VENTAS®

2021 DETAILED ENVIRONMENTAL DATA

Environmental Boundary & Portfolio Characteristics

GRI 103-1

Ventas defines its environmental control boundary for greenhouse gas emissions ("emissions"), energy, water, and waste reporting in alignment with the Greenhouse Gas Protocol's Operational Control approach. Under this approach, we generally include assets where we pay (directly or indirectly) the utility bills. This includes our owned Office (MOB and Life Science, Research & Innovation ("R&I")) and Senior Housing Operating Portfolio ("SHOP") assets. Excluded from our control boundary are owned single-tenant, triple-net leased assets and other Office and SHOP assets where we do not pay the utility bills. We do, however, work to collect the utility data for these assets to understand our full environmental impact, and this data is included in our reporting to external frameworks, where required, such as GRESB and the S&P Global Corporate Sustainability Assessment. The emissions from these owned assets outside of our control boundary are included in Scope 3 (downstream leased assets). In 2021, we owned 1,293 properties, 778 of which are in our environmental operational control boundary ("within boundary"). Developments and major redevelopment projects are excluded from our control boundary until they are operational. However, we are working to track and evaluate the carbon emissions related to the construction of new developments and redevelopments ("embodied carbon"). As of December 31, 2021, we had 21 properties under development. Our waste boundary differs slightly from that for emissions, energy, and water, and is described further in the waste subsection of this document. We do not track or report on emissions related to our loan portfolio and unconsolidated assets and JV assets where Ventas's ownership is less than 25%.

Ventas utilizes an Environmental Management System (EMS) to collect, verify, and analyze utility and other vendor data.

Please see our quarterly supplemental on our investor relations website for more details on our portfolio. Where data is not available, estimates were made using methodologies explained in the subsequent sections. Due to rounding, numbers presented in the tables throughout this section may not sum to the totals

Emissions and electric, water, and waste consumption represent totals for assets within our operational control, with acquisitions and dispositions time-weighted for our ownership period.

As of 12/31/2021	Building Type	# Properties	Square Feet	% Total
Within Operational Control	Seniors Housing	551	57,423,627	52%
	MOB	200	12,615,777	11%
	Research & Innovation	27	5,981,398	5%
	Subtotal	**778**	**76,020,802**	**69%**
Outside Operational Control	Seniors Housing	294	18,728,588	17%
	Healthcare[1]	65	7,657,136	7%
	MOB	141	6,867,597	6%
	Research & Innovation	15	1,698,855	2%
	Subtotal	**515**	**34,952,176**	**31%**
	Total	**1,293**	**110,972,978**	**100%**

1. Includes all non-senior housing triple net assets (IRFs & LTACs, Health Systems, Skilled Nursing, International Hospitals)

Emissions GRI: 305-1, 305-2, 305-3, 305-5

Goal: To reduce emissions by 30% by 2030, from 2018 baseline

2021 Absolute Emissions and Intensity by Property Type

In metric tons of carbon dioxide equivalent (MTCO2e), Intensity is per 1,000 square feet (SF)

			Market-based				Location-based		
Property Type	Scope 1 - Refrigerants	Scope 1 - Fuels	Indirect (Scope 2)	Total	Intensity	Retired RECs	Indirect (Scope 2)	Total	Intensity
MOB	3,953	12,109	81,010	97,071	7.9	11,072	86,279	102,340	8.4
Seniors Housing	20,120	64,584	117,032	201,736	4.1	6,252	122,923	207,627	4.2
Research & Innovation	100	12,773	37,430	50,303	8.9	4,719	43,738	56,611	10.0
Total	**24,173**	**89,466**	**235,472**	**349,110**	**5.2**	**22,043**	**252,940**	**366,579**	**5.5**
% Actual Data	17%	98%	98%				98%		
% Estimated Data	83%	2%	2%				2%		

Year-Over-Year Same-Store (SS) Emissions and Intensity

	2020				2021				
Property Type	Direct (Scope 1)	Indirect (Scope 2, Market-based)	Total	Intensity	Direct (Scope 1)	Indirect (Scope 2, Market-based)	Total	Intensity	2020-21 SS Δ
MOB	16,299	78,933	95,232	8.4	14,575	73,705	88,280	7.8	-7.3%
Seniors Housing	72,644	106,669	179,313	4.1	79,227	103,612	182,840	4.2	2.0%
Research & Innovation	12,961	35,826	48,787	10.8	9,878	31,117	40,995	9.1	-16.0%
Total	**101,905**	**221,428**	**323,332**	**5.5**	**103,680**	**208,435**	**312,115**	**5.3**	**-3.5%**

Historical Emissions and Intensity and Performance to Baseline

	2018	2019	2020	2021	2018-21 Δ
Scope 1	102,684	106,776	108,692	113,638	10.7%
Scope 2 (Market-based)	314,476	273,022	240,274	235,472	-25.1%
Total	**417,160**	**379,798**	**348,966**	**349,110**	**-16.3%**
Intensity	**8.7**	**7.4**	**5.6**	**5.2**	**-40.2%**

Emissions Notes and Methodology:

Emissions from CO2, CH4, N2O, and HFCs are included. Emissions from PFCs, SF6 and NF3 primarily result from manufacturing and other activities that do not occur in the Ventas portfolio and are therefore not included.

Emissions factors and the global warming potential (GWP) rates used:

- Electricity (US) - EPA eGRID 2019 (2020), EPA eGRID 2020 (2021)
- Electricity (Canada) - Environmental & Climate Change Canada - Emission Factors & Reference Values, Version 1.0, June 2022 (2020 & 2021)
- Electricity (United Kingdom) - IEA 2017 (2020 & 2021)
- Natural Gas/Diesel/Propane/District Steam - EPA Emission Factors for Greenhouse Gas Inventories (2022)
- Business Travel/Employee Commuting - EPA Emission Factors for Greenhouse Gas Inventories (2022)
- Global Warming Potential - IPCC Sixth Assessment Report, 2021 (AR6)

Scope 1 Emissions

Methodology aligns with “The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (Revised Edition)”. Using actual and estimated data, a total emissions impact was calculated using EPA Emission Factors for Greenhouse Gas Inventories (2022).

Refrigerant data was based on data from approximately 100 properties where the intensity (MT CO2-e/sq ft) was used to extrapolate for the rest of Ventas’s in-boundary properties. The Global Warming Potential - IPCC Sixth Assessment Report, 2021 (AR6) was utilized for the calculations.

Scope 2 Emissions

Using actual and estimated data, a total emissions impact was calculated using EPA eGRID 2019 and 2020 factors for 2020 and 2021 data, respectively (United States), the Environmental & Climate Change Canada Emissions Factors (Version 1.0 - June 2022) for 2020 and 2021 data (Canada), and IEA 2017 emission factors for 2020 and 2021 data (United Kingdom) to result in a total MT CO2-e for Scope 2 emissions from electricity. Market-based emissions were calculated utilizing the Edison Electric Institute's (EEI) utility specific emission factors (2020 & 2021), where available, and Green-e Residual Mix Emission Rates (2021 [2019 Data] & 2020 [2018 Data]).

Our 2018 and 2019 location-based emissions are used as a proxy for market-based emissions because we are unable to retroactively calculate a market-based figure. However, we had no contractual instruments in place for alternative emissions energy products, so the location-based emissions are a reasonable proxy for market-based emissions in these years. Additionally, for 2020 and 2021 market-based emissions, location-based emissions factors were used for Canadian properties where there was no source for residual mix emissions factors.

2021 market-based emissions include 27,273 MWH of vintage 2021 U.S. Hydro Renewable Energy Credits (RECs) which were retired during the reporting year as well as 13,584 MWH procured through various utility programs which together offset 22,590 Mt CO2-e.

Scope 3 Absolute Emissions

	2018	2019	2020	2021	2020-21 Δ	2018-21 Δ
Downstream Leased Assets	383,111	364,884	337,333	330,087	-2.1%	-13.8%
Development and Redevelopment Embodied Carbon	not assessed	12,634	30,357	32,558	7.3%	N/A
Waste	44,390	39,055	35,721	32,027	-10.3%	-27.9%
Fuel and Energy Related Activities (Transmission Losses)	not assessed	28,399	21,273	24,798	16.6%	N/A
Other: Refrigerants	16,510	14,929	14,485	12,547	-13.4%	-24.0%
Other: SHOP Vehicle Emissions	4,185	3,919	1,732	2,407	39.0%	-42.5%
Business Travel	730	862	154	466	202.6%	-36.2%
Upstream Leased Assets	946	860	593	406	-31.5%	-57.1%
Employee Commuting	392	1,012	552	398	-27.9%	1.5%
Total	**450,264**	**466,554**	**442,200**	**435,694**	**-1.5%**	**-3.2%**
% Actual data				97%		
% Estimated data				3%		

Emissions Notes and Methodology:

- Corporate Value Chain (Scope 3) Accounting and Reporting Standard | (Supplement to the GHG Protocol Corporate Accounting and Reporting Standard)
- Upstream/Downstream Leased Assets: Chicago, Louisville, and NYC Corporate offices (Upstream) and owned assets outside of our environmental boundary (Downstream) use the same calculation methodology as Scope 1 and 2 emission calculations. No natural gas consumption data was available for the Upstream Assets; therefore, consumption was estimated using the Commercial Buildings Energy Consumption Survey (CBECS) for administrative and professional offices and the square footage of each asset. Note: This year, for the first time, electricity consumption from the Chicago office was included with the Scope 2 emissions as Ventas pays the utility provider directly rather than through the landlord of the building. The Scope 2 emissions from the Chicago office were 284 MT CO2-e, which if added to the Scope 3 upstream leased asset emissions equates to 689 MT CO2-e which is in line with the 2020 emissions of 593 MT CO2-e.
- Waste: This data represents the disposal of actual and estimated waste (approximately 3.1% of the landfill data was estimated) within the environmental boundary using the EPA Waste Reduction Model (WARM), Model Version 15, November 2020 Update.
- Business Travel: Based on Ventas business flight and rental car data provided by travel agency and using EPA Emission Factors for Greenhouse Gas Inventories (2022). Private jet emissions were also included.
- Employee Commuting: 2021 data was calculated based on a survey of employee commuting patterns and using EPA Emission Factors for Greenhouse Gas Inventories (2022).
- Downstream Transportation: SHOP Vehicle Emissions – Estimated leased vehicle emissions from transport fuel from SHOP assets. 2021 emissions are calculated using the EPA Emission Factors for Greenhouse Gas Inventories (2022). This process varies slightly from previous years, as only CO2 was previously reported. This year's data includes CO2-e data from assumed mileage based on vehicle type.
- Refrigerants: Refrigerant data was based on industry data from approximately 100 properties where the intensity (MT CO2-e/sq ft) was used to extrapolate for the rest of Ventas's in-boundary properties. The Global Warming Potential - IPCC Sixth Assessment Report, 2021 (AR6) was utilized for the calculations.
- Development and Redevelopment Embodied Carbon: Ventas estimates the embodied carbon from our development projects by using an estimated carbon intensity per square foot of development and applying this intensity to the total square feet of development completed during the reporting year, multiplied by the percent of spend of total project cost (percent spend is used as a proxy for the percent of the project complete during the year). The embodied carbon intensity was calculated by customizing public templates in the EC3 tool to replicate a sample of our development projects.
- Fuel and Energy Related Activities (Transmission Losses): Ventas estimates transmission losses by applying the percent of electricity loss by state (per the EIA Transmission & Distribution Losses by State database) to the total annual emissions from electricity usage for our properties (both in and outside of our environmental boundary) to determine total losses.

Energy (within boundary) GRI: 302-1, 302-3, 302-4, 302-5

Goal: To reduce energy intensity by 20% by 2028, from 2018 baseline

Total In-Boundary Energy Consumption and Intensity by Property Type

In megawatt hours (MWh), Intensity is per 1,000 square feet (SF)

	2018		2019		2020		2021		
Property Type	**MWh**	**Intensity**	**MWh**	**Intensity**	**MWh**	**Intensity**	**MWh**	**Intensity**	**2018-21 Δ**
MOB	421,974	29.0	377,940	25.4	316,520	23.7	289,797	23.7	-18.3%
Seniors Housing	620,366	21.4	658,578	20.2	765,488	17.6	829,141	16.9	-21.0%
Research & Innovation	174,461	43.0	183,726	49.9	169,192	46.7	225,016	39.7	-7.8%
Non-Renewable Total	**1,216,801**	**25.5**	**1,220,244**	**23.9**	**1,251,201**	**20.7**	**1,343,954**	**20.1**	**-21.5%**
Gas	453,008		440,792		455,061		486,795		
Electric	763,793		779,453		796,140		850,174		
Steam[2]							6,984		
% Actual data	91%		96%		99%		98%		
% Estimated data	9%		4%		1%		2%		
On-site renewables	324		337		2,637		13,813		

Year-Over-Year SS Energy Use and Intensity (MWh)

	2020		2021		
Property Type	**MWh**	**Intensity**	**MWh**	**Intensity**	**2020-21 Δ**
MOB	275,972	24.3	265,545	23.3	-3.8%
Seniors Housing	746,312	17.2	750,488	17.3	0.6%
Research & Innovation	171,772	37.9	176,791	39.0	2.9%
Total	**1,194,056**	**20.2**	**1,192,824**	**20.2**	**-0.1%**

Energy Notes and Methodology:

Energy data is aggregated primarily from utility bills. Ventas engages a third-party consultant with expertise in utility data aggregation and environmental impact analysis. For properties where partial or no utility data can be obtained, estimates are made as follows:

A) Estimates using real data: For properties with one or more months of missing data, data from the corresponding month from the prior year (or in the case of 2018-2019 data, the following year) for that property is used as an estimate for the missing month; where data from the corresponding month of the prior or following year for that property is not available, data is estimated based on data from an adjacent month.

B) Intensity Estimates: For properties with one or more months of missing data where prior or following year data is not available, the energy intensity per square foot for the property type in the respective calendar year (within the Ventas portfolio) is used to estimate the usage. Energy intensity is calculated by summing the total average monthly energy consumption for the property type in the calendar year and dividing by the total square feet for the property type, excluding outliers.

For properties lacking complete natural gas or electricity usage data for the reporting period, estimations were made as follows: where available, data gaps were filled in with previous years' data; if the asset had over 50% data coverage, then an average of the other usage months was utilized to fill in the gaps; if the asset had less than 50% data coverage, then estimates were derived based on the location of the property, size of the property, and property type.

Source of the conversion factors used: EPA Thermal Conversions: https://portfoliomanager.energystar.gov/pdf/reference/Thermal%20Conversions.pdf

2. 2021 is the first-year steam is being broken out into its own energy category. In prior years it was reflected in the electric total.

Water (within boundary) GRI: 303-1

Goal: To reduce water intensity by 20% by 2028, from 2018 baseline

Total In-Boundary Water Consumption and Intensity by Property Type

In thousands of cubic meters (m^3), Intensity is per 1,000 square feet (SF)

	2018		2019		2020		2021		
Property Type	**m^3**	**Intensity**	**m^3**	**Intensity**	**m^3**	**Intensity**	**m^3**	**Intensity**	**2018-21 Δ**
MOB	1,475	101.3	1,328	89.4	1,150	86.2	1,225	100.1	-1.1%
Seniors Housing	5,545	191.1	6,096	187.4	7,802	180.6	8,469	172.4	-9.8%
Research & Innovation[3]	445	110.0	427	116.1	367	101.5	497	87.8	-20.2%
Total	**7,466**	**156.7**	**7,852**	**153.8**	**9,321**	**154.9**	**10,193**	**152.1**	**-3.0%**
% Actual data	92%		92%		90%		89%		
% Estimated data	8%		8%		10%		11%		

Year-Over-Year SS Consumption and Intensity

	2020		2021		
Property Type	**m^3**	**Intensity**	**m^3**	**Intensity**	**2020-21 Δ**
MOB	1,022	82.1	1,134	91.1	11.0%
Seniors Housing	7,351	169.9	7,646	176.7	4.0%
Research & Innovation	328	94.9	389	112.5	18.6%
Total	**8,701**	**147.1**	**9,169**	**155.0**	**5.4%**

Water Notes and Methodology:

Water data is aggregated primarily from utility bills. Ventas engages a third-party consultant with expertise in utility data aggregation and environmental impact analysis.

A) Estimates using real data: For properties with one or more months of missing data, data from the corresponding month from the prior year (or in the case of 2018-2019 data, the following year) for that property is used as an estimate for the missing month; where data from the corresponding month of the prior or following year for that property is not available, data is estimated based on data from an adjacent month.

B) Intensity Estimates: For properties with one or more years of missing data where prior or following year data is not available, the water intensity per square foot for the property type in the respective calendar year (within the Ventas portfolio) is used to estimate the usage. Water intensity is calculated by summing the total average monthly water consumption for the property type in the calendar year and dividing by the total square feet for the property type, excluding outliers.

3. For 2021, 8 properties were re-classified from MOB to Research & Innovation to better reflect their primary use. This contributed to the decline in water intensity in 2021 against the baseline for Research & Innovation.

Waste (within boundary) GRI: 306-2

Goal: To establish recycling programs at 100% of assets within our environmental control boundary by 2028

Total Weight of Waste

In metric tons (MT)

	2018	2019[4]	2020	2021	2020 SS	2021 SS
Recycling	24,205	8,271	7,257	6,786	6,690	5,275
Compost	82	299	282	327	279	173
Landfill	110,808	67,035	44,478	51,658	40,089	39,731
Total Non-Hazardous	**135,094**	**75,605**	**52,017**	**58,771**	**47,057**	**45,179**
Diversion Rate	**18%**	**11%**	**14%**	**12%**	**15%**	**12%**
Hazardous waste[5]	N/A	N/A	N/A	N/A	N/A	N/A
Estimated Landfill			30,504	31,304	30,129	26,776
Total	**135,094**	**75,605**	**82,521**	**90,075**	**77,186**	**71,956**
% Actual data	69%	49%	54%	58%		
% Estimated data	31%	51%	46%	42%		

Recycling Services	2018	2019	2020	2021
# Assets with Recycling Services	250	286	311	366
# Assets within Recycling Control Boundary	626	644	642	754
% Portfolio with Recycling Services	**40%**	**44%**	**48%**	**49%**

Waste Notes and Methodology:

Our waste operational control boundary differs slightly from our energy and water control boundary; the data here reflects where we believe to have control over landfill and recycling services, which differs slightly from where we have control over energy and water utilities. Developments and major redevelopment projects are excluded from our control boundary until they are operational. Waste data is aggregated primarily from waste hauler invoices. Ventas engages a third-party consultant with expertise in utility data aggregation and environmental impact analysis.

In cases where volumetric data was provided instead of weight data, the following volume-weight conversion factors were used: EPA Standard volume-to-weight conversion factors.

If actual waste tonnage or volume is available from the waste hauler invoice or other reliable source, that is reflected in our waste data. For most properties, waste amounts are estimated based on the number and size of waste containers that are picked up by the waste hauler (based on the hauler invoice). For data collection and reporting purposes, it is assumed that containers are full and contain an average weight per cubic yard. This is a standard practice for estimating waste from commercial real estate properties. For properties where partial or no utility data can be obtained, estimates are made as follows (note: estimates are made only for landfill waste, as all properties are assumed to have landfill services, but not all are assumed to have recycling and composting):

A) Estimates using real data: For properties with one or more months of missing data, data from the corresponding month from the prior year for that property is used as an estimate for the missing month; where data from the corresponding month of the prior or following year for that property is not available, data is estimated by taking the average of adjacent months or the equivalent of a previous or following month. Where adjacent months or data from a prior or following year is itself an estimate, an average intensity for the property type was calculated based on real data for that property type and multiplied by the square footage of the property.

Source of the conversion factors used: EPA Standard: https://www.epa.gov/sites/production/files/2016-04/documents/volume_to_weight_conversion_factors_memorandum_04192016_508fnl.pdf

4. The reduction in waste from 2018 to 2019 is primarily due to improved data collection and estimation methodology.
5. Ventas does not provide services related to hazardous waste. Such services, if required by our tenants or operators, are procured directly by our tenants and operators and are outside the scope of our waste purview and reporting.