2022 Detailed Environmental Data





Environmental Boundary and Portfolio Characteristics

GRI 3-3

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 control and fund capital expenditures (capex) and where pay (directly or indirectly) the utility bills. This includes our owned Outpatient Medical Buildings, Research Centers and Senior Housing Operating Portfolio (SHOP) assets. Excluded from our control boundary are owned single-tenant, triple-net leased (NNN) assets and other Office and SHOP assets where we do not pay the utility bills or control capex. 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 CDP. The emissions from these owned assets outside of our control boundary are included in Scope 3 (downstream leased assets).

In 2022, we owned 1,240 properties, 762 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 calculate the embodied carbon emissions related to the construction of new developments and redevelopments. As of December 31, 2022, we had 25 properties under development or major redevelopment. We do not track or report on emissions related to our loan portfolio or assets for which we only provide 3rd party property management services which represented less than 3% and less than 1%, respectively, of our company Net Operating Income in 2022. Please see our quarterly supplemental on our investor relations website for more details on our portfolio.

Ventas utilizes an Environmental Management System (EMS) to collect, verify, and analyze utility and other vendor data. 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 document may not sum to the totals.

	Building Type	# Properties	Square Feet	% Total
	Senior Housing	556	57,054,312	54%
Within Operational Control	Outpatient Medical	177	11,538,202	11%
Within Operational Control	Research	29	6,012,460	6%
	Subtotal	762	74,604,974	70%
	Senior Housing	250	15,156,618	14%
	Outpatient Medical	150	7,238,400	7%
Outside Operational Control	Healthcare ¹	63	7,499,136	7%
	Research	15	1,877,802	2%
	Subtotal	478	31,771,956	30%
	Total	1,240	106,376,930	100%

2022 Portfolio and Operational Control Boundary

¹ Includes inpatient rehabilitation facilities (IRFs) and long-term acute care hospitals (LTACs), health systems, skilled nursing, international hospitals.



Goal: Reduce Scopes 1, 2, and 3 emissions on an absolute basis by 30% by 2030; Scopes 1 and 2 goal is validated by Science Based Targets initiative Additional Goal: Achieve net zero operational carbon (Scopes 1 and 2) by 2040

All emissions are in metric tons of carbon dioxide equivalent (MTCO2e), Intensity is per 1,000 square feet (SF)

Emissions Base Year and Subsequent Years Recalculation

In 2022, Ventas recalculated its 2018 base year and all subsequent year emissions following the GHG Protocol's fixed base year, all year approach. The recalculation was triggered by the accumulation of several acquisitions and dispositions since 2018. All years (2018 – 2022) now reflect our 2022 portfolio. The 2022 portfolio has been adjusted to exclude dispositions and gross up acquisitions as if owned for the full year in 2022.

2022 Emissions and Intensity by Property Type (Recalculated)

		Scope 1				Market-based		Location-based		
Property Type	Refrigerants	Backup Generators (diesel)	Gas and Other Fuels	Total	Scope 2 (Indirect)	Total (Scopes 1+2)	Intensity	Scope 2 (Indirect)	Total (Scopes 1+2)	Intensity
Senior Housing	28,305	2,163	70,764	101,064	150,940	253,874	4.4	158,429	259,493	4.5
Outpatient Medical	1,312	549	9,792	11,653	74,320	85,973	7.5	79,717	91,370	7.9
Research	3	66	17,431	17,499	30,186	47,637	7.9	50,433	67,932	11.3
Total	29,620	2,777	97,987	130,216	255,446	385,663	5.2	288,579	418,795	5.6
Data Coverage	100%	100%	100%	100%	100%	100%		100%	100%	
Estimated Data	90.9%	82.0%	0.7%	22.8%	2.7%	9.5%		2.7%	8.9%	

2022 Renewable Electricity and Scope 2 Emissions Details

				Market	-based	Locatio	n-Based
	Electricity (MWh)	Electricity	Total Energy	Emissions Factor	Emissions	Emissions Factor	Emissions
On-Site Renewable Electricity Generation	247	0.03%	0.02%	0	0	0	4,778
Off-Site Renewable Electricity Procured ¹	11,322	1.26%	0.77%	0	0	standard grid	6,436
Grid Electricity Offset by RECs ²	50,000	5.58%	3.40%	0	0	standard grid	15,220
Other Zero-Carbon Electricity ³	8,653	0.97%	0.59%	0	0	standard grid	4,093
All Other Grid Electricity Consumption	825,614	92.16%	56.20%	residual mix	255,446	standard grid	258,051
Total	895,836	100.00%	60.98%		255,446		288,579

¹ Includes renewable power purchase agreements (PPAs) or other utility green power products that explicitly include renewable energy certificates (RECs), e.g., 'bundled' RECs. ² Represents unbundled North American REC purchases where RECs have been retired by Ventas and applied to North American grid energy consumption.

³ Includes zero-carbon electricity sources, such as nuclear, that are procured through utility programs.

Base Year and Subsequent Years Emissions and Intensity (Recalculated)

	# Properties ¹	SFT	2018	2019	2020	2021	2022	2018-22 Delta	
Scope 1	755	74,291,369	127,993	126,726	120,619	121,591	130,216	1.7%	
Scope 2 (Market-based)	755	74,291,369	356,505	327,827	284,685	265,444	255,446	-28.3%	
Total	755	74,291,369	484,498	454,553	405,304	387,035	385,663	-20.4%	¢
Intensity			6.5	6.1	5.5	5.2	5.2	-20.4%	

¹ This pool of assets differs slightly from the 2022 boundary. It represents all assets in operational control during 2022 excluding dispositions and with acquisition data grossed up to represent full year ownerships.

Historical Emissions and Intensity (Not Recalculated)

This table includes emissions generated in each reporting year based on the portfolio of assets owned by Ventas during that year. No adjustments have been made to the base year or other years to adjust for subsequent acquisitions or dispositions.

	2018	2019	2020	2021	2022	2018-22 Delta
Scope 1	102,684	106,776	108,692	113,638	130,625	27.2%
Scope 2 (Market- based)	314,476	273,022	240,274	235,472	256,859	-18.3%
Total	417,160	379,798	348,966	349,110	387,485	-7.1%
Intensity ¹	8.7	7.4	5.6	5.2	5.2	-40.3%

¹ Denominator square feet are time-weighted for asset ownership periods.

Scope 1 and 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.

Factors and the global warming potential (GWP) rates used:

- Electricity (US): EPA eGRID 2020 (2021), EPA eGRID 2021 (2022)
- Electricity (Canada): 2021 UNFCCC, Canada National Inventory Report (2021 & 2022)
- Electricity (United Kingdom): 2022 UK Government Conversion Factors for GHG Reporting (2021 & 2022)
- Natural Gas/Diesel/Propane/District Steam: EPA Emission Factors for Greenhouse Gas Inventories (2023)
- Business Travel/Employee Commuting: EPA Emission Factors for Greenhouse Gas Inventories (2023)
- Global Warming Potential for fugitive refrigerant emissions: IPCC Sixth Assessment Report, 2021 (AR6)

Market-based emissions were calculated utilizing residual mix emissions factors from two sources: the Edison Electric Institute's (EEI) utility specific emission factors (2021 & 2022), where available, and Green-e Residual Mix Emission Rates (2022 & 2021 [2020 Data]). See "The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (Revised Edition)" for definitions of market- and location-based emissions and other terms: https://ghgprotocol.org/

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 marketbased emissions in these years. Additionally, for 2020, 2021 and 2022 market-based emissions, location-based emissions factors were used for Canadian properties where there was no source for residual mix emissions factors.

Fugitive refrigerant emissions are based on actual recharge of refrigerants in the reporting year from approximately 300 properties. The intensity (MT CO2-e/sq ft) from this sample was used to extrapolate for the rest of Ventas's in-boundary properties, by property type.

2022 is the first year Ventas measured emissions from diesel backup generators. Past years and 2022 include emissions from generators powered by natural gas and other fuels.

All estimations are based on percentage of emissions for that category that was estimated.

2022 market-based emissions include 50,000 MWH of vintage 2022 U.S. Hydro Renewable Energy Credits (RECs) which were retired during the reporting year as well as 20,223 MWH procured through various utility programs or solar generated on-site which together offset 30,527 Mt CO2-e.

Scope 3 Base Year and Subsequent Years Emissions (Recalculated)

In 2022, Ventas recalculated its 2018 base year emissions following the GHG Protocol's fixed base year, all year approach. The recalculation was triggered by the accumulation of several acquisitions and dispositions since 2018. All years (2018 – 2022) now reflect our 2022 portfolio. Scope 3 categories that were recalculated based on the adjusted asset pool include Downstream Leased Assets, Waste, Transmission Losses, and Refrigerants. The activities in all other Scope 3 categories are independent of our portfolio changes with the exception of SHOP Vehicle Emissions which we excluded due to its immaterial impact to total scope 3 emissions and the complexity of recalculating.

The 2022 portfolio used to calculate Downstream Leased Assets, Waste, Transmission Losses, and Refrigerants is 472 properties covering 30,958,072 square feet. This differs slightly from the out of boundary pool of assets in the 2022 portfolio and operational control boundary due to the exclusion of dispositions and the grossing up of acquisitions as if owned for the full year for transactions in 2022.

	2018	2019	2020	2021	2022	2022 Estimated Data	2021-22 Delta	2018-22 Delta
Downstream Leased Assets	344,247	323,080	303,194	279,701	290,630	18.4%	3.9%	-15.6%
Waste	55,014 ¹	55,014	57,786	40,906	40,590	25.0%	-0.8%	-26.2%
Development and Redevelopment Embodied Carbon (Capital Goods)	29,660	37,062	30,357	33,752	23,658	100.0%	-29.9%	-20.2%
Fuel and Energy Related Activities (Transmission Losses)	30,821	28,700	25,584	23,427	21,280	0.0%	-9.2%	-31.0%
Other: SHOP Vehicle Emissions	4,185	3,919	1,732	2,407	3,437	22.6%	42.8%	-17.9%
Business Travel	730	862	154	466	959	0.0%	105.9%	31.4%
Employee Commuting	392	1,012	552	398	665	0.0%	67.0%	69.5%
Upstream Leased Assets	946	860	593	406	384	0.0%	-5.5%	-59.5%
Other: SHOP Vehicle Emissions	4,185	3,919	1,732	2,407	3,437	22.6%	42.8%	-17.9%
Total	476,661	466,175	430,619	392,130	391,933	24.1%	-0.1%	-17.8%
Data Coverage	100%	100%	100%	100%	100%			

¹ 2019 waste data and emissions are used as a proxy for 2018.

Scope 3 Historical Emissions (Not Recalculated)

This table includes emissions generated in each given reporting year based on the portfolio of assets owned by Ventas during that year. No adjustments have been made to the base or other years to adjust for subsequent acquisitions or dispositions.

	2018	2019	2020	2021	2022	2021-22 Delta	2018-22 Delta
Downstream Leased Assets	383,111	364,884	337,333	330,087	330,390	0.1%	-13.8%
Waste	39,055 ¹	39,055	35,721	32,027	43,207	34.9%	-2.7%
Development and Redevelopment Embodied Carbon (Capital Goods)	not assessed	12,634	30,357	32,558	23,658	-27.3%	N/A
Fuel and Energy Related Activities (Transmission Losses)	not assessed	28,399	21,273	24,798	22,485	-9.3%	N/A
Other: Refrigerants	16,510	14,929	14,485	12,547	10,700	-14.7%	-35.2%
Other: SHOP Vehicle Emissions	4,185	3,919	1,732	2,407	3,437	42.8%	-17.9%
Business Travel	730	862	154	466	959	105.9%	31.4%
Employee Commuting	392	1,012	552	398	665	67.0%	69.5%
Upstream Leased Assets	946	860	593	406	384	-5.5%	-59.5%
Total	450,264	466,554	442,200	435,694	435,885	0.0%	-3.2%
Data Coverage	100%	100%	100%	100%	100%		

¹ 2019 waste data and emissions are used as a proxy for 2018.

Scope 3 Emissions Notes and Methodology:

- Downstream Leased Assets: Downstream Leased Assets use the same calculation methodology as Scope 1 and 2 emission calculations.
- Waste: This data represents the disposal of actual and estimated waste (approximately 25% of the landfill data was estimated) within the environmental boundary using the EPA Waste Reduction Model (WARM), Model Version 15, November 2020 Update.
- 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 using actual embodied carbon calculations from current 2023 developments and other references including the report "Comparative LCAs of Conventional and Mass Timber Buildings in Regions with Potential for Mass Timber Penetration" https://doi.org/10.3390/su132413987
- 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.
- Refrigerants: Refrigerant data was based on actual refrigerant refills during the reporting year from approximately 300 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.
- Downstream Transportation (SHOP Vehicle Emissions): Emissions are calculated using the EPA Emission Factors for Greenhouse Gas Inventories (2022). This process varies slightly from previous years, as only CO2 was reported prior to 2021. 2021 and 2022 data includes CO2-e data from assumed mileage based on vehicle type.
- Business Travel: Emissions are calculated using actual Ventas business flight and rental car data provided by our travel agencies and using EPA Emission Factors for Greenhouse Gas Inventories (2022). Private jet emissions were also included.
- Employee Commuting: Data was calculated based on a survey of employee commuting patterns and using EPA Emission Factors for Greenhouse Gas Inventories (2022).
- Upstream Leased Assets: Chicago, Louisville, and NYC Corporate offices (Upstream) and owned assets outside of our environmental boundary. 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. 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.



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

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

Energy Consumption and Intensity by Property Type

	20	18	20	19	20	20	202	21	20	22	
Property Type	MWh	Intensity ¹	2018-22 Delta								
Senior Housing	620,366	21.4	658,578	20.2	765,488	17.6	829,141	16.9	951,131	16.7	-21.9%
Outpatient Medical	421,974	29.0	377,940	25.4	316,520	23.7	289,797	23.7	261,214	22.6	-21.8%
Research	174,461	43.0	183,726	49.9	169,192	46.7	225,016	39.7	256,760	42.9	-0.2%
Total	1,216,801	25.5	1,220,244	23.9	1,251,201	20.7	1,343,954	20.1	1,469,105	19.7	-22.8%
Data Coverage	100%		100%		100%		100%		100%		
Estimated Data	9.9%		2.2%		1.2%		2.0%		1.6%		

¹ Denominator square feet are time-weighted for asset ownership periods.

Energy Consumption by Type

	2018	2019	2020	2021	2022	2022 Estimated Data
Electricity	763,793	779,453	796,140	850,174	895,836	2.7%
Gas and Other Fuels ¹	453,008	440,792	455,061	486,795	564,841	0.7%
Steam ²				6,984	8,428	0.0%
Total	1,216,901	1,220,244	1,251,201	1,343,954	1,469,105	1.6%

¹ Other fuels includes propane, No. 2 Fuel Oil, and diesel.

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

Same-Store Energy Consumption and Intensity

			20	21	20	22	
Property Type	# Properties ¹	SFT	MWh	Intensity	MWh	Intensity	2021-22 Delta
Senior Housing	177	11,538,202	664,556	17.2	673,850	17.5	1.4%
Outpatient Medical	318	38,579,980	260,415	22.6	261,214	22.6	0.3%
Research	26	5,427,001	222,985	41.1	227,100	41.8	1.8%
Total	521	55,545,183	1,147,956	20.7	1,162,164	20.9	1.2%

¹ Ventas's Energy Same-Store Pool differs from the Same-Store pool used in financial reporting. The Energy Same-Store Pool for energy includes properties that have two full years of actual energy data, for the current and prior reporting years.

Base Year and Subsequent Years Energy Consumption (Recalculated)

In 2022, Ventas recalculated its 2018 base year emissions following the GHG Protocol's fixed base year, all year approach. The recalculation was triggered by the accumulation of several acquisitions and dispositions since 2018. All years (2018 – 2022) now reflect our 2022 portfolio. This table shows the underlying energy data from the pool of assets used to calculate the emissions in each reporting year.

	2018	2019	2020	2021	2022
Electricity	972,708	946,924	896,443	896,084	913,775
Gas and Other Fuels	558,922	551,931	518,233	524,081	537,256
Steam	3	3	3	6,989	8,432
Total	1,531,633	1,498,858	1,414,679	1,427,154	1,459,463

Energy Notes and Methodology:

Energy data is aggregated from utility bills and data feeds from 3rd party bill pay providers. For properties where partial or no utility data can be obtained, estimates are made as follows:

A) Estimates using existing 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.

B) Intensity Estimates: For properties with one or more months of missing data where prior year data is not available, estimates are calculated using the energy intensity of properties in the Ventas portfolio with full calendar year data. Energy intensity is applied based on property type by eGrid region. For international properties, the average intensity of international properties with full calendar year data was used.



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

In cubic meters (m³), Intensity is per 1,000 square feet (SF)

Water Consumption and Intensity by Property Type

	20 ⁻	2019		19	202	2020 2021		1	202	22	
Property Type	m³	Intensity	m³	Intensity	m³	Intensity	m ³	Intensity	m ³	Intensity ¹	2018-22 Delta
Senior Housing	5,545,000	191.1	6,096,326	187.4	7,802,894	180.6	8,469,997	172.4	9,402,555	165.1	-13.6%
Outpatient Medical	1,475,338	101.3	1,328,704	89.4	1,150,982	86.2	1,225,489	100.1	1,089,927	94.5	-6.7%
Research	445,000	110.0	427,782	116.1	367,884	101.5	497,559	87.8	551,659	92.3	-16.1%
Total	7,465,338	156.7	7,852,812	153.8	9,321,760	154.9	10,193,046	152.1	11,044,140	148.3	-5.3%
Data Coverage	100%		100%		100%		100%		100%		
Estimated Data	44.4%		53.2%		33.3%		24.1%		21.1%		

e

¹ Denominator square feet are time-weighted for asset ownership periods.

Same-Store Water Consumption and Intensity

			2021		2022		
Property Type	# Properties ¹	SFT	m³	Intensity	m³	Intensity	2021-22 Delta
Senior Housing	382	31,497,551	5,244,738	166.5	5,64,286	179.2	7.6%
Outpatient Medical	157	9,789,236	973,465	99.4	996,857	101.8	2.4%
Research	24	5,113,863	364,424	71.3	376,867	73.7	3.4%
Total	563	46,400,650	6,582,626	141.9	7,018,010	151.2	6.6%

¹ Ventas's Water Same-Store Pool differs from the Same-Store pool used in financial reporting. The Water Same-Store Pool for energy includes properties that have two full years of actual water data, for the current and prior reporting years.

Water Notes and Methodology:

Water data is aggregated from utility bills and data feeds from 3rd party bill pay providers. For properties where partial or no utility data can be obtained, estimates are made as follows:

A) Estimates using existing 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.

B) Intensity Estimates: For properties with one or more months of missing data where prior year data is not available, estimates are calculated using the water intensity of properties in the Ventas portfolio with full calendar year data. Water intensity is applied based on property type by eGrid region. For international properties, the average intensity of international properties with full calendar year data was used.

Waste (within boundary)

GRI: 306-1, 306-2, 306-3, 306-4, 306-5

\rightarrow Goal: Establish recycling programs at 100% of assets within our environmental control boundary by 2028

In metric tons (MT), Intensity is per 1,000 square feet (SF)

Waste Generation

						2021-22 Same-Store ²	
	2018 ¹	2019	2020	2021	2022	2021	2022
Recycling	8,271	8,271	7,257	6,786	10,996	6,457	8,221
Compost	299	299	282	327	1,409	327	1,019
Landfill	67,035	67,035	44,478	51,658	67,360	48,217	51,455
Total Non- Estimated Waste	75,605	75,605	52,017	58,771	79,765	55,001	60,695
Diversion Rate	11%	11%	14%	12%	15%	12%	15%
Hazardous Waste ³	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Estimated Landfill			30,504	31,304	15,686	N/A	N/A
Total Non- Hazardous	75,605	75,605	82,521	90,075	95,451	55,001	60,695
Non- Hazardous Intensity⁴	N/A	1.28	1.34	1.18	1.28	1.13	1.24
Data Coverage	100%	100%	100%	100%	100%	100%	100%
Estimated data	100%	51%	46%	42%	25%	0%	0%

¹ 2019 waste data and emissions are used as a proxy for 2018. ² The Waste Same-Store pool is comprised of 573 assets covering 48,751,200 square feet.

³ 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.

⁴ Denominator square feet are time-weighted for asset ownership periods.

Recycling Summary

	2020	2021	2022	
# Assets with Recycling Services	289	330	376	
# Assets with Non-Estimated Waste Data	610	588	611	
Portfolio with Recycling Services	47%	56%	62%	¢
# Assets with 100% Estimated Data	63	190	151	
# Assets within Operational Control	673	778	762	

Waste Notes and Methodology:

Waste data is aggregated primarily from waste hauler reports and invoices.

Actual waste tonnage or volume is used from the waste hauler report or invoice, where available. Where waste tonnage is not provided, waste is estimated based on the number and size of waste containers and frequency of hauler pickup. Containers are assumed to be 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 waste 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 missing data, data from the prior year for that property is used as an estimate for the current year; where data from the prior year for that property is not available, 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.

Where volumetric data was provided instead of weight data, EPA Standard volume-to-weight conversion factors were used: https://www.epa.gov/sites/production/files/2016-04/documents/volume to weight conversion factors memorandum 04192016 508fnl.pdf