



KPMG LLP  
One Broadway, 15th Floor  
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## Independent Accountants' Review Report

The Board of Directors and Management  
Northern Trust Corporation

We have reviewed the accompanying Statement of Greenhouse Gas (GHG) Emissions (GHG Statement) for the year ended December 31, 2017 of Northern Trust Corporation (Northern Trust). Northern Trust's management is responsible for presenting the GHG Statement in accordance with the criteria set forth in Note 1 (the criteria). Our responsibility is to express a conclusion on the GHG Statement based on our review.

Our review was conducted in accordance with attestation standards established by the American Institute of Certified Public Accountants. Those standards require that we plan and perform the review to obtain limited assurance about whether any material modifications should be made to the GHG Statement in order for it to be presented in accordance with the criteria. A review is substantially less in scope than an examination, the objective of which is to obtain reasonable assurance about whether the GHG Statement is in accordance with the criteria, in all material respects, in order to express an opinion. Accordingly we do not express such an opinion. We believe that our review provides a reasonable basis for our conclusion.

As described in Note 1, greenhouse gas emissions and energy use data are subject to measurement uncertainties resulting from limitations inherent in the nature and methods of determining such data. The selection of different but acceptable measurement techniques can result in materially different measurements. The precision of different measurement techniques may also vary.

Based on our review, we are not aware of any material modifications that should be made to the Statement of Greenhouse Gas Emissions for the year ended December 31, 2017 of Northern Trust Corporation in order for it to be presented in accordance with the World Resources Institute/World Business Council for Sustainable Development (WRI/WBCSD) Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard, Revised Edition, the WRI/WBCSD Greenhouse Gas Protocol Scope 2 Guidance: An amendment to the GHG Protocol Corporate Standard, and the WRI/WBCSD Greenhouse Gas Protocol: Corporate Value Chain (Scope 3), Accounting and Reporting Standard (collectively, the GHG Protocol).

The GHG Statement includes summarized prior-year comparative information for the years ended December 31, 2016 and 2015. Such information does not include all of the information required for it to be reported in accordance with the GHG Protocol. Accordingly, such information should be read in conjunction with the GHG Statements for the years ended December 31, 2016 and 2015 with our Independent Accountants' Review Reports dated June 26, 2017 and July 12, 2016, respectively, thereon, from which such summarized information was derived.

**KPMG LLP**

Cambridge, MA  
July 6, 2018

NORTHERN TRUST  
Statement of Greenhouse Gas Emissions  
For the year ended December 31, 2017

	2015	2016	2017
	CO <sub>2e</sub> Emissions Metric Tonnes [MT]	CO <sub>2e</sub> Emissions Metric Tonnes [MT]	CO <sub>2e</sub> Emissions Metric Tonnes [MT]
Scope 1 Direct	3,071	2,338	2,127
Scope 2 Indirect (Market Based)	46,036	44,484	42,098
Scope 3	20,054	18,469	20,764
Gross Scope 1, 2, and 3	69,161	65,291	64,989

See accompanying Independent Accountants' Review Report and notes to Statement of Greenhouse Gas Emissions.

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Notes to Statement of Greenhouse Gas Emissions  
For the year ended December 31, 2017

**Note 1: The Company**

**Organization**

Northern Trust Corporation (the Corporation) is a financial holding company that is a leading provider of asset servicing, fund administration, asset management, fiduciary and banking solutions for corporations, institutions, families and individuals worldwide. The Corporation conducts business through various U.S. and non-U.S. subsidiaries, including The Northern Trust Company (Bank). The Corporation was originally formed as a holding company for the Bank in 1971. The Corporation has a network of offices in 19 U.S. states, Washington, D.C., and 23 international locations in Canada, Europe, the Middle East, and the Asia-Pacific region.

We have participated in the Carbon Disclosure Project (CDP) since 2006, publicly reporting on our progress towards reducing emissions and will continue to do so going forward. Between the CDP and our annual CSR report, stakeholders will be able to review our progress towards reducing our emissions.

**Basis of Presentation**

The Statement of Greenhouse Gas (GHG) Emissions has been prepared based on a calendar reporting year that is the same as Northern Trust's financial reporting period.

Scope 1 GHG emissions information has been prepared in accordance with the World Resources Institute/World Business Council for Sustainable Development Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard, Revised Edition. Scope 1 represents direct GHG emissions that occur from sources that are owned or controlled by the Corporation.

Scope 2 GHG emissions information has been prepared in accordance with the WRI/WBCSD GHG Protocol Scope 2 Guidance: An amendment to the GHG Protocol Corporate Standard. Scope 2 accounts for GHG emissions from the generation of purchased electricity consumed by the Corporation.

Scope 3 GHG emissions information has been prepared in accordance with the World Resources Institute/World Business Council for Sustainable Development Greenhouse Gas Protocol: Corporate Value Chain (Scope 3), Accounting and Reporting Standard. Scope 3 includes indirect GHG emissions (not included in Scope 2) that occur in the value chain of the Corporation, including both upstream and downstream emissions. Upstream emissions are indirect GHG emissions related to purchased or acquired goods and services while downstream emissions are indirect GHG emissions related to sold goods and services.

Collectively, the Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard, Revised Edition, the GHG Protocol Scope 2 Guidance: An amendment to the GHG Protocol Corporate Standard and the GHG Protocol: Corporate Value Chain (Scope 3), Accounting and Reporting Standard are referred to as the "GHG Protocol" in this document.

**Estimation Uncertainties**

Environmental and energy use data included in the Statement of GHG Emissions are subject to measurement uncertainties resulting from limitations inherent in the nature and the methods used for determining such data. The selection of different but acceptable measurement techniques can result in materially different measurements. The precision of different measurement techniques may also vary.

Consumption is based on raw data when available. When raw data is unavailable, we estimate consumption based on a square foot extrapolation of the average consumption from the most comparable facilities.

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Notes to Statement of Greenhouse Gas Emissions  
For the year ended December 31, 2017

**Note 2: GHG Reporting**

**Organizational Boundaries**

The organizational boundary of this report includes our leased and owned offices under operational control in all domestic and global regions within which we operate.

More information can be found in the Corporation's annual report at [www.northerntrust.com/](http://www.northerntrust.com/).

**Base year**

The GHG base year applies to Scope 1, Scope 2, and Scope 3 emissions as set out above and has been prepared in accordance with the GHG reporting policies set out here. The Company has established 2015 as its base year.

Per the Climate Registry's General Reporting Protocol guidance, Northern Trust set a 5% cumulative Scope 1, Scope 2, and Scope 3 significance threshold for determining whether to adjust and/or recalculate its base year based on error, omission, and change in boundary.

**Greenhouse gases**

All GHG emissions figures are in metric tonnes of carbon dioxide equivalents (CO<sub>2</sub>e). In accordance with the GHG Protocol, we have included in our reporting carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), and nitrous oxide (N<sub>2</sub>O). Hydrofluorocarbons (HFCs), Perfluorocarbons (PFCs), Sulphur Hexafluoride (SF<sub>6</sub>), and Nitrogen trifluoride (NF<sub>3</sub>) emissions have been omitted from our reporting as they are not material sources of greenhouse gases for the Company.

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Notes to Statement of Greenhouse Gas Emissions  
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**GHG Emission factors**

Emissions Source	Emission Source Type	Emission Factor Employed
Scope 1	Natural gas Diesel fuel	Intergovernmental Panel on Climate Change – IPCC: Guidelines for National Greenhouse Gas Inventories (2006)
Scope 2	Purchased electricity	<u>United States</u> – eGRID 2014 State File v2 released 2/27/2017 <u>International</u> – IEA 2015 released 10/16/2017 <u>United Kingdom</u> – DEFRA 2017 released 7/31/2017 <u>Residual Mix</u> -- RE-DISS II project European Residual Mixes 2017, Version 1.1, 2018-06-01
Scope 3	Business travel Employee commuting Fuel-and-energy-related activities not included in Scope 1 or 2 (T&D losses)	<u>Hotels</u> The Climate Registry's General Reporting Protocol, v1.1, May 2008, Table 12.1 Source: EPA CHP Partnership. "CHP in the Hotel and Casino Market Sectors." December 2005. Prepared by Energy and Environmental Analysis, Inc. Table 16. The Climate Registry's General Reporting Protocol, v1.1, May 2008, Table 12.3 Source: EPA CHP Partnership. "CHP in the Hotel and Casino Market Sectors." December 2005. Prepared by Energy and Environmental Analysis, Inc. Table ES-2. (note that kBtu of natural gas have been converted to therms by dividing by 100) Assumed 10 therms = 1 MMBtu and 1 MMBTU = 293 kWh Source: WRI-Electricity US-Table 4. US average converted to lb CO2/kWh. <u>Flights</u> GHG Protocol Emissions Factors from Cross-Sector Tools (April 2014) IPCC 2006 Guidelines for National Greenhouse Gas Inventories, <a href="http://www.ipcc-nggip.iges.or.jp/public/2006gl/vol2.html">http://www.ipcc-nggip.iges.or.jp/public/2006gl/vol2.html</a> (Tables 1-3 of the WRI GHG inventories) DEFRA conversion factors 2016 <u>Rental Cars</u> Tables 10 and 11 and 12 from WRI GHG Emissions Factors Compilation (from the GHG Protocol Emissions Factors from Cross-Sector Tools (April 2014): US vehicles: US EPA Climate Leaders (updated May 2008). <a href="http://www.epa.gov/climateleaders/documents/resources/mobilesource_guidance.pdf">http://www.epa.gov/climateleaders/documents/resources/mobilesource_guidance.pdf</a> <u>Shuttle vehicles</u> GHG Protocol Emissions Factors from Cross-Sector Tools (April 2014) <u>T&amp;D losses</u> DEFRA 2017 UKElec&T&D (Overseas) released 07/31/2017

**Market-Based Approach**

Adjusted emissions factors due to residual mix for facilities in North America and Asia Pacific are not available, which may result in double counting between electricity consumers. Location-based factors were applied to these facilities.

As available, utility specific factors or residual mix factors were applied to facilities in Europe Middle East.

**Global Warming Potentials**

GHG emissions were calculated using the Global Warming Potentials (GWP) from the International Panel on Climate Change (IPCC) Fifth Assessment Report for CO<sub>2</sub>, the IPCC Fourth Assessment Report for CH<sub>4</sub> and IPCC Third Assessment report for N<sub>2</sub>O.

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Notes to Statement of Greenhouse Gas Emissions  
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**Note 3 - GHG Emissions by Region (MT CO<sub>2</sub>e)**

	North America	Europe Middle East	Asia Pacific	Total
Scope 1	1,429	254	444	2,127
Scope 2: Location-Based Approach	31,538	3,808	8,260	43,606
Scope 2 Market-Based Approach Total	31,537	2,301	8,260	42,098
Scope 3	9,590	3,318	7,856	20,764

**Note 4 – CO<sub>2</sub>e Intensity**

The Corporation has selected global full-time employees (FTE) as the basis for its intensity calculation. One FTE represents an employee working a forty-hour work week.

In 2016, we set a goal to reduce our total Scope 1, Scope 2 (using the Market Based Approach), and Scope 3 carbon emissions by 3% per FTE by 2020 with 2015 as a baseline. After reducing our emissions by 9.65% in the first year after setting this goal, we have reset a goal to reduce our carbon emissions by 25% by 2020.

**Market Based: MT CO<sub>2</sub>e per FTE**

	2015	2016	2017
Scope 1 - per FTE	0.190	0.139	0.119
Scope 2 - per FTE	2.850	2.636	2.361
Scope 3 - per FTE	1.242	1.095	1.165
Total - per FTE	4.282	3.869	3.645
Total Full Time Employees	16,152	16,874	17,830

**Market Based: MT CO<sub>2</sub>e per Sq Ft**

	2015	2016	2017
Scope 1 – per sq ft	0.001	0.001	0.000
Scope 2 – per sq ft	0.011	0.010	0.010
Scope 3 - per sq ft	0.005	0.004	0.005
Total - per sq ft	0.017	0.015	0.015

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Notes to Statement of Greenhouse Gas Emissions  
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***Note 5 - GHG Emissions by Type***

	Carbon Dioxide (CO <sub>2</sub> )	Methane (CH <sub>4</sub> )	Nitrous Oxide (N <sub>2</sub> O)	Total
Scope 1	2,120	5	2	2,127
Scope 2 Location-Based Approach	43,322	96	188	43,606
Scope 2 Market-Based Approach	41,819	95	184	42,098
Scope 3	20,669	42	53	20,764

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Notes to Statement of Greenhouse Gas Emissions  
For the year ended December 31, 2017

**Note 6 - Scope 3 Reporting**

Scope 3 Category		2015	2016	2017	Notes	
Upstream Scope 3 Emissions	1	Purchased Goods & Services	Relevant, not yet calculated	Relevant, not yet calculated	Relevant, not yet calculated	We are working with a number of suppliers to calculate this data, but have not made significant enough progress to report figures.
	2	Capital Goods	Relevant, not yet calculated	Relevant, not yet calculated	Relevant, not yet calculated	We are working with a number of suppliers to calculate this data, but have not made significant enough progress to report figures.
	3	Fuel- and Energy-Related Activities (not included in Scope 1 or 2)	4,390	4,759	4,666	The fuel-and-energy-related activities that are tracked for Scope 3 are the transmission and distribution line losses. T&D losses are calculated using the T&D emissions factors from DEFRA.
	4	Transportation & Distribution	Not Relevant	Not Relevant	Not Relevant	Similar to other companies in the financial services industry, Northern Trust does not produce physical products.
	5	Waste Generated in Operations	Not Relevant	Not Relevant	Not Relevant	Similar to other companies in the financial services industry, Northern Trust does not have manufacturing facilities. The waste generated in operations consists mainly of municipal solid waste generated in our offices.
	6	Business Travel	11,097	9,460	11,690	
		Business travel - Air	9,292	8,007	10,189	
		Business travel - Car Rental	968	515	550	
		Business travel – Hotel Stays	837	938	951	
		Rail	Not reported	Not reported	Not reported	Data for rail travel is not available at this time. Northern Trust continues to work with the vendor to address the availability of this information.
	7	Employee Commuting	4,567	4,250	4,408	Shuttle bus services are provided in Chicago and Bangalore offices.
	8	Leased Assets	Not reported	Not reported	Not reported	Scope 3 emissions from the operation of leased assets are already accounted for in our scope 2 emissions as they are under our operational control.



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Notes to Statement of Greenhouse Gas Emissions  
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**Note 6 - Scope 3 Reporting (continued)**

Scope 3 Category		2015	2016	2017	Notes	
Downstream Scope 3 Emissions	9	Transportation & Distribution	Not relevant	Not relevant	Not relevant	Similar to other companies in the Financial Services industry, Northern Trust does not produce physical products.
	10	Processing of Sold Products	Not relevant	Not relevant	Not relevant	Similar to other companies in the Financial Services industry, Northern Trust does not produce physical products.
	11	Use of Sold Products	Not relevant	Not relevant	Not relevant	Similar to other companies in the Financial Services industry, Northern Trust does not produce physical products.
	12	End-of-Life Treatment of Sold Products	Not relevant	Not relevant	Not relevant	Similar to other companies in the Financial Services industry, Northern Trust does not produce physical products.
	13	Leased Assets	Not relevant	Not relevant	Not relevant	Similar to other companies in the Financial Services industry, Northern Trust does not lease physical assets to third parties.
	14	Franchises	Not relevant	Not relevant	Not relevant	Northern Trust does not have franchises.
	15	Investments	Relevant, not yet calculated	Relevant, not yet calculated	Relevant, not yet calculated	We do not yet have the capability to calculate emissions resulting from our investment activities.
		<b>Total Scope 3 emissions</b>	<b>20,054</b>	<b>18,469</b>	<b>20,764</b>	