Transpower Greenhouse Gas Emissions Inventory Report 2019-20

Transpower New Zealand Limited

January 2021

Keeping the energy flowing

TRANSPOWER

Transpower New Zealand Limited The National Grid

GREENHOUSE GAS EMISSIONS INVENTORY SUMMARY FY20

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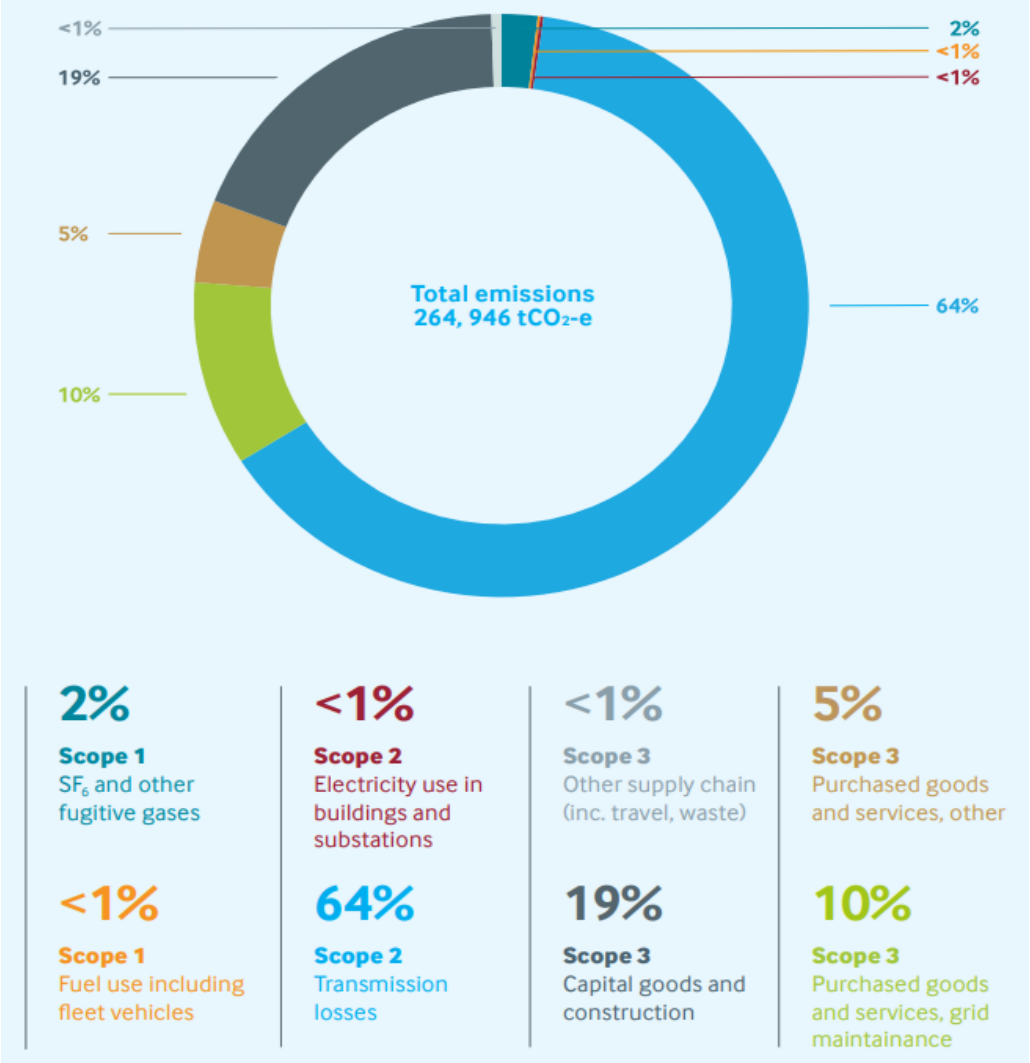
Transpower's total greenhouse gas (GHG) emissions for 2019/20 were approximately 264,946 tCO_2e (tonnes of carbon dioxide equivalent). The figure and table below show the main emission sources and GHG categories.



Scope	Category	2019/20 tCO_2e
Direct emissions (Scope 1)	Fuel use including fleet vehicles	355
	SF6, and other fugitive gases	5,037
	Subtotal:	**5,391**
Indirect emissions (Scope 2)	Electricity use in buildings and substations	448
	Transmission losses	169,161
	Subtotal:	**169,609**
Indirect emissions (Scope 3)	Purchased goods and services, grid maintenance	27,092
	Purchased goods and services, other	12,124
	Capital goods and construction	49,348
	Other supply chain (including business travel, waste, employee commuting)	1,381
	Subtotal:	**89,945**
Total emissions:		**264,946**

1. INTRODUCTION

This inventory reports greenhouse gas (GHG) emissions that can be directly attributed to Transpower's operations for the specified period, and an approximate count of emissions that can be indirectly attributed.

Transpower has published a Carbon Footprint report according to the international Greenhouse Gas (GHG) Protocol and ISO 14046 since 2006. During FY 2018/19 Transpower commissioned an external review of its carbon accounting methodology to ensure it aligns with the updated standard ISO 14064-1:2018. As a result, Transpower expanded the scope of its carbon accounting to include more comprehensive supply chain data.

Transpower is committed to environmental sustainability and enabling the reduction of New Zealand's overall energy emissions as it transitions to a net zero carbon economy. Renewable energy is at the heart of the sustainable development agenda and Transpower is supporting a low carbon future through enabling the shift in New Zealand's energy use from fossil fuels to renewable electricity.

Transpower is taking a two-pronged approach in terms of the role it can play in the move towards a net-zero economy. The first focuses on increasing the share and availability of renewable energy generation in the electricity system by supporting new customer connections, investments across the National Grid and in terms of its real time operation. Not only does this help decarbonise the electricity system, it facilitates the provision of low-carbon energy for the decarbonisation of other sectors, most importantly, process heat and transport.

Secondly, Transpower is committed to reducing the greenhouse gas emissions arising from its own operations and to building resilience of its assets to the effects of climate change such as more frequent and severe extreme weather events and longer-term sea level rise. Doing so is a central pillar of Transpower's 2020 Sustainability Strategy. Its delivery extends beyond Transpower, to include acting with its service providers and suppliers who undertake much of the work for the ongoing development and maintenance of the National Grid.

2. PURPOSE OF THE REPORT

Transpower publishes its Greenhouse Gas Emissions Inventory Report annually and aims to consistently account for its GHG emissions using best practice greenhouse gas accounting standards.

This report relates to the GHG emissions of Transpower New Zealand Ltd. It has been prepared according to ISO 14064-1:2018, the *Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard* (2004) (the GHG Protocol), Scope 2 guidance and the Scope 3 Standard. It does not include any future forecasts or targets. This inventory report has been audited by a third-party independent assurance provider in accordance with the International Standard on Assurance Engagements (New Zealand) 3000 *Assurance Engagements other than Audits or Reviews of Historical Financial Information* and International Standard on Assurance Engagements (New Zealand) 3410 *Assurance Engagements on Greenhouse Gas Statements* issued by the External Reporting Board (refer Appendix 2).

While this Report will be of interest to government, investors regulators, customers and non-governmental organisations, its primary purpose is to inform Transpower's own emissions management, reduction and reporting activities.

3. DESCRIPTION OF TRANSPOWER

Transpower owns Aotearoa New Zealand's high voltage electricity transmission system, the National Grid. It is also responsible, under contract to the Electricity Authority as System Operator, for the real time operation of the electricity transmission system and wholesale electricity market. Transpower is a limited liability company and a State-Owned Enterprise (SOE) with its shares held on behalf of the Crown by the Minister of Finance and the Minister for State Owned Enterprises. Further information about Transpower is available at https://www.transpower.co.nz/about-us.

3.1 TRANSPOWER'S SUSTAINABILITY STRATEGY AND PROGRAMMES

Transpower's purpose is Whakamana i te mauri hiko tū mai Aotearoa | Empowering the energy future for New Zealand.

In 2020, Transpower published its updated scenarios for the transition to a zero-carbon economy: *Whakamana i Te Mauri Hiko – Empowering our Energy Future*. This is principally driven by a move towards an increasingly renewable electricity system being used to electrify key sectors of the energy economy; principally transport and process heat.

Transpower's Strategy, *Transmission Tomorrow*, focuses on the actions Transpower needs to take to give effect to this transition. In its planning, investment and operational functions, Transpower works with its customers, within its regulatory framework, to deliver and operate the National Grid.

Transpower's Sustainability Strategy guides its activities in the areas of climate change, environmental stewardship, sustainable business and its communities. Key climate change related goals within the Strategy are aligned with the United Nations Sustainable Development Goals: Goal 7 Clean and affordable energy, Goal 9 Industry, innovation and infrastructure, and Goal 11 Climate action.

4. REPORTING PERIOD

This report describes Transpower's greenhouse gas (GHG) emissions inventory for the period 1 July 2019 to 30 June 2020. A summary of this GHG inventory report has been published in Transpower's Annual Review 2019/20 for the current reporting period (published September 2020).

This inventory provides an accurate account of Scope 1 and 2 GHG emissions for the reporting period. The quality and availability of third-party source data for Scope 3 emissions is more approximate. This is further discussed in Section 9.

5. RESPONSIBLE PERSONS

This emissions inventory has been prepared from inputs from various teams at Transpower including:

- Environmental policy and planning: GHG emissions inventory data collection and preparation;
- Energy Market Services: National Grid transmission losses, energy consumption at substations;
- Primary assets engineering: SF6 gas emissions and inventory;
- Facilities team: office and warehouse energy consumption, vehicle fleet fuel, air travel;
- Procurement: financial spend on Scope 3 purchased goods and services and capital goods;

- Service providers: backup generator diesel consumption, heat pump refrigeration gas;
- Business administration: staff travel mileage claims, car rental and taxis; and
- Treasury team: surrender of NZU emission units.

6. ORGANISATIONAL BOUNDARIES

Transpower applies the operational control consolidation approach in accounting for its emissions in the inventory. As such, this sets the organisational boundary for which emissions are reported.

The Transpower New Zealand (Transpower) structure at 30 June 2020 is shown in Figure 1.

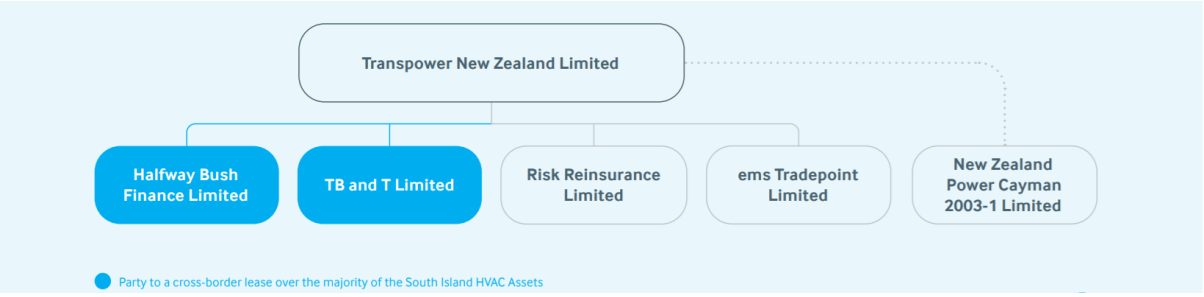


Figure 1 Transpower New Zealand Structure, at 30 June 2020.

The organisational boundary for the emissions inventory *includes* the operations and emissions associated with Transpower New Zealand Ltd and emsTradepoint Ltd.

Zero emissions are recorded against New Zealand Power Cayman Ltd (NZPC) as Transpower no longer has a ownership interest in it. Halfway Bush Finance Limited and TB and T Limited are dormant and therefore have no operations against which emissions arise. Risk Reinsurance Limited (RRL) is Transpower's captive insurance subsidiary.

7. INFORMATION MANAGEMENT PROCEDURES

During FY20 Transpower transferred the information management of GHG emissions-related data into a centralised carbon reporting software tool, BraveGen, to improve its data handling, information management processes, and increase the visibility of results for management review. The procedure for managing GHG information in FY20 was:

- Source activity data was collected directly from third party suppliers, Transpower National Grid metering systems, operational databases and procurement and accounting software;
- Source data was reviewed by the Environmental Policy and Planning team before being transferred into the BraveGen carbon reporting software tool;
- The GHG emissions inventory was compiled using activity source data and emission factors*;
- GHG emission results are calculated using BraveGen.
- The annual GHG emissions inventory was analysed against previous years GHG emissions inventory to identify anomalies and trends and to identify opportunities to reduce emissions.
- The GHG emissions inventory report and methodology was then independently audited.

**Emissions factors and conversion factors used in the BraveGen software are maintained by BraveGen. These were cross checked with emission factors used previously by Transpower and revisions undertaken in some cases.*

8. OPERATIONAL BOUNDARIES

Sources of GHG emissions from Transpower's activities are identified using the methodology from the GHG Protocol, ISO 14064-1 and Scope 3 standards, and sorted into categories.

The following categories are used:

- Scope 1: Direct GHG emissions controlled by the company;
- Scope 2: Indirect GHG emissions from electricity not controlled by the company; and
- Scope 3: Indirect GHG emissions from value chain*. All emissions not included in Scope 1 or 2 occurring as a result of Transpower operations, including upstream and downstream emissions. These have been sorted by the following Scope 3 categories applicable:
    - Category 1: Purchased goods and services;
    - Category 2: Capital goods;
    - Category 3: Transmission and distribution losses;
    - Category 4: Upstream transportation and distribution;
    - Category 5: Waste generated in operations;
    - Category 6: Business travel; and
    - Category 7: Employee commuting.

**Note, according to the standards, Scope 3 GHG emissions reporting is optional.*

9. SUMMARY OF GHG EMISSION SOURCE INCLUSIONS

Details on the emissions sources and their calculation are described in Table 2 below.

Scope	Category	GHG emissions source	Data source	Data collection unit	Methodology data quality, uncertainty (qualitative)
Scope 1 Direct GHG emissions	Fugitive emissions	Fugitive SF6 emissions from substation circuit breakers and SF6 handling	Transpower SF6 inventory database	Operational engineering team	Accurate records of operational gas holdings, top-ups and recovery during asset decommissioning
		Fugitive refrigerant emissions from air conditioning units	Air conditioning units	Service providers	Estimates of average leakage rates per equipment type and equipment inventory. Accurate records from one service provider.
	Vehicles	Car travel (owned, leased, rented)	GPS generated odometer readings, fuel card purchase data, rental provider activity reports	Fuel card records and expense management systems	Owned and leased vehicles. Litres of fuel used calculated from accurate records of fuel card transactions. Rental vehicles start/end odometer data. Emergency purchases from financial systems.
	Combusted diesel	Back-up diesel generators	Operational records	Service providers	Records of operational diesel use

	Combusted natural gas	HVAC systems	Operational records	Building landlord	Landlord provides accurate report in volume usage
Scope 2 Indirect GHG emissions from electricity	Electricity transmission losses	National Grid transmission line losses	Transpower National Grid metering data	Energy metering services team	Accurate net metering of National Grid inputs and outputs. A number of substations are directly fed from the National Grid and are included in this category
	Electricity consumed – offices and warehouses	Electricity used in offices and warehouses	Records from ICP billing systems	Retail providers	Accurate records from billing system.
	Electricity consumed – substations	Electricity consumed in substations	Records from metering, and engineering estimates	Energy metering services team, Finance teams and substation engineering team	Substations electricity is supplied from one of three sources: 1. Direct feed from distribution network (metered data available) 2. Feed from transmission system, therefore data is included within transmission losses category (site consumption data is not metered). 3. Accurate data from retail providers
Scope 3 Indirect GHG emissions from value chain	Category 1: Purchased goods and services	Upstream emissions associated with good and services	Procurement records	Procurement and finance records	Accurate purchasing records are categorised by activity type and emission factors assigned
	Category 2: Capital goods	Upstream emissions associated with National Grid assets and capital equipment purchased	Procurement records	Procurement and finance records	Accurate purchasing records are categorised by activity type and emission factors assigned
	Category 3: Transmission and distribution losses	Transmission and distribution losses associated with electricity used in offices and substations	Records from metering, and engineering estimates	Energy metering services team, Finance teams and substation engineering team	T&D losses applied to purchased electricity reported in scope 2
	Category 4: Upstream transportation and distribution	Emissions associated with upstream transport	Procurement records	Procurement and finance records	Estimated freight factor applied to overseas manufacturers of electrical equipment
	Category 5: Waste	Emissions associated with civil construction	Procurement records	Procurement and finance records	Estimated waste factor applied to civil

	generated in operations	waste and asbestos removal			construction and asbestos removal
	Category 6: Business travel	Air travel (domestic and international)	Travel provider reports. (supplier data, internal purchasing systems)	Distances are calculated by travel providers	Supplier records of flights ticketed by our suppliers. Outputs are calculated using the distances travelled by sector split into domestic, short haul and long-haul split by class of travel.
		Car travel (taxis and rideshare)	Purchasing records expense management system)	Finance teams	Records of expenditure on taxis.
		Car travel (private vehicles)	Odometer readings	Finance teams	Expense claims
		Hotel accommodation	Purchase records (supplier data, internal purchasing systems)	Travel providers	Hotel nights provided by travel provider, by NZ, Australia, Europe, North America and Asia.
	Category 7: Employee commuting	Employer travel to and from work (in private vehicles and public transport)	Estimated values	Estimated commuting mode and distance	Estimated based on site headcount and average commuting data for major cities (Statistics NZ)

Table 2. Emissions sources included and methodology

10. GHG EMISSIONS SOURCE EXCLUSIONS

The following data have been excluded from this GHG emissions inventory. They were not technically feasible to obtain at the time of report preparation.

Scope	Category	GHG emissions source	Reason for exclusion
Scope 1 Direct GHG emissions	Fugitive emissions	Fugitive emissions from fridges and vehicle AC systems	Difficult to obtain the data, estimated to be *de minimis*

Table 3. Emissions sources excluded

11. DATA COLLECTION, QUANTIFICATION AND UNCERTAINTIES

Section 9 describes how data was collected for each GHG emissions source, the data source and any uncertainties and assumptions where data was estimated. Data collection was sourced from Transpower's finance, procurement, facilities, and operations project teams, suppliers and relevant individuals throughout the business. All emission calculations were undertaken using BraveGen software. This software uses a calculation methodology for quantifying the GHG inventory using emission source activity data multiplied by relevant GHG emissions factors.

Except where stated, emissions factors used were sourced from NZ Ministry for the Environment (MfE), NZ Ministry of Business, Innovation and Employment (MBIE) or UK Department of Environment, Food and Rural Affairs (Defra, UK), noting the following exceptions:

- The emission factor for converting SF_6 (Sulphur hexafluoride) switch gas into CO_{2e} has been sourced from IPPC, Fifth Assessment Report.
- Emission factors applied to Scope 2 electricity transmission losses have been calculated from MBIE electricity generation emission data.
- Emission factors applied to transmission and distribution losses associated with electricity consumed in offices and substations (reported in Scope 2) have been sourced from MfE. Emissions from T&D losses are reported in Scope 3.
- The emissions factors for activities reported in Purchased goods and services, Capital goods, and Waste categories are sourced from Department of Environment, Food and Rural Affairs (Defra, UK).
- The emissions factors for air travel include radiative forcing, as per the precautionary principle.

Quantities of each greenhouse gas are converted to tonnes CO_2e using the global warming potential from the Intergovernmental Panel on Climate Change (IPCC) Fifth Assessment Report (AR5). The time horizon is 100 years. All data in this report are expressed in tonnes of carbon dioxide equivalent.

12. IMPACT OF UNCERTAINTY

A level of uncertainty is part of preparing a GHG inventory. Data sources are verifiable, and further uncertainty is detailed under sections 9, 10 and 11 above. Conservative estimates are used, as per the precautionary principle.

13. GHG EMISSIONS CALCULATIONS AND RESULTS

Sources of Transpower's emissions are reported in Scopes 1, 2 and 3 according to the Greenhouse Gas Protocol.

In summary, total operational emissions for Transpower were estimated at 264,946 tCO_2e for the reporting period, an increase of 32,709 tCO_2e, 14%, over FY 19. This is largely due to measuring a wider scope of emissions and improved data collection methods. Most of this increase, 25,434 tCO_2e, is due to much enhanced data collection methods. This year significant effort has gone into identifying sources of our emissions. Improvements to Transpower's carbon accounting systems have resulted in a significant increase in Scope 3 emissions from goods and services procured for National Grid maintenance.

13.1 TOTAL OPERATIONAL EMISSIONS BY SCOPE

SCOPE 1 - DIRECT EMISSIONS FROM OUR OPERATIONS

Scope 1 emissions include emissions from fugitive Sulphur Hexafluoride (SF_6) gas and fleet vehicle fuel. This year SF_6 emissions increased by around 28 per cent compared with last year. Across Transpower's fleet of SF_6 containing equipment the loss rate varies between 0-4-0.8% of the stated nameplate capacity of switchgear. Transpower has a programme to manage these losses to a target of <0.8% of the installed nameplate capacity and a long-term equipment upgrade programme to replace switchgear that currently uses SF_6. While replacement is feasible for lower voltage equipment, Transpower continues to monitor the market for SF_6 -free switch gear for higher voltage applications.

Transpower's vehicle emissions were 355 tCO_2e (341 tCO_2e), up 4%. Transpower is systematically switching to electric vehicles where suitable options exist. In 2019/20, it increased the number of battery and plug in hybrid vehicles to 50% of its passenger vehicle fleet, up from 15% in 2018/19. Transpower's target is to convert 80% of its passenger vehicles to battery or plug in hybrid in 2020/21.

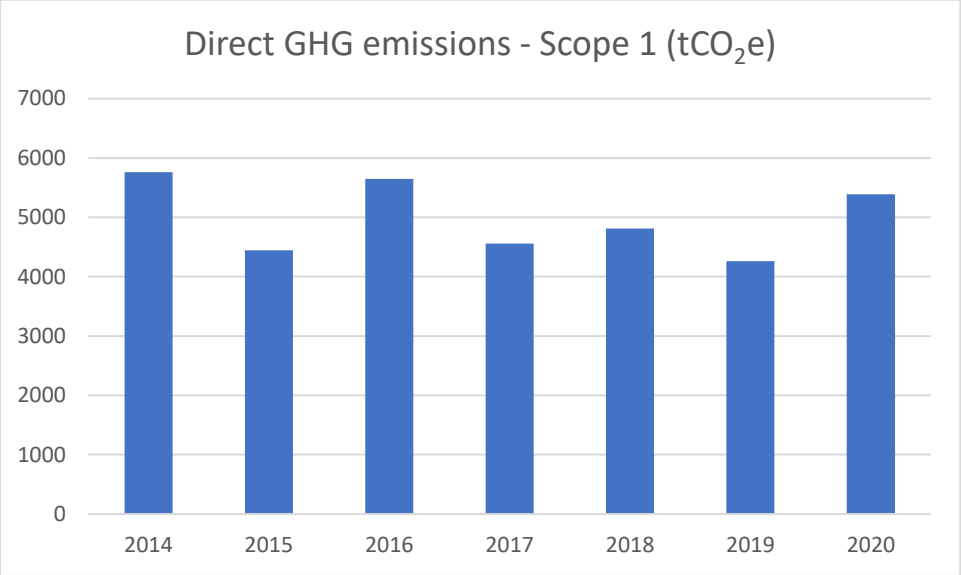


Figure 3. Direct GHG emissions

SCOPE 2 - INDIRECT EMISSIONS FROM ELECTRICITY USAGE

Scope 2 emissions cover transmission losses and electricity consumed in Transpower building and sub stations.

Transmitting electricity results in losses due to the resistance generated by electricity passing through transmission lines and are a function of the carbon intensity of the generation mix. These include grid losses from the AC and DC networks and substation loads supplied from the National Grid. Transmission losses increased to an estimated 169,161 tCO_2e over the reporting period, an increase of 4.5% over the prior year. Although these losses are largely outside Transpower's control, Transpower still consider it useful to monitor and report on them, on behalf of the sector.

A revised approach to recording emission from electricity use in buildings and substations saw these Scope 2 emissions rise to 2,903 tCO_2e, up 253%.

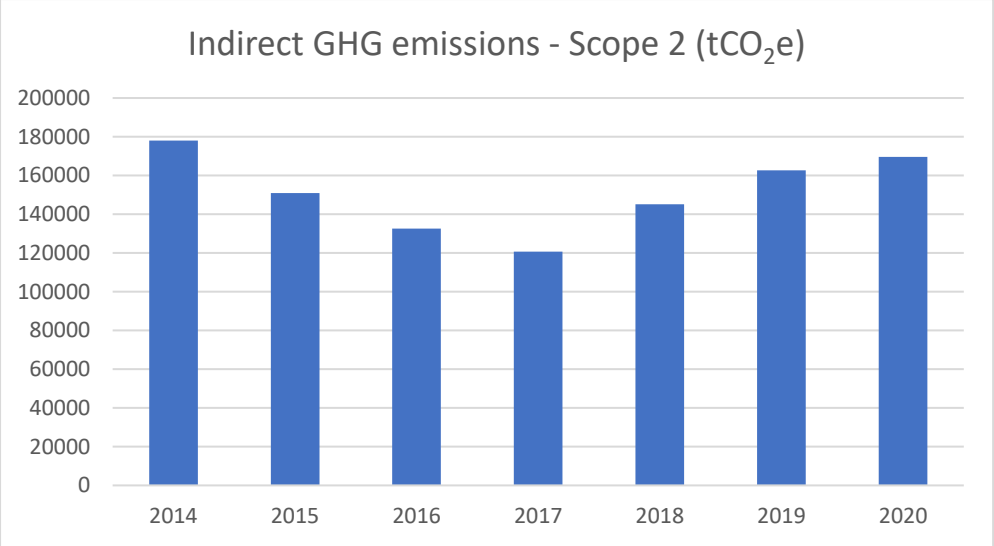


Figure 4. Indirect GHG emissions from electricity

SCOPE 3 - INDIRECT EMISSIONS FROM THE SUPPLY CHAIN

Transpower is committed to working across its supply chain to better understand, report and manage down Scope 3 emissions. Scope 3 emissions were estimated at 89,945 tCO_2e (65,253 tCO_2e in FY19). A new approach to calculating emissions related to purchased goods and services for National Grid maintenance increase this by 25,434 tCO_2e and was slightly offset by reductions in emissions associated with capital goods and construction, the other supply chain heading, including business travel, waste, employee commuting.

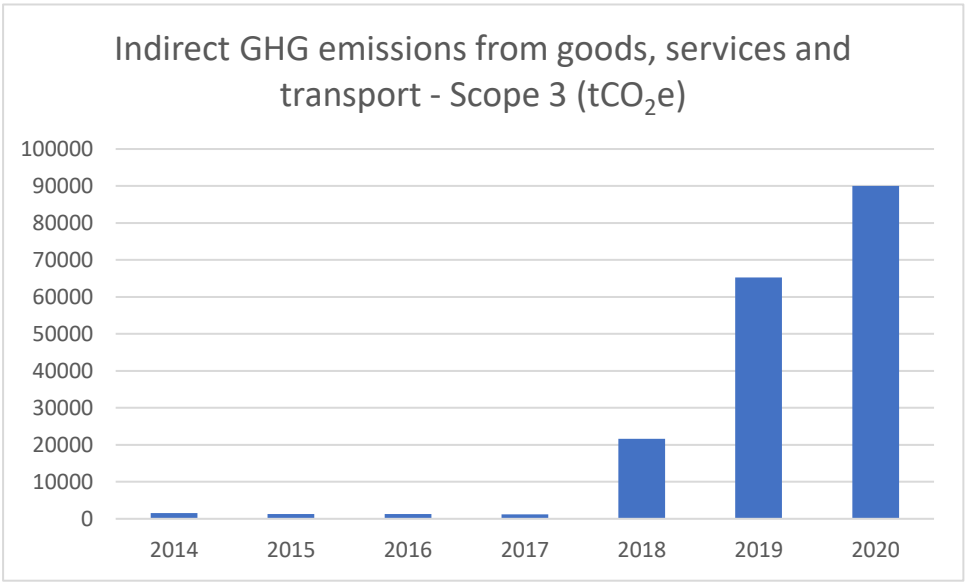


Figure 5. Indirect GHG emissions from goods and services, capital goods and transport (Scope 3)

13.2 TOTAL EMISSIONS BY SCOPE OVER TIME

Total emissions in relation to previous years are shown in Figure 6.

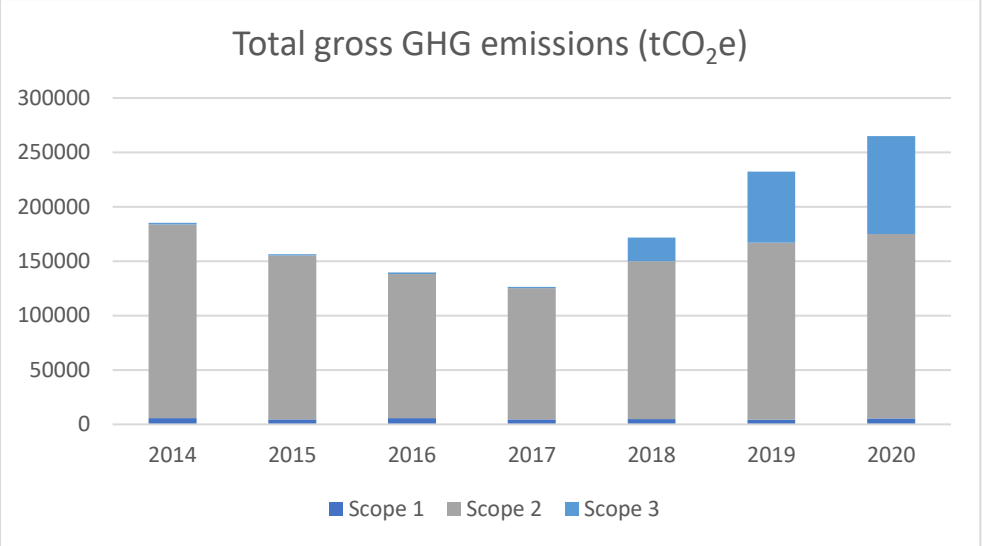


Figure 6. Total Greenhouse gas emissions by category over time

14. GHG REMOVALS AND REDUCTIONS

REMOVALS

A greenhouse gas removal is defined by ISO 14064-1 as the "*total mass of a greenhouse gas removed from the atmosphere over a specified period of time*". There are no removals quantified for this reporting period.

EMISSION REDUCTIONS/INCREASES

Total emissions for FY20 are estimated to be 264,946 tCO_2e (tonnes of carbon dioxide equivalent), up 14% from FY19. This year's increase is largely due to increased measurement of Scope 3 emissions. Transpower's goal is to achieve a 60% emissions reduction for Scope 1 and 2 emissions under its direct control against a 2005 baseline of 8,710 tCO_2e by 2030. This target excludes emissions arising from transmission losses. In FY20, in-scope emissions totalled 5,840 tCO_2e, a 33% decrease compared to the 2005 baseline.

Of total reported emissions, 64% are derived from transmission losses which increased 4.5% year-on-year. These include grid losses from the AC and DC networks and substation loads supplied from the National Grid. Although these losses are largely outside Transpower's control, it is still considered useful to monitor and report on them on behalf of the sector.

15. NEW ZEALAND EMISSIONS TRADING SCHEME (CALENDAR YEAR)

Transpower NZ is a point of obligation related to SF_6 emissions reporting under the New Zealand Emissions Trading Scheme (NZETS). NZETS reporting is by calendar year. Accordingly, emissions reported in this inventory which occur in 2020 will be offset in Transpower NZ's 2020 ETS return. In 2019, Transpower NZ surrendered NZUs to the value of 4,599 tCO_2e related to SF_6.

16. LIABILITIES – GHG STOCK HELD

Transpower NZ had holdings of 45.1kg of SF_6 in June 2020. The bulk of the gas is held in 220kV circuit breakers with smaller amounts being held in lower voltage switchgear and stockholding in depots and stores.

Transpower's current management practices in relation to SF_6 are well aligned with best international practices as defined by ENA, the CIGRE and IEC publications.

17. REFERENCES

DEPARTMENT OF ENVIRONMENT, FOOD AND RURAL AFFAIRS (DEFRA, 2011)

https://www.gov.uk/government/statistics/uks-carbon-footprint Table 13: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/404542/Table_13_Indirect_emissions_from_supply_chain_2007-2011.xls

GREENHOUSE GAS PROTOCOL CORPORATE ACCOUNTING AND REPORTING STANDARD. WRI, 2004

International Standards Organisation. ISO 14064-1:2018. (2018) Greenhouse gases – Part 1: Specification with guidance at organisational level for quantification and reporting of greenhouse gas emissions and removals.

IPPC FIFTH ASSESSMENT REPORT OF THE IPPC. CHAPTER 8 TABLE 8.A.1
HTTP://WWW.IPCC.CH/PDF/ASSESSMENT-REPORT/AR5/WG1/WG1AR5_CHAPTER08_FINAL.PDF

Ministry for the Environment "Guidance for Voluntary Greenhouse Gas Reporting" (MfE, 2016).

MINISTRY FOR BUSINESS, INNOVATION AND EMPLOYMENT QUARTERLY ELECTRICITY CONSUMPTION, GENERATION AND EMISSIONS DATA (MBIE 2019)
HTTPS://WWW.MBIE.GOVT.NZ/INFO-SERVICES/SECTORS-INDUSTRIES/ENERGY/ENERGY-DATA-MODELLING/STATISTICS/GREENHOUSE-GAS-EMISSIONS

TRANSPOWER TOMORROW – OUR STRATEGY (2018). TRANSPOWER NEW ZEALAND LTD.

APPENDIX 1. ISO 14064-1 REPORTING INDEX

ISO Reporting	Section in this report
9.3.1 (a)	Section 3
9.3.1 (b)	Section 4
9.3.1 (c)	Section 5
9.3.1 (d)	Section 6
9.3.1 (e)	Section 11
9.3.1 (f)	-
9.3.1 (g)	Section 9
9.3.1 (h)	Section 14
9.3.1 (i)	-
9.3.1 (j)	-
9.3.1 (k)	-
9.3.1 (l)	-
9.3.1 (m)	Section 9
9.3.1 (n)	Section 11
9.3.1 (o)	Section 11
9.3.1 (p)	Section 12
9.3.1 (q)	-
9.3.1 (r)	-
9.3.1 (s)	Section 2
9.3.1 (t)	Section 11
9.3.3	Section 15, 16

APPENDIX 2. EY 2019/20 ASSURANCE REPORT

Independent Limited Assurance Statement to the Management and Directors of Transpower Limited

Our Conclusion:

Ernst & Young ('EY', 'we') was engaged by Transpower Limited ("Transpower") to undertake limited assurance as defined by the International Standards on Assurance Engagements (New Zealand) 3000 ("ISAE (NZ) 3000"), over Transpower's voluntary greenhouse gas ("GHG") emissions inventory ("GHG inventory") disclosures (including scope 1, scope 2 and certain scope 3 emissions from goods and services and business travel) for the year ended 30 June 2020. Based on our limited assurance procedures, nothing came to our attention that caused us to believe that Transpower's GHG inventory disclosed in the Transpower Greenhouse Gas Emissions Inventory Report 2019-20, has not been prepared and presented fairly, in all material respects, in accordance with the Criteria defined below.

What our assurance covered

We reviewed Transpower's total GHG inventory (including scope 1, scope 2 and certain scope 3 emissions) for the year ended 30 June 2020, disclosed in the Transpower Greenhouse Gas Emissions Inventory Report 2019-20.

Criteria applied by Transpower

In preparing the GHG inventory, Transpower applied the Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard ('The GHG Protocol'). Emissions factor sources include the following (together the 'Criteria'):

Emission source	Emission factor criteria
Scope 1 SF6 emissions	IPCC 5th Assessment Report
Scope 2 transmission line losses	Ministry of Business, Innovation and Employment (MBIE) electricity generation emission data
Scope 3 Purchased goods and services, Capital goods, and Waste	UK Department of Environment, Food and Rural Affairs
All other sources	Ministry for the Environment (2019)

Key responsibilities

EY's responsibility and independence

Our responsibility was to express a conclusion on Transpower's voluntary GHG inventory disclosure for the year ended 30 June 2020 based on our review.

We have complied with the relevant ethical requirements relating to assurance engagements, which include independence and other requirements founded on fundamental principles of integrity, objectivity, professional competence and due care, confidentiality and professional behaviour.

In accordance with the Professional and Ethical Standard 3 (Amended), Ernst & Young Limited 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.

Transpower's responsibility

Transpower management ("management") was responsible for selecting the Criteria, and preparing and fairly presenting the GHG inventory for the year ended 30 June 2020 in accordance with that Criteria. This responsibility includes establishing and maintaining internal controls, adequate records and making estimates that are reasonable in the circumstances.

Our approach to conducting the engagement

We conducted this review in accordance with the International Standard on Assurance Engagements *ISAE (NZ) 3000: Assurance Engagements Other than Audits or Reviews of Historical Financial Information*, *ISAE (NZ) 3410 Assurance Engagements on Greenhouse Gas Statements* and the terms of reference for this engagement as agreed with Transpower on 10 June 2020.

Summary of assurance procedures performed

A limited assurance engagement consists of making enquiries and applying analytical, appropriate testing, and other evidence-gathering procedures.

Our procedures included, but were not limited to:

- Conducting interviews with personnel to understand the business and reporting process
- Checking that the flow of information from site metering or monitoring through to calculation spreadsheets is accurate and any calculations are appropriate
- Identifying and testing assumptions supporting the calculations
- Tests of calculation, aggregation and controls
- Comparing year-on-year activities-based greenhouse gas and energy data, where possible
- Checking organisational and operational boundaries to test completeness of greenhouse gas emissions sources
- Checking that emissions factors and methodologies have been correctly applied as per the criteria
- Reviewing the appropriateness of the presentation of disclosures.

We believe that the evidence obtained is sufficient and appropriate to provide a basis for our limited assurance conclusions.

Limited Assurance

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.

While we considered the effectiveness of management's internal controls when determining the nature and extent of our procedures, our assurance engagement was not designed to provide assurance on internal controls. Our procedures did not include testing controls or performing procedures relating to checking aggregation or calculation of data within IT systems.

Use of our Assurance Statement

We disclaim any assumption of responsibility for any reliance on this assurance report to any persons other than management and the Directors of Transpower or for any purpose other than that for which it was prepared.

Ernst & Young Limited

Graeme Bennett
Partner - Assurance
Auckland
10 May 2021