CANADIAN APARTMENT PROPERTIES • REIT

2023 Energy, Water and Greenhouse Gas Reporting Methodology

Table of Contents

1.0 BACKGROUND

This document details the methodology used by Canadian Apartment Properties Real Estate Investment Trust (CAPREIT) to measure the energy and water consumption and greenhouse gas (GHG) emissions reported for its Canadian real estate portfolio in its 2023 Environmental, Social and Governance Report (ESG Report) for the 2023 emissions reporting year (January 1, 2023, to December 31, 2023) (Fiscal 2023).

CAPREIT has engaged Brightly Software Canada (Brightly) to assist with the measurement and reporting of energy use, water consumption, and GHG emissions for the Canadian real estate portfolio following the guidance of the GHG Protocol[1]. The methodology includes reporting of Scope 3 emissions with partial coverage of two categories of CAPREIT's Scope 3 emissions: Category 4 (upstream transportation and distribution) emissions related to water use, and Category 13 (downstream leased assets) emissions related to tenant utilities outside CAPREIT's operational control. These emissions have been calculated following the guidance of the GHG Protocol Corporate Value Chain (Scope 3) Accounting and Reporting Standard[2].

2.0 ORGANIZATIONAL BOUNDARIES

Organizational boundaries define the approach to determining ownership or control over the energy and emissions reported for the property portfolio.

CAPREIT applies the operational control approach for the purposes of emissions reporting, defined as follows in the GHG Protocol:

> *A company has operational control over an operation if the former or one of its subsidiaries has the full authority to introduce and implement its operating policies at the operation.... Under the operational control approach, a company accounts for 100% of emissions from operations over which it or one of its subsidiaries has operational control.*

Under the operational control approach, 100% of energy and emissions at joint venture properties operationally controlled by CAPREIT are included, regardless of ownership percentage. Joint venture properties not operationally controlled by CAPREIT are excluded.

[1] The GHG Protocol – A Corporate Accounting and Reporting Standard, Revised Edition (World Resources Institute, 2004).
[2] Corporate Value Chain (Scope 3) Accounting and Reporting Standard: Supplement to the GHG Protocol Corporate Accounting and Reporting Standard (World Resources Institute, 2011).

2.1 Determining Responsibility for Emissions

Per the GHG Protocol Corporate Value Chain (Scope 3) Accounting and Reporting Standard, for reporting emissions from leased assets, the responsibility for emissions associated with leased assets depends on the economic substance of the lease (capital or operating) and the choice of organizational boundary approach (financial control, equity share, or operational control). Under the operational control approach, responsibility for emissions associated with a space with an operating lease is defined as follows:

> *Lessor does not have operational control, therefore emissions associated with fuel combustion and use of purchased electricity are scope 3 (Downstream leased assets).*
>
> *Some companies may be able to demonstrate that they do have operational control over an asset leased to another company under an operating lease, especially when operational control is not perceived by the lessee. In this case, the lessor may report emissions from fuel combustion as scope 1 and emissions from the use of purchased electricity as scope 2 as long as the decision is disclosed and justified in the public report.*

For the purposes of CAPREIT's GHG reporting, where submeter data is available to separate tenant electricity use from base-building / common area electricity, tenant use is reported as Scope 3. Where only bulk-metered, whole-building utility data is available, fuel and electricity use are reported as Scope 1 and 2.

3.0 OPERATIONAL BOUNDARIES

CAPREIT's emissions reporting includes Scope 1, 2 and 3 emissions resulting from the operation of CAPREIT properties. CAPREIT's Canadian portfolio consists of multi-unit residential (residential) properties, manufactured home communities (MHCs), and commercial retail properties existing as part of a CAPREIT residential complex.

3.1 Scope 1 – Direct Emissions

Scope 1 emissions are emissions generated at properties that are under CAPREIT's operational control. This includes fuel consumption for space heating, water heating and, in some cases, cooking. Natural gas and heating oil consumption and emissions are reported.

3.2 Scope 2 – Energy Indirect Emissions

Scope 2 emissions are emissions from purchased electricity that is consumed at properties under CAPREIT's operational control but generated elsewhere.

3.3 Scope 3 – Value Chain Indirect Emissions

Scope 3 emissions are reported at properties where CAPREIT has operational control for water consumption (Category 4: upstream transportation and distribution) and tenant-controlled utilities where data is available via submetering (Category 13: downstream leased assets).

3.4 Manufactured Home Communities (MHCs)

At MHCs, residents own their respective homes, which exist on land CAPREIT owns and leases. Since CAPREIT does not have ownership of the homes, emissions related to energy use in these homes are not considered to fall under the definition of "downstream leased assets" and are therefore out of scope. CAPREIT reports Scope 2 and Scope 3 Category 4 emissions related to utilities in its control at MHCs, which generally include street lighting and some water use.

3.5 Inventory Exclusions

Of the relevant emissions applicable to CAPREIT, the following sources are not included in reporting for Fiscal 2023:

Fugitive emissions from refrigerants: Information regarding chiller specifications and refrigerant types has not been compiled. Fugitive emissions from refrigerants are anticipated to be immaterial.

Scope 3 emissions: Scope 3 emissions from purchased goods and services, capital goods, life-cycle fuel- and energy-related activities, upstream transportation, and distribution of purchased products (apart from water), waste generated in operations, business travel, employee commuting, and upstream leased assets are outside of the scope of CAPREIT's methodology, and the ESG Report as reliable data cannot currently be obtained. Many of these categories are expected to be immaterial. Other Scope 3 emission sources such as downstream transmission and distribution, downstream emissions related to sold products, franchises, and investments are also excluded as they are either not relevant for CAPREIT, do not exist for their type of business, or cannot be obtained.

Scope 3, Category 13 emissions for downstream leased assets are reported only where tenant-controlled utility data is available via submetering. At many residential properties, tenants pay for utilities directly. The associated Scope 3, Category 13 emissions are not reported due to unavailability of data. As data becomes available in the future, it will be updated in the year in which data is available, together with related comparative data, as discussed in Section 4.1.

European Residential Real Estate Investment Trust (ERES) Portfolio: CAPREIT's methodology and the ESG Report focus exclusively on emissions from CAPREIT properties located in Canada. Emissions related to properties owned by ERES are excluded. Netherlands apartment suites owned by ERES represent approximately 11% of the suites and sites of CAPREIT on a consolidated basis.

Regional Offices: CAPREIT regional offices located in buildings that are not owned by CAPREIT are excluded from emissions reporting.

Other Excluded Properties: As noted in Section 2.0, joint venture properties not managed by CAPREIT are excluded as CAPREIT does not have operational control. In addition, certain CAPREIT-managed properties with no property owner-controlled utilities have been excluded. Finally, three properties acquired in 2023 – 20449 Park Avenue, 1649 East Broadway, and 687 Admirals Road – had no available 2023 utility data at the time of reporting and have been excluded. The list of excluded properties is below.

Property Name	City	Province
Harbourview Commercial	Halifax	NS
Wellington Towers Apartments	Ottawa	ON
Alta Vista Towers Apartments	Ottawa	ON
Riverview Place Apartments	Ottawa	ON
Beaconwood Village Townhomes	Ottawa	ON
Aspen Village Townhomes	Ottawa	ON
Timberline Townhomes	Ottawa	ON
Jubilee Townhomes	Ottawa	ON
Forestview Townhomes	Ottawa	ON
Villa Vista Apartments	Ottawa	ON
Windsor Park Village Apartments	Ottawa	ON
Hunter's Point Townhomes	Ottawa	ON
Surrey Place Townhomes	Ottawa	ON
Towns in Hyde Park	London	ON
Parque on Park	Langley	BC
1649 East Broadway	Vancouver	BC
687 Admirals Road	Victoria	BC

4.0 COMPARISON TO HISTORICAL YEARS

4.1 Base Year Recalculation Policy

CAPREIT has updated its base year for GHG accounting from 2010 to 2019. This change is driven by the fact that 2019 represents the latest period with normal, pre-COVID operations, offering a more precise and representative reference point. Furthermore, changes in our portfolio, including acquisitions and dispositions, call for a new base year to accurately reflect the current portfolio and its emissions profile.

Utility use and emissions are recalculated for the base year and each comparative historical year, in keeping with the GHG Protocol, to account for the following factors:

1. Property acquisitions and dispositions by CAPREIT.
2. Properties or accounts owned in the base year, but previously excluded from scope.
3. Corrections to historical data based on availability of more accurate information.
4. Changes to emission factors.

In cases where historical data is not available, historical consumption is estimated based on the best data available. The base year is not recalculated to account for new property developments or demolitions.

Adjustments for acquisitions / dispositions are treated using the 'Same-year, Pro-rata'[3] approach, meaning that buildings only owned for a portion of the reporting year (2023) are included in all historical years for the same period. Utility use, emissions and 'effective' number of suites are all adjusted proportionately for the period of ownership in 2023.

4.2 Restatement Details

The restatement categories outlined in Section 4.1 resulted in the following impacts on reported Scope 1 emissions.

Impact of Restatements on Comparative Year Data – Scope 1

Cause of Restatement	2019	2022
Changes to Emission Factors	0.0%	0.0%
Acquisitions and Dispositions	-2.9%	-2.6%
Increased data availability or activity data corrections	0.0%	-0.1%

[3] Base year recalculation methodologies for structural changes - Appendix E to the GHG Protocol Corporate Accounting and Reporting Standard – Revised Edition (World Resources Institute, 2005).

The restatement categories outlined in Section 4.1 resulted in the following impacts on reported Scope 2 emissions.

Impact of Restatements on Comparative Year Data – Scope 2

Cause of Restatement	2019	2022
Changes to Emission Factors	0.0%	-2.3%
Acquisitions and Dispositions	-0.5%	-0.3%
Increased data availability or activity data corrections	7.3%	8.1%

4.3 Treatment of Scope 2 Electricity Emission Factors

Electricity emission factors vary over time as the generation mix throughout Canada changes. Environment and Climate Change Canada (ECCC) publishes a '*National Inventory Report*' (NIR) each year. CAPREIT relied upon the latest available NIR as of December 31, 2023 (the 2023 NIR) [4]. The 2023 NIR contains annual location-based electricity emission factors reflecting the electricity generation mix in each year from 2005 to 2021. Emissions could be calculated in two ways:

> **Method 1:** Using the 2023 NIR annual emission factors for the corresponding year for each year prior to 2021, and the 2021 emission factors to report 2021 to 2023 emissions.
> **Method 2:** Using the 2021 emission factors for all years.

CAPREIT has applied Method 1 to allow for an accurate assessment of year-to-year changes in emissions. Note that the water emission factors are dependent on electricity emission factors and are therefore also affected by the selection of emission factors.

Since CAPREIT has not purchased any contractual instruments to reduce market-based Scope 2 emissions and residual mix grid emissions rates are not available in Canada, market-based emissions are not disclosed. See Section 8.0 for more information on the emission factors.

4.4 Reporting Normalized Results

To understand how the portfolio performed with respect to energy use and GHG emissions, a detailed variance analysis is performed to determine 'normalized' results as compared to the previous year.

Only properties owned by CAPREIT from January 2022 to December 2023 are included in the normalized results.

[4] National Inventory Report 1990-2021: Greenhouse Gas Sources and Sinks in Canada (ECCC, 2023).

4.4.1 Normalization for Weather

For 2022 to 2023 comparisons, utility use and emissions data for 2022 are normalized to reflect 2023 weather conditions.

To do so, linear regression models are developed for 2022 consumption for each individual utility account as a function of heating degree hours (for accounts providing heating energy) and cooling degree hours (for accounts providing cooling energy), using hourly weather data from Environment Canada for the closest weather station to each property.

2023 weather data is applied to the 2022 models to calculate, in effect, what consumption in historical years would have been had they experienced 2023 weather. The difference between the actual 2022 consumption and the consumption modeled using 2023 weather provides a reasonable estimate of the impact of changes in weather on energy and emissions.

4.4.2 Normalization for Occupancy

For 2022 to 2023 comparisons, utility use and emissions data for 2022 are normalized to reflect 2023 occupancy levels. It has been assumed that electricity consumption at residential properties is the only utility materially affected by occupancy.

Monthly vacancy data is tracked for each property[5] for 2022 and 2023. A 'gross-up factor' for both years is then calculated by assuming that if vacant space were occupied by a typical tenant, building consumption would increase by 240 kWh/suite/month[6]. The impact of occupancy on energy consumption is determined as the difference between the gross-up factors in 2023 as compared to 2022.

Note that there are factors that can affect energy consumption in addition to weather and occupancy which may be beyond the control of the property owner including, for example, changes to occupant energy use habits. These factors have not been addressed.

5.0 DATA SOURCES

The primary activity data for calculation of emissions for CAPREIT is building utility consumption, i.e. heating fuel (natural gas, oil, or propane), electricity and water use. CAPREIT records this activity data based on utility bills, including remittance statements from residential utility submetering providers.

Utility bill data records from CAPREIT's accounting system are validated by comparing billed costs to expected rates and billed usage to expected usage based on historical trends and weather.

[5] Complete 2022 - 2023 vacancy data was tracked for 84% of properties. Where complete vacancy data was not available for a year-to-year comparison, vacancy was assumed to be constant.

[6] 240 kwh/suite/month is based on the average consumption of submetered suites in the CAPREIT Canadian portfolio. At properties where submetering is used for tenant billing, the gross-up factor is based on the average per suite consumption for the property in question.

Significant variances between actual and projected consumption are reviewed and investigated if needed. In addition, hourly interval electricity meter readings are retrieved from utility vendors for 65 CAPREIT properties. If a utility bill record is not available for a given period in the reporting year, but interval data is available, the interval meter data is used for reporting.

6.0 UTILITY DATA ESTIMATION AND QUALITY

Best efforts are made to collect actual utility consumption data for all properties and utility accounts. Where utility data is not available, consumption is estimated based on a linear regression of available utility data and actual weather data. These estimations are based on building-specific utility consumption data, and account for known external factors and their expected impacts. As each new utility bill is received, models are checked for their ability to predict recent billed consumption, and therefore are expected to estimate missing utility bill data with high accuracy.

Where utility consumption for a particular utility account does not demonstrate significant seasonality, recent average historical consumption is used to estimate any missing utility bill data.

At many properties, submetered tenant energy use is included in the utility data from the provider and is therefore estimated according to the same methodology. In cases where tenants are billed directly for utilities by the utility provider, CAPREIT does not generally have access to utility data.

7.0 PURCHASED RENEWABLE NATURAL GAS

Four CAPREIT properties have contracts with the natural gas vendor to purchase renewable natural gas (RNG). RNG is natural gas produced from biomass sources, such as landfill or wastewater gas capture. Carbon dioxide released from biomass combustion originates from atmospheric carbon dioxide. Similar to carbon offsets, RNG contracts give the purchaser the right to claim the environmental benefit of a certain quantity of RNG supplied to the natural gas grid. As a result, in addition to reported Scope 1, 2, and 3 totals, CAPREIT separately reports a quantity of biogenic carbon dioxide ($CO_{2)}$. Methane ($CH_{4)}$ and nitrous oxide (N_2O) generated from combustion of RNG are reported as Scope 1.

8.0 EMISSION FACTORS

Emissions were calculated using emission factors from the 2023 NIR. The emission factors in the 2023 NIR use the Global Warming Potentials (GWP) published in the Intergovernmental Panel on Climate Change's (IPCC's) Fourth Assessment Report (AR4)[7] (i.e. including emission factors of 25 for methane (CH_4) and 298 for nitrous oxide (N_2O)).

CAPREIT has approximated the energy intensity of upstream water extraction and treatment per cubic meter of water used, based on information presented in the listed reference. Using this energy intensity together with the GHG emissions intensity of electricity generation provincially, an emission factor of tCO_2e per cubic meter of water used has been derived.

[7] Climate Change 2007: Synthesis Report, Fourth Assessment (IPCC, 2007).

The emission factors used for measuring 2019, 2022, and 2023 are summarized below.

Emission Source	Province	Emission Factor (gCO_2 / unit)		Unit	Emission Factor Source
		2019	2022-2023		
Electricity	AB	630.0	510.0	gCO_2e/kWh	2023 NR
	BC	20.0	14.0		
	NB	290.0	290.0		
	NS	690.0	660.0		
	ON	26.0	28.0		
	PE	290.0	290.0		
	QC	1.2	1.3		
	SK	670.0	670.0		
Natural Gas	AB	1973.4		gCO_2e/m^3	
	BC	1977.8			
	NB	1930.4			
	NS	1930.4			
	ON	1932.1			
	PE	1930.4			
	QC	1937.2			
	SK	1931.2			
Oil	BC	2762.9		gCO_2e/L	
	NB				
	PE				
Propane	NB	1547.8		gCO_2e/L	
	PE				
Water	AB	803.9	650.8	gCO_2e/m^3	2023 NR and Greenhouse Gas and Energy Co-Benefits of Water Conservation (Water Sustainability Project, 2009)
	BC	25.5	17.9		
	NB	370.0	370.0		
	NS	880.4	842.2		
	ON	33.2	35.7		
	PE	370.0	370.0		
	QC	1.5	1.7		
	SK	854.9	854.9		