by 2026

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.

Contact has made significant progress on our science-based targets. We have achieved our Scope 3 target. Our Scope 1 and 2 emissions have also reduced by 22% on an FY18 base year.

8 Assurance

The FY20 Greenhouse Gas emissions totals as disclosed in table two of the Greenhouse Gas Inventory report underwent limited assurance by an independent third party assurance provider.



Kaapua Smith
Head of Sustainability
Contact Energy



Independent Limited Assurance Report to the Directors of Contact Energy Limited

Conclusion

Our limited assurance conclusion has been formed on the basis of the matters outlined in this report.

Based on our limited assurance engagement, which is not a reasonable assurance engagement or an audit, nothing has come to our attention that would lead us to believe that the Greenhouse Gas (GHG) emissions totals as disclosed in table 2 of the Greenhouse Gas (GHG) Emissions Inventory Report has not, in all material respects, been prepared in accordance with the Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (2004) for the period 1 July 2019 to 30 June 2020.

Information subject to assurance

We have performed an engagement to provide limited assurance in relation to the Greenhouse Gas (GHG) emissions totals as disclosed in table 2 of Contact's Greenhouse Gas (GHG) Emissions Inventory Report for the period 1 July 2019 to 30 June 2020.

Criteria

The subject matter of the Greenhouse Gas (GHG) emissions totals as disclosed in table 2 of the Greenhouse Gas (GHG) Emissions Inventory Report was evaluated against the Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (2004) (the 'Greenhouse Gas Protocol') for the period 1 July 2019 to 30 June 2020.

Standards we followed

We conducted our limited assurance engagement in accordance with International Standard on Assurance Engagements (New Zealand) 3000 (Revised) *Assurance Engagements Other Than Audits or Reviews of Historical Financial Information* ('ISAE (NZ) 3000 (Revised)') and International Standard on Assurance engagements (New Zealand) 3410 *Assurance Engagements on Greenhouse Gas Statements* ('ISAE (NZ) 3410'). We believe that the evidence we have obtained is sufficient and appropriate to provide a basis for our conclusion. In accordance with those standards we have:

- used our professional judgement to plan and perform the engagement to obtain limited assurance that the Greenhouse Gas (GHG) emissions totals as disclosed in table 2 of the Greenhouse Gas (GHG) Emissions Inventory Report is free from material misstatement, whether due to fraud or error;
- considered relevant internal controls when designing our assurance procedures, however we do not express a conclusion on the effectiveness of these controls; and
- ensured that the engagement team possess the appropriate knowledge, skills and professional competencies.

The procedures performed in a limited assurance engagement vary in nature and timing from and are less in extent than for a reasonable assurance engagement. Consequently, the level of assurance obtained in a limited assurance engagement is substantially lower than the assurance that would have been obtained had a reasonable assurance engagement been performed.



Restriction of distribution and use

Our report should not be regarded as suitable to be used or relied on by any party's other than Contact Energy Limited for any purpose or in any context. Any party other than Contact Energy Limited who obtains access to our report or a copy thereof and chooses to rely on our report (or any part thereof) will do so at its own risk.

To the fullest extent permitted by law, we accept or assume no responsibility and deny any liability to any party other than Contact Energy Limited for our work, for this independent limited assurance report, or for the conclusions we have reached.

Our report is released to Contact Energy Limited on the basis that it shall not be copied, referred to or disclosed, in whole (save for Contact Energy Limited's own internal purposes) or in part, without our prior written consent.

Managements' responsibility for Greenhouse Gas Emissions Inventory Report

Management of Contact Energy Limited are responsible for the preparation and fair presentation of the Greenhouse Gas (GHG) emissions totals as disclosed in table 2 of the Greenhouse Gas (GHG) Emissions Inventory Report in accordance with the Greenhouse Gas Protocol. This responsibility includes such internal control as Management determine is necessary to enable the preparation of the Greenhouse Gas (GHG) emissions totals as disclosed in table 2 of the Greenhouse Gas (GHG) Emissions Inventory Report that is free from material misstatement whether due to fraud or error.

Our responsibility

Our responsibility is to express a conclusion to the directors on whether anything has come to our attention that the Greenhouse Gas (GHG) emissions totals as disclosed in table 2 of the Greenhouse Gas (GHG) Emissions Inventory Report has not, in all material respects, been prepared in accordance with the requirements of the Greenhouse Gas Protocol.

Our independence and quality control

We have complied with the independence and other ethical requirements of Professional and Ethical Standard 1 (Revised) 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.

The firm applies Professional and Ethical Standard 3 (Amended) 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.

Our firm has also provided statutory audit and other assurance services to the company. Subject to certain restrictions, partners and employees of our firm may also deal with Contact Energy Limited on normal terms within the ordinary course of trading activities of the business of Contact Energy Limited. These matters have not impaired our independence as assurance providers of Contact Energy Limited for this engagement. The firm has no other relationship with, or interest in, Contact.

A handwritten signature of the KPMG firm, written in blue ink.

KPMG
Wellington
4 August 2020