

Tennant Company Value Chain Footprint

Financial Year 2021



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About Sustainable 1

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Introduction

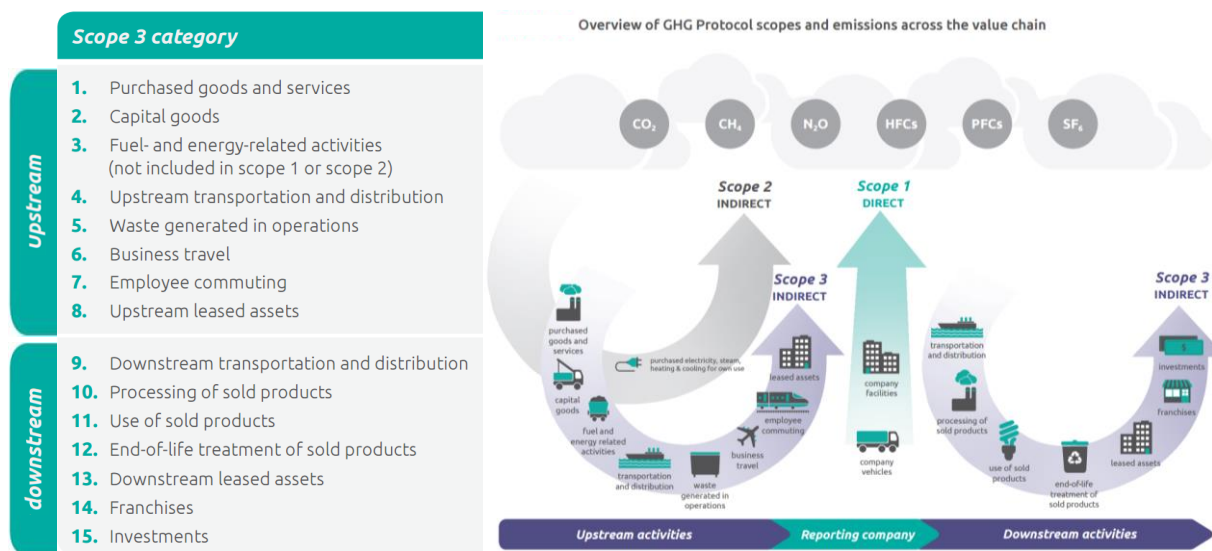
Tennant Company (henceforth Tennant) engaged Sustainable 1 to assess its value chain greenhouse gas (GHG) emissions in line with the WRI/WBCSD Corporate Value Chain (scope3) Guidelines (GHG Protocol). The assessment allows Tennant to report its emissions according to the fifteen scope 3 categories outlined in the Guidelines.

Tennant has already been reporting its GHG emissions to CDP for multiple years. This project supports Tennant's ongoing efforts in GHG emissions disclosure by calculating and modeling its scope 3 emissions. Using data provided by Tennant and Sustainable 1's database of GHG emissions by industry sector and business activity, Sustainable 1 calculated the GHG footprint for nine Scope 3 GHG emission categories and combined this with other relevant Scope 3 categories calculated by Tennant independently, to create a value chain emissions profile including all relevant scope 3 categories. Finally, Sustainable 1 identified opportunities for potential emission reductions within Tennant's value chain.

Project Scope

Exhibit 1 below outlines the GHG Protocol's fifteen upstream and downstream scope 3 categories. Sustainable 1 estimated the GHG emissions of each category using the Sustainable 1 Environmentally Extended Input-Output (EEI-O) model along with primary data, where available, for upstream and downstream categories. Primary data included Tennant's spend combined with the EEI-O model to estimate impacts, as well as existing research conducted by Tennant related to its GHG emissions. Please refer to Appendix I for details on the methodology associated with calculating GHG emissions for each scope 3 category, and Appendix II for details on the EEI-O model.

Exhibit 1: Scope of value chain GHG emissions footprint¹



¹ GHG Protocol Corporate Value Chain (Scope 3) Accounting and Reporting Standard.

Sustainable 1 calculated the GHG footprint for eight Scope 3 GHG emission categories, namely:

- 1: Purchased goods and services
- 2: Capital goods
- 3: Fuel and energy related activities
- 4: Upstream transportation and distribution
- 5: Waste generated in operations
- 6: Business travel
- 7: Employee commuting
- 12: End of life treatment of sold products

Furthermore, scope 1 and 2, and scope 3 category 11 Use of sold products were calculated by Tennant and incorporated by Sustainable 1 into the total figures.

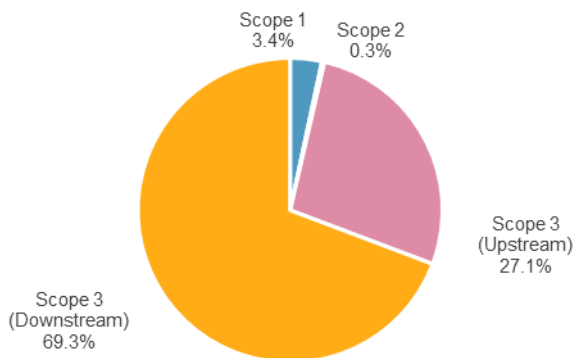
Key Findings

In FY2021, Tennant's value chain (scope 3) was responsible for an estimated 690,784 metric tons of GHG emissions (tCO₂e), which is approximately 96% of its total estimated GHG inventory of 716,693 tCO₂e.

Exhibit 2 below displays the emissions split amongst scopes 1, 2, 3 (upstream and downstream). Scope 1 emissions were approximately 24,106 tCO₂e, Scope 2 market-based emissions were 1,904 tCO₂e. In addition, Scope 3 upstream and downstream emissions were 194,321 tCO₂e and 496,463 tCO₂e respectively.

Tennant calculated its emissions for scope 1, scope 2 and scope 3 category 11 and shared them with Sustainable 1. Consequently, Sustainable 1 assured these emissions. Detailed figures per scope can be seen in Exhibit 3.

Exhibit 2: Tennant value chain emissions, by scope



The GHG Protocol Corporate Standard classifies a company's GHG emissions into three 'scopes':

- **Scope 1** emissions are direct emissions from owned or controlled sources
- **Scope 2** emissions are indirect emissions from the generation of purchased energy
- **Scope 3** emissions are all indirect (not included in scope 2) that occur in the value chain of the reporting company, including both upstream and downstream emissions

Exhibit 3: Tennant value chain emissions, by scope – Details

Source of emissions	2021 GHG emissions (tCO ₂ e)	Percentage contribution (%)	Calculated by
Scope 1	24,106	3.4%	Tennant
Scope 2 Market based	1,904	0.3%	Tennant
Scope 3 Upstream	194,321	27.1%	Sustainable 1
Scope 3 Downstream	496,463	69.3%	Tennant and Sustainable 1
Total	716,793²	100%	Sustainable 1

Exhibit 4 presents the breakdown of Tennant’s GHG emissions per scope 3 category, highlighting the categories with the greatest emissions. Tennant and Sustainable 1 identified five of the fifteen scope 3 categories as relevant, based on its business activities and related GHG emissions. The relevant scope 3 categories found were:

- Purchased goods and services
- Upstream transportation and distribution
- Employee commuting
- Upstream leased assets
- Use of sold products

There are a number of changes in the methodological approach adopted in this year’s GHG footprint accounting:

- Scope 3 categories 1 and 2: In 2021 Tennant provided spend details for each spend item for purchased goods and services and capital goods. Based on these spend details, appropriate mapping of spend items to Sustainable 1 sectors was undertaken by Sustainable 1. FY2021 results are, therefore, considered refined as they are based on more accurate data.
- Scope 3 categories 3, 5, 6 and 12: These categories are not relevant and contribute less than 1% to Tennant’s Scope 3 emission profile. Hence, Sustainable 1 relied on Tennant’s revenue generation and historical emission trend for data modelling. Thus, FY2021 results are therefore considered close approximates as they are based on modelled data.
- Scope 3 category 4: No change compared to 2020, in 2021 Tennant provided expense data for each mode of upstream transportation. Sustainable 1 modelled this data to calculate emissions stemming from this category.
- Scope 3 category 7: No change compared to 2020, in 2021 Tennant provided headcount and working from home stats for each country of operation. Sustainable 1 modelled this data to calculate emissions stemming from this category.
- Scope 3 category 8: In 2021 category 8 was removed from the analysis and retreated for FY2020, as these emissions were already included in Scope 2 emissions.

² Due to rounding rules, the total emissions stated does not match the sum of the scopes.

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- Scope 3 categories 9, 10, 13, 14, 15: No change compared to 2020, these categories were found to be not relevant by Tennant due to the nature of the company and its business activities. Thus, Sustainable 1 did not estimate the associated GHG emissions.
- Scope 3 category 11: In FY2021, emissions included the use of sold products from Tennant's IPC, Gaomei and Vaclensa. This is consistent with the boundary for category 11 used in FY2020.

The scope of FY2021 value chain assessment has remained consistent with FY2020. All the relevant Scope 3 categories were included in the analysis and emissions from all of Tennant's business units were accounted for. See Appendix I for details on the scope.

Exhibit 4: Tennant value chain emissions, by scope 3 category

Value chain (Scope 3) category	2021 GHG emissions (tCO ₂ e)	Scope 3 (%)	Materiality ³	GHG social cost (\$million) ⁴
1) Purchased goods and services	155,795	22.55%	Relevant, calculated	56.67
2) Capital goods	723	0.10%	Not relevant, calculated	0.26
3) Fuel and energy related activities	3,043	0.44%	Not relevant, calculated	1.11
4) Upstream transportation and distribution	25,114	3.64%	Relevant, calculated	9.14
5) Waste generated in operations	71	0.01%	Not relevant, calculated	0.03
6) Business travel	891	0.13%	Not relevant, calculated	0.32
7) Employee commuting	8,683	1.26%	Relevant, calculated	3.16
8) Upstream leased assets	-	-	Not calculated	-
9) Downstream transportation and distribution	-	-	Not calculated	-
10) Processing of sold products	-	-	Not calculated	-
11) Use of sold products	496,239	71.84%	Relevant, calculated	180.50
12) End of life treatment of sold products	224	0.03%	Not relevant, calculated	0.08
13) Downstream leased assets	-	-	Not calculated	-
14) Franchises	-	-	Not calculated	-
15) Investments	-	-	Not calculated	-
Total	690,784	100%		251.27

The categories not included in the analysis were found to be not relevant by Tennant due to the nature of the company and its business activities. Thus, Sustainable 1 did not estimate the associated GHG emissions.

As it has been apparent in previous years, the majority of GHG emissions from Tennant’s value chain are related to downstream sources, most significantly the use of sold products which accounts for 72% of the footprint.

³ Relevance based on 1% threshold relative to total scope 3 emissions inventory.

⁴ GHG Social Costs account for the societal impacts of GHG emissions; priced at \$338/tCO₂e in 2021 terms. Derived from: US EPA: https://www.epa.gov/sites/production/files/2016-12/documents/social_cost_of_carbon_fact_sheet.pdf

Year-On-Year Comparison

There are a number of changes in the methodological approach adopted in this year's GHG footprint accounting:

- Scope 3 categories 1 and 2: In 2021 Tennant provided spend details for each spend item for purchased goods and services and capital goods. Based on these spend details, appropriate mapping of spend items to Sustainable 1 sectors was undertaken by Sustainable 1. FY2021 results are, therefore, considered refined as they are based on more accurate data.
- Scope 3 categories 3, 5, 6 and 12: These categories are not relevant and contribute less than 1% to Tennant's Scope 3 emission profile. Hence, Sustainable 1 relied on Tennant's revenue generation and historical emission trend for data modelling. Thus, FY2021 results are therefore considered close approximates as they are based on modelled data.
- Scope 3 category 8: In 2021 category 8 was removed from the analysis and retreated for FY2020, as these emissions were already included in Scope 2 emissions.
- Scope 3 category 11: In FY2021, emissions included the use of sold products from Tennant's IPC, Gaomei and Vaclensa. This is consistent with the boundary for category 11 used in FY2020.

The scope of FY2021 value chain assessment has remained consistent with FY2020. All the relevant Scope 3 categories were included in the analysis and emissions from all of Tennant's business units were accounted for. See Appendix I for details on the scope.

Exhibit 5: Tennant value chain GHG emissions, year-on-year

Scope 3 Category	Emission Source	2021 GHG Emissions (tCO ₂ e)	2020 GHG Emissions (tCO ₂ e)
Category 1	Purchased goods and services	155,795	123,120
Category 2	Capital goods	723	4,120
Category 3	Fuel and energy related activities	3,043	2,793
Category 4	Upstream transportation and distribution	25,114	14,629
Category 5	Waste generated in operations	71	65
Category 6	Business travel	891	818
Category 7	Employee commuting	8,683	7,595
Category 8	Upstream leased assets	-	-*
Category 9	Downstream transportation and distribution	-	-
Category 10	Processing of sold products	-	-
Category 11	Use of sold products	496,239	464,012
Category 12	End of life treatment of sold products	224	205
Category 13	Downstream leased assets	-	-
Category 14	Franchises	-	-
Category 15	Investments	-	-
Total		690,784	617,358

*Category 8 was stated as 23,801 tCO₂e in 2020, but we are now restating it to 0 tCO₂e as it is included in Scope 2 emissions.

Appendix I: Scope 3 Emissions Methodology

Exhibit 6 outlines the process for evaluating each scope 3 category, along with the estimated emissions for each category. Tennant can use this information to complete its CDP questionnaire for scope 3 emissions and/or for other reporting purposes.

Exhibit 6: Tennant scope 3 methodology and findings – Suitable for external reporting

SOURCE OF SCOPE 3 EMISSIONS	EVALUATION STATUS ⁵	GHG (tCO ₂ e)	EMISSIONS CALCULATION METHODOLOGY	SCOPE 3 EMISSIONS (%)
1) Purchased goods and services	Relevant, calculated	155,795	In order to estimate emissions for purchased goods and services and capital goods, Sustainable 1 used Tennant's FY2021 supplier spend combined with supplier disclosed emissions data from Sustainable 1 Environmental Register and the Sustainable 1 EEI-O model. The results represent Tennant's supply chain emissions through all tiers up to and including raw material extraction.	22.55%
2) Capital goods	Not relevant, calculated	723	Suppliers with relatively small expenditures (contributing to the bottom 5% of the total expenditure) were excluded because their environmental impact is considered not material.	0.10%
3) Fuel- and energy-related activities	Not relevant, calculated	3,043	For FY2020, fuel and energy related activities, emissions were calculated based on Tennant's actual electricity and fuel usage data. Energy consumption data was combined with Transmission & Distribution and Well To Tank Defra emission factors. For FY2021, emission was modelled based on revenue and emission trends from previous year across this category.	0.44%
4) Upstream transportation and distribution	Relevant, calculated	25,114	Sustainable 1 used its EEI-O model to calculate GHG emissions for upstream transportation and distribution, based on Tennant's logistics related spend split by mode of transport (for example, truck transportation and water transportation). For some low spend entries (representing less than 1% of the logistics spend) no data per mode of transport was available, and thus the average logistics transportation mode split for the US was used and sourced from the US Department of Transportation. Input data was provided for the countries that represent 95% of total employees as a minimum (emissions for less relevant countries were excluded from the analysis due to data availability).	3.64%

⁵ Relevance based on 1% threshold relative to total scope 3 emissions inventory.

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SOURCE OF SCOPE 3 EMISSIONS	EVALUATION STATUS ⁶	GHG (tCO ₂ e)	EMISSIONS CALCULATION METHODOLOGY	SCOPE 3 EMISSIONS (%)
5) Waste generated in operations	Not relevant, calculated	71	Sustainable 1 used its EEI-O model and last year's data on waste treatment and disposal activities to model GHG emissions for waste generated in operations.	0.01%
6) Business travel	Not relevant, calculated	891	For FY2020, Sustainable 1 used its EEI-O model to calculate GHG emissions for business travel, based on Tennant's spend on business travel activities split by mode of transport (for example, rail travel and air travel). For FY2021, emission was modelled based on revenue and emission trends from previous year across this category.	0.13%
7) Employee commuting	Relevant, calculated	8,683	Sustainable 1 estimated employee commuting emissions using Tennant's global employee headcount and country averages for commuting time, transportation mode and distance. For locations where country level data was not available, global averages were used.	1.26%
8) Upstream leased assets	Not calculated	N/A	Accounted in Scope 2 calculation by Tennant	N/A
9) Downstream transportation and distribution	Not calculated	N/A	N/A	N/A
10) Processing of sold products	Not calculated	N/A	N/A	N/A
11) Use of sold products	Relevant, calculated	496,239	Calculated by Tennant	71.84%
12) End-of-life treatment of sold products	Not relevant, calculated	224	The emissions associated with the end-of-life treatment of T300 family of products (T300, T300e, SS300) was estimated. In FY2020, the weight of T300 products sold and the weight of the associated packaging materials were provided by Tennant. Sustainable 1 calculated emission for T300 products using Tennant's data and emission factors from Defra by disposal route and material type. Disposal routes from the World Bank were used as a proxy, and it was assumed that 50% of the products were sold and disposed in the US and the rest globally. These T300 units sold represent 10% of the total units sold in 2020 by Tennant. For FY2021, emission was modelled based on revenue and emission trends from previous year across this category.	0.03%

⁶ Relevance based on 1% threshold relative to total scope 3 emissions inventory.

SOURCE OF SCOPE 3 EMISSIONS	EVALUATION STATUS ⁷	GHG (tCO ₂ e)	EMISSIONS CALCULATION METHODOLOGY	SCOPE 3 EMISSIONS (%)
13) Downstream leased assets	Not calculated	N/A	N/A	N/A
14) Franchises	Not calculated	N/A	N/A	N/A
15) Investments	Not calculated	N/A	N/A	N/A

The categories not included in the analysis were found to be not relevant by Tennant due to the nature of the company and its business activities. Thus, Sustainable 1 did not estimate the associated GHG emissions.

⁷ Relevance based on 1% threshold relative to total scope 3 emissions inventory.

Appendix II: The Sustainable 1 EEI-O Model

Since its founding in 2000, Sustainable 1 developed an environmental economic input output (EEI-O) lifecycle-based model for quantifying environmental impacts. The EEI-O model uses an economic modelling technique based on extensive government census data to analyze the products used and produced by over 464 business activities or sectors. The model also describes the economic interactions between each sector.

Sustainable 1 has improved upon standard EEI-O models in several ways, resulting in what we believe is a best-in-class model for analyzing environmental performance. These improvements include the following:

- Sustainable 1 has integrated the use and emissions of over 700 environmental resources. By applying a price to each environmental resource, based on the environmental impact of that resource, the model is able to analyze, in financial terms, the economic and environmental performance of each sector. This environmental performance measure incorporates the indirect, supply chain impacts by using the information on the interactions between sectors.
- Sustainable 1 maintains and updates its model annually to reflect market commodity flows. We annually update our sector revenue for all sectors, producer prices and annual production quantities for all primary sectors in our model.
- Environmental intensities for all sectors are also reviewed annually against companies' public disclosures from our annual engagement programs. Sustainable 1 engages with more than 6,000 companies directly to obtain environmental performance metrics, which are then considered against sector environmental intensity.

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