

Brightside Net-Zero Strategy Report

Targeting Net-Zero by 2035


Authored by Affine Climate Solutions for
Brightside Community Homes Foundation

February 2023



Brightside

70+ Years of Building community



Brightside Community Homes
Foundation, as a place-based
organization, is privileged to provide
affordable homes for seniors, families,
and people with disabilities on the
traditional and unceded territories
of the x^wməθk^wə́yəm (Musqueam),
Sk̓w̓x̓wú7mesh (Squamish), and sə́lilwətał
(Tsleil-Waututh) Peoples.

This work is intended to represent a living document. The document, as it is printed here, was completed in April 2023. It is the result of the dedicated efforts and expertise of Affine Climate Solutions, working in collaboration with Brightside Community Homes Foundation.

This work was made possible by funding from the Community Housing Transformation Centre (CHTC) and from Vancity. Without the generous grant contributions from these funders, this Net-Zero Climate Strategy would not have been possible.

Vancity



Community Housing
Transformation Centre
Centre de transformation
du logement communautaire

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About Brightside

Quick Facts:

- Founded in 1952
- Operating 22 non-profit buildings throughout Vancouver (2023)
- Four additional affordable housing sites currently being (re)developed
- Geographic scope is being expanded to Metro Vancouver
- Owns a small vehicle fleet

Mission

Create **resilient communities** throughout Metro Vancouver, with **safe** and **secure homes** for those struggling to meet the demands of market housing.

Vision

A future where people of all income levels have a home within a **vibrant, inclusive, and healthy community.**



Values

Being Progressive

We must be adaptive, flexible, and proactive.

Maintaining Clarity

We must be fair, open, and consistent.

Being Resourceful

We must be rigorous, diligent, and be great problem solvers.

Being Inclusive

We must be respectful, approachable, and empathetic.

Supporting Social Justice

We must take action to create equitable opportunity.

Brightside's Net Zero Approach

In 2022, Brightside launched the next phase of its environmental and social program. The Board tasked the CEO with creating a climate strategy. With the support of Affine Climate Solutions, Brightside established a baseline understanding of emissions and developed a pathway for radically reducing emissions over the coming years.

Brightside is committed to being a leader in the affordable housing sector in BC and to sharing lessons learned with the community. In line with the organization's leadership role, the Board set a target to achieve net zero greenhouse gas (GHG) emissions across Scope 1 and 2 emissions by 2035. The focus is on eliminating fossil fuels from the building portfolio. Only after reducing emissions as far as possible will Brightside consider using legitimate schemes to offset any residual emissions.

"I am proud to be embarking on such a bold, ambitious, and necessary plan to get Brightside to zero GHG emissions by 2035. We look forward to all we will learn and accomplish over the coming dozen years as we make a big improvement to our climate impact."

– William Azaroff, CEO, Brightside

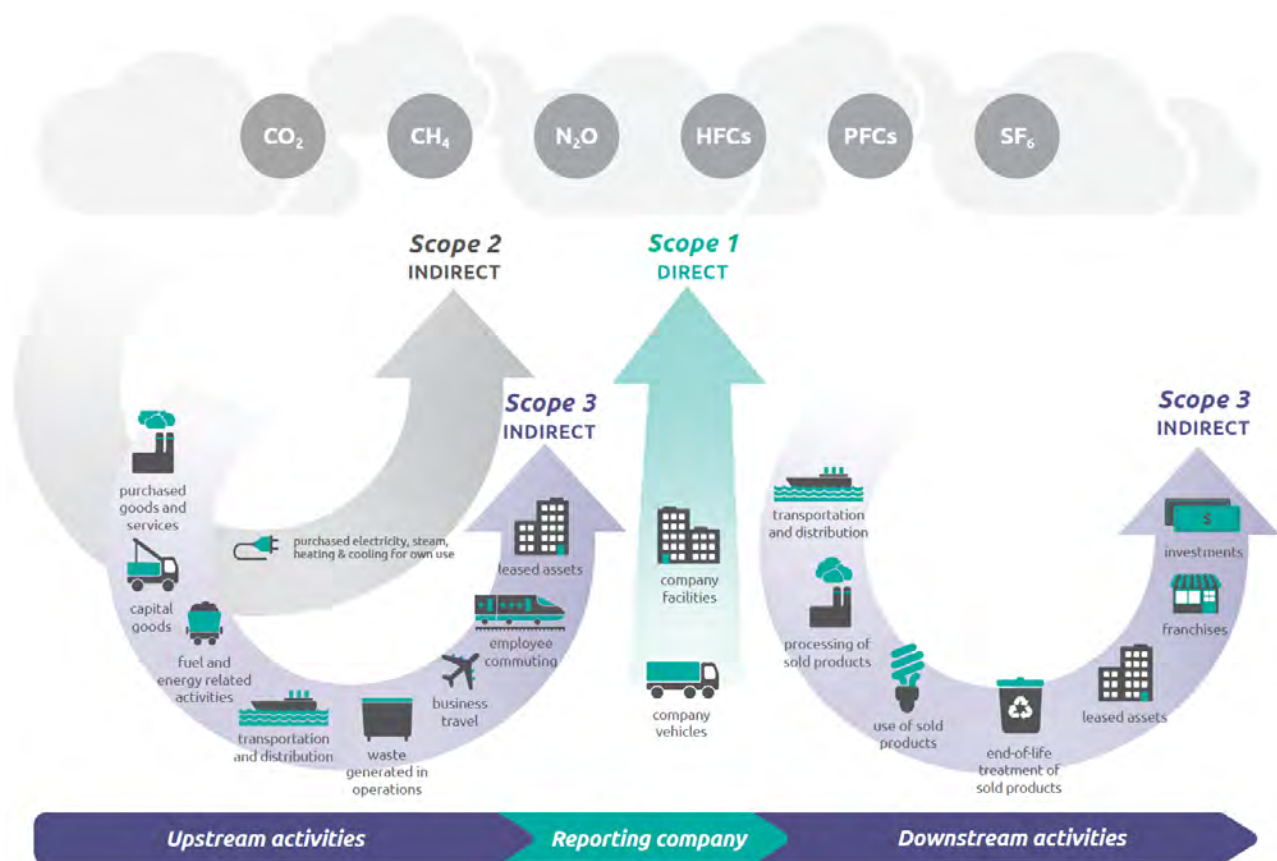
This report outlines Brightside's approach to achieving net zero GHG emissions, discusses the ambitious emissions reduction targets set, and highlights the organization's first implementation measures.

The Net Zero Strategy Report is split into five main sections:

1. Defining the Scope
2. Measuring 2021 Base Year Emissions
3. Setting Ambitious Targets
4. Building an Actionable Plan
5. Reporting on Progress

Defining the Scope

The report starts with identifying the GHG emission sources that are in scope. In line with industry best practice, emission reduction targets will apply to Brightside’s whole portfolio of owned properties and will address Scope 1, 2, and 3 emissions.



Source: WRI/WBCSD Corporate Value Chain (Scope 3) Accounting and Reporting Standard (pdf), page 5

What are Scope 1, 2, and 3 emissions?

Each of the scopes represents a different category of GHG emissions that make up Brightside’s footprint. Guidance followed is from the WRI and WBCSD GHG Greenhouse Gas Protocol.

Type	Description	Examples
Scope 1	<u>Direct</u> emissions from sources owned by the organization	<ul style="list-style-type: none">○ Natural gas burned in buildings○ Fuel burned in vehicles
Scope 2	<u>Indirect</u> emissions from purchased electricity and steam	<ul style="list-style-type: none">○ Electricity used in buildings’ common areas
Scope 3	Emissions from sources <u>not owned or controlled</u> by the organization	<ul style="list-style-type: none">○ Emissions from purchased goods, employee commuting, investments, and energy used by residents

The background of the slide is a close-up photograph of a wood grain, showing wavy, horizontal lines in various shades of brown. A horizontal band of solid purple color is overlaid across the middle of the image, serving as a background for the title text.

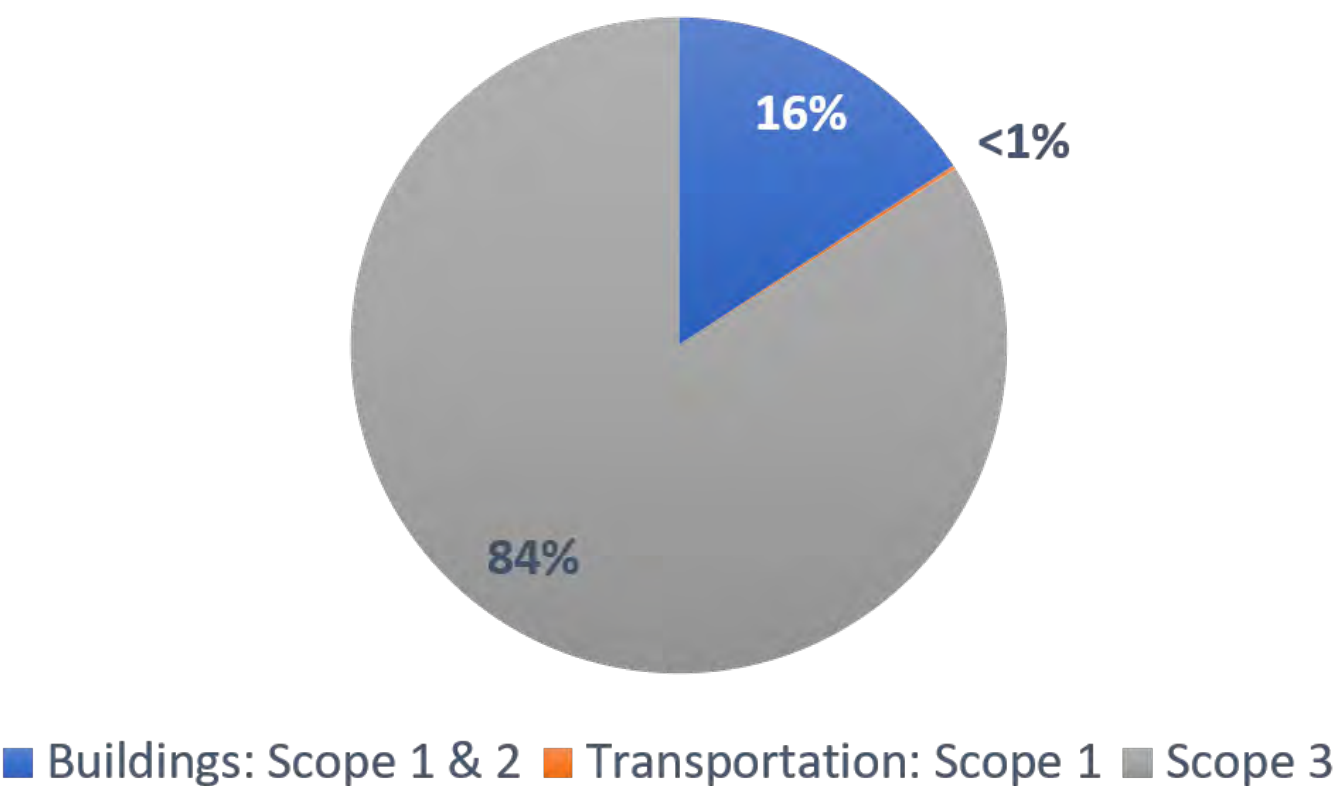
Measuring Base Year Emissions

Measuring 2021 Base Year Emissions

2021 was selected as the base year for measuring progress toward Brightside’s targets. We estimated that 84% of Brightside’s emissions fall into Scope 3, which is a collection of activities in Brightside’s value chain that is typically outside of their direct operational control. Of those Scope 3 emissions, only a small amount relate to tenant energy use and vehicles used for business travel.

Over 2023-24, we recommend for Brightside to expand tracking of their Scope 3 emissions. As Brightside improves data quality related to Scope 3 emissions, base year emissions may change slightly from the results presented here and can be restated as necessary in future reports.

Total Emissions: Scope 1, 2 & 3 (tCO2e)



Note: Scope 3 estimate based on BC emissions and Brightside vendor spend.



Scope 1 and 2 Emissions



Buildings: 2019 - 2021 Emissions Baseline

Explanation

- Scope 1: Gas
- Scope 2: Electricity & Steam
- Scope 3: Tenant energy use

The small decline in 2021 emissions is mostly due to two reasons: 1) two properties (LO & EB) were empty much of the year in preparation for demolition, and 2) the BC electricity emissions factor was higher in 2020 and lower in 2021 (affects mostly Scope 3).

EMISSIONS SUMMARY BUILDING PORTFOLIO			
2019	Amount	Unit	Percentage
Scope 1	1,514	tCO2e	79
Scope 2	216	tCO2e	11
Scope 3	191	tCO2e	10
Total	1,920	tCO2e	100
2020	Amount	Unit	Percentage
Scope 1	1,514	tCO2e	77
Scope 2	209	tCO2e	11
Scope 3	236	tCO2e	12
Total	1,959	tCO2e	100
2021	Amount	Unit	Percentage
Scope 1	1,481	tCO2e	83
Scope 2	210	tCO2e	12
Scope 3	84	tCO2e	5
Total	1,775	tCO2e	100

Buildings: Fugitive Methane

GHG emissions from natural gas combustion do not account for the “fugitive” methane that leaks from extraction, fracking, pipelines, and distribution.

While not yet included in common GHG accounting methodologies, there is emerging best practice to account for methane leakage in buildings. Methane is a very potent greenhouse gas, up to 85 times more powerful than CO₂.

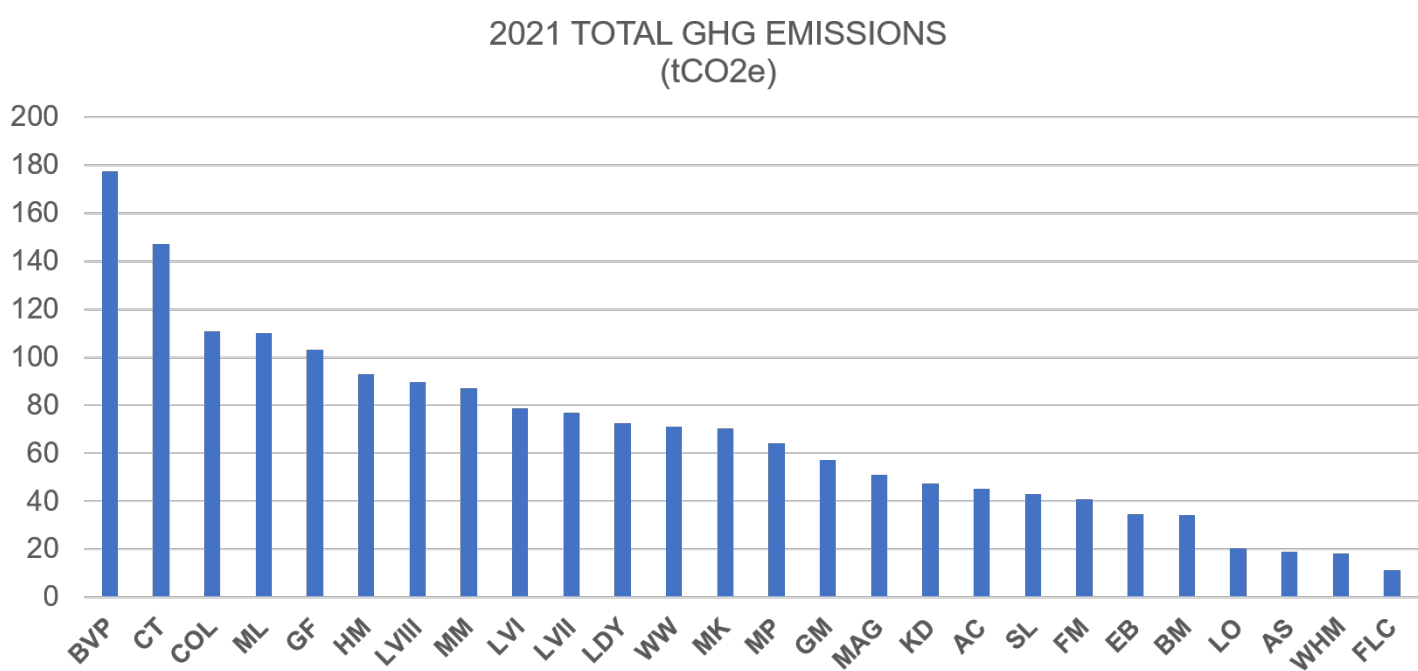
We applied Canadian guidance on fugitive methane emissions to Brightside’s building emissions to illustrate their impact.

Scope 1 are fugitive emissions from local transmission, distribution, and post meter. Scope 3 are upstream fugitive emissions from extraction and upstream transmission.

INCLUSION OF FUGITIVE METHANE EMISSIONS NATURAL GAS			
2019	Amount	Unit	Increase
Scope 1	94	tCO ₂ e	6%
Scope 3	338	tCO ₂ e	136%
Total Emissions	2,242	tCO ₂ e	24%
2020	Amount	Unit	Increase
Scope 1	94	tCO ₂ e	6%
Scope 3	338	tCO ₂ e	115%
Total Emissions	2,286	tCO ₂ e	23%
2021	Amount	Unit	Increase
Scope 1	92	tCO ₂ e	6%
Scope 3	330	tCO ₂ e	211%
Total Emissions	2,100	tCO ₂ e	25%

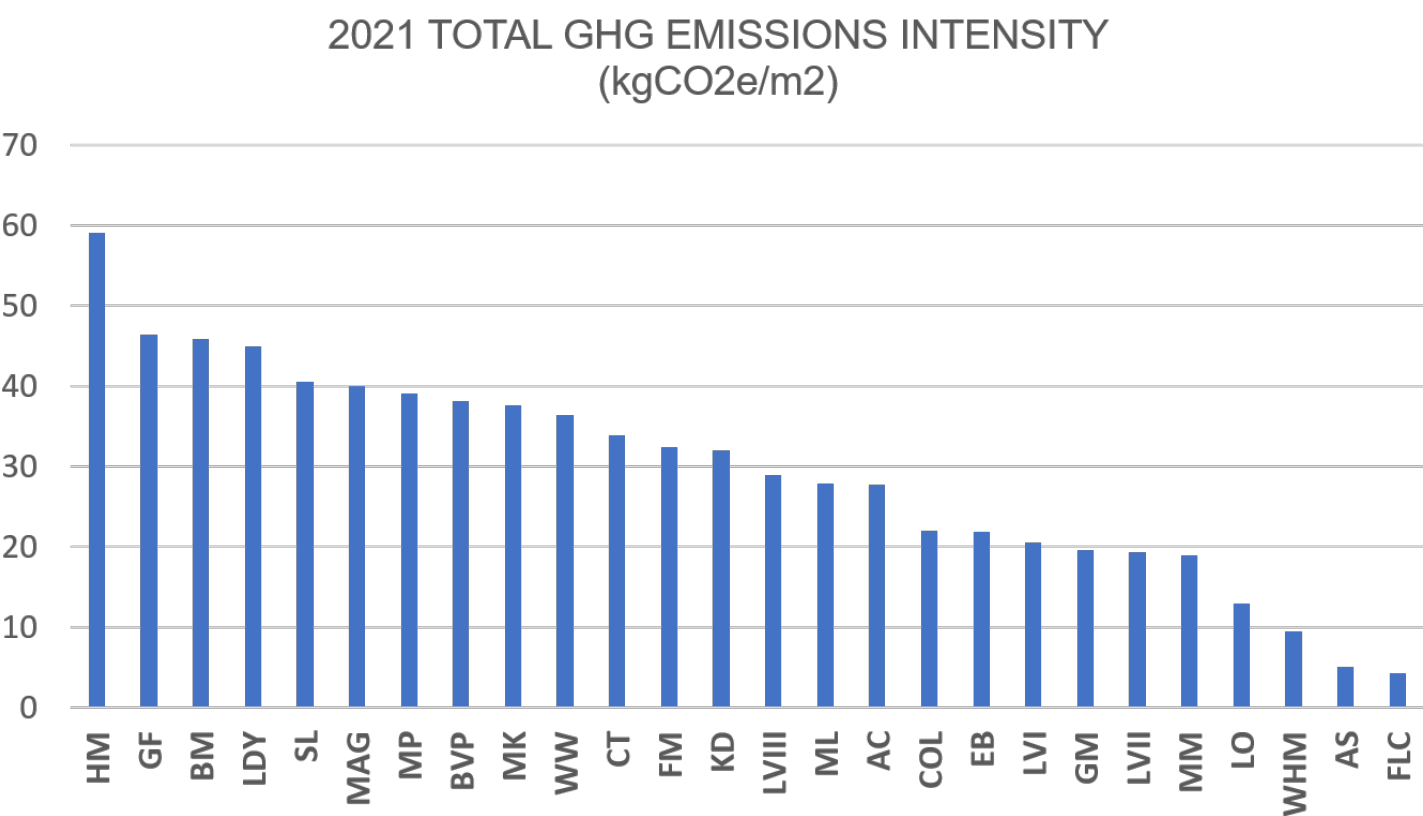
Source: Toronto Atmospheric Fund, Fugitive Methane Guidelines, 2022

Building Portfolio: Total GHG Emissions



Bridgeview Place (BVP) – 238 Davie Street, Vancouver

Building Portfolio: Emissions Intensity



When evaluating GHG emissions, it is important to not only consider total emissions, but also emissions intensity per m² to identify the worst polluting buildings.

Across Brightside’s building portfolio, the GHG intensity was calculated at 25.58 kgCO₂e / m² in 2021 (Scope 1 & 2).



Harwood Manor (HM) – 1222 Harwood Street, Vancouver

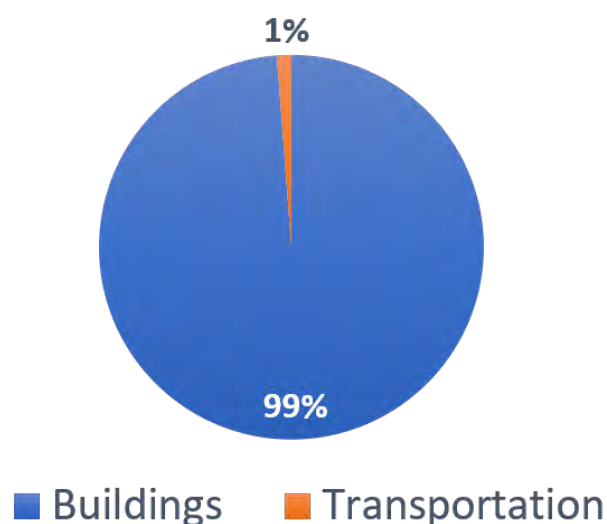
2021 GHG Emissions Summary: Scope 1 & 2

Vehicles

- Scope 1 – Company owned vehicles: 21 tCO₂e
- Scope 3 – Personal vehicle use & Modo car-sharing: 41 tCO₂e

Scope	Description	Amount (tCO ₂ e)
Scope 1	Buildings	1,481
	Vehicle Fleet	21
	Scope 1 TOTAL	1,501
Scope 2	Buildings	210
	Scope 2 TOTAL	210
	Scope 1 and 2 TOTAL	1,711

Total Emissions: Scope 1 & 2





Scope 3 Emissions

Scope 3 Emissions Overview

Scope 3 emissions typically account for over 85% of a commercial real estate company's entire footprint.¹ Brightside's estimated Scope 3 emissions fall in line with that. The most relevant Scope 3 examples include:

- Emissions from purchased goods and services
- Emissions from construction materials used in new developments
- Emissions from tenant energy use
- Emissions from employees commuting to work

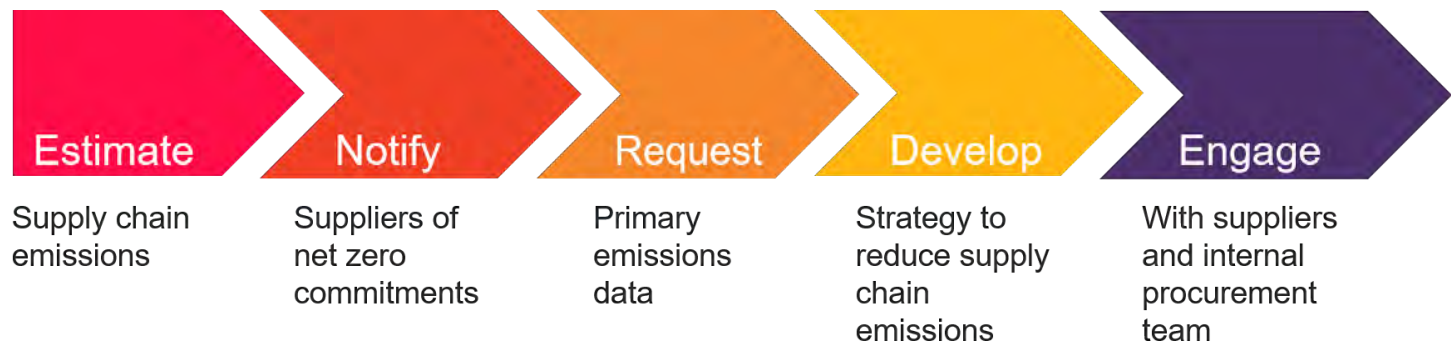


While it is important for companies to understand the complete footprint from their activities, Scope 3 emissions reporting requires a comprehensive baselining effort. These emissions overlap with other companies' emissions. Strategies to reduce Scope 3 emissions often rely on identifying synergies and collaboration with suppliers and partners. Criteria for tackling Scope 3 activities include:

- **Size:** their relative size of total Scope 3 footprint
- **Influence:** higher likelihood of undertaking actions to reduce emissions
- **Risk:** they contribute to the organization's climate change risk exposure (financial, regulatory, supply chain, reputation, etc.)
- **Stakeholders:** whether they are deemed critical by key stakeholders (customers, employees, investors)

¹ Source: Carbon Disclosure Project, Carbon Credentials (2017)

Steps to Reduce Supply Chain Emissions



Suggested Supplier Engagement Steps



Steps	2023			2024			2025		
Management commits and sets approach to cut supply chain emissions	Blue								
Notify suppliers of net zero commitments		Blue							
Integrate climate commitments into procurement documents			Orange						
Include requirements in evaluation of new suppliers				Orange					
Ask suppliers for reduction plans & available data				Orange					
Integrate climate action in existing supplier base					Orange	Orange			
Estimate emissions via supplier data & spend based method						Grey	Grey		
Set supply chain reduction targets								Grey	
Ongoing dialogue, evaluation, and reporting									Grey

Blue = Foundation; Orange = Procurement; Grey = Baselining & Reporting



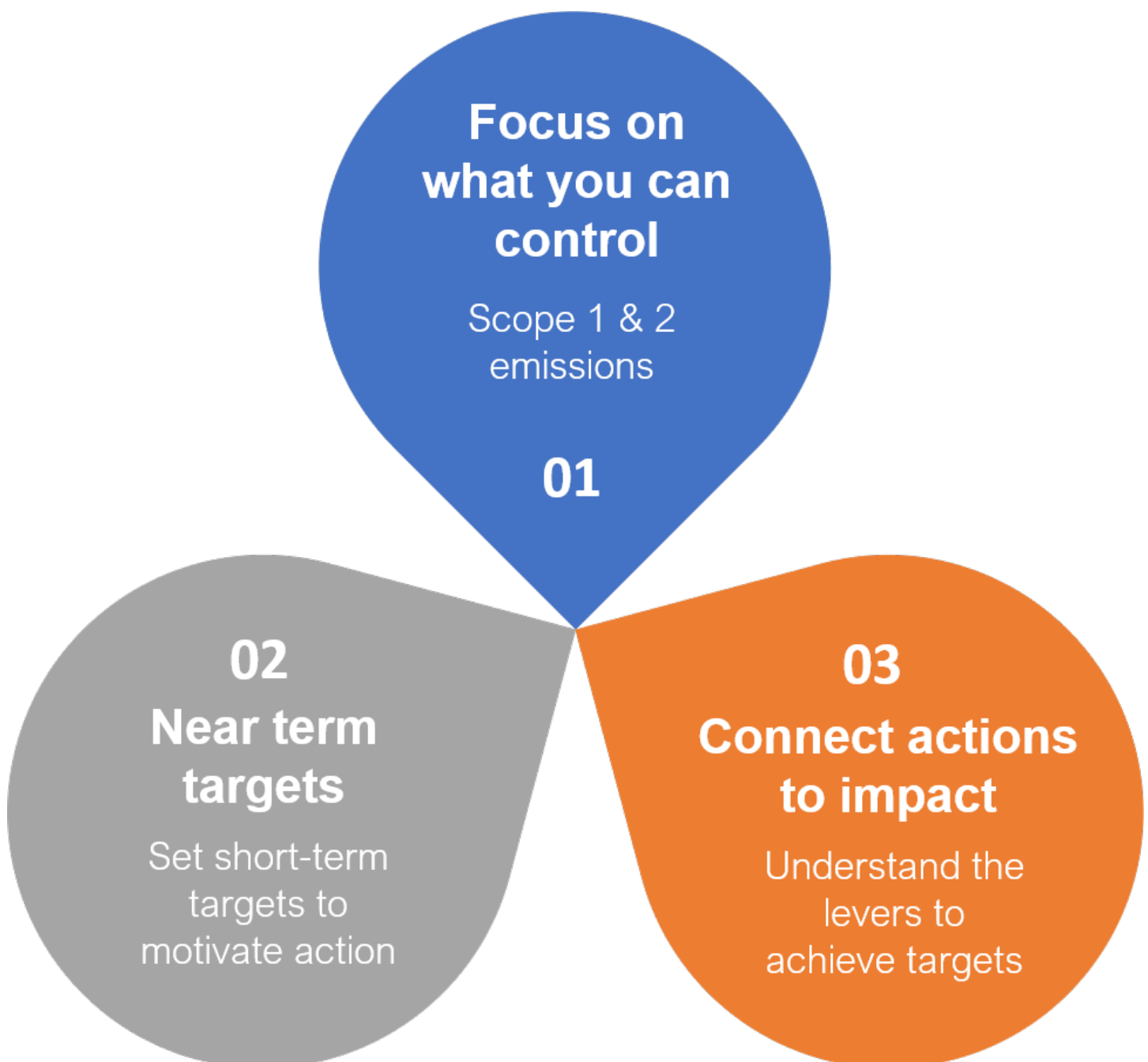
Setting Ambitious Reduction Targets

Principles for Target Setting



Follow the science-based approach.

Targets are considered science based if they are in line with what the latest climate science deems necessary to limit global warming to 2°C (Paris Agreement).



Target Recommendations



Brightside Emission Reduction Targets

2035 Net Zero Pathway – 2 retrofits per year

In October 2022, Brightside’s Board approved ambitious emission reduction targets for Scope 1 & 2 emissions. Given the primacy of building related emissions, targets were calculated based on required number of net zero retrofits per year.

- **2027: 37% reduction** to allow time to build capacity for retrofit financing & implementation.
- **2035: reach net zero emissions** across the building portfolio.

Year	Target emissions (tCO2e)	Percent reduction	# Retrofits
2021 (base year)	1,690		
2027	1,057	37%	6-7
2035	20	99%	21

Notes:

- Includes Scope 1 & 2 emissions for buildings only.
- Includes 4 new properties constructed in 2022/23 and MP that will not be retrofitted (due to sale).
- Assumes zero-emission electricity by 2027.





Net-Zero Action Plan

Building an Actionable Plan

Brightside's carbon reduction activities can be grouped into four categories:

Decarbonizing Existing Properties

- Develop and execute on a climate-aligned portfolio plan for existing properties
- Plan, finance, and implement net zero retrofits
- Use retrofits as opportunity for making buildings climate resilient

Zero Emission New Developments

- Design and construct properties that are climate resilient and zero emissions
- Update new construction guidelines with zero operational carbon requirements, climate resilience, low embodied carbon materials, and low GWP refrigerants



Fleet Electrification

- Replace company vehicles with Electric Vehicles (EVs) at time of renewal
- Implement EV charging at operational sites
- Reduce personal vehicle use for business purposes

Value Chain Engagement

- Engage with project teams to construct low embodied carbon buildings
- Set approach to cut supply chain emissions & improve data quality
- Notify suppliers of net zero commitments

Climate-Aligned Portfolio Plan

A climate-aligned portfolio plan integrates emissions reductions, resilience, redevelopment, and maintenance priorities. The objective is to prioritize buildings for retrofits based on their emissions profile and capital renewal plans. The portfolio plan also informs retrofit scheduling, phasing, and modelling of the required retrofit financing.

Customized retrofit transition plans need to be developed for each property. Available incentives will be paired with the best financing solutions on a portfolio and building level basis. Depending on each asset, the approach may include investments in:

1. Envelope upgrades to reduce energy consumption
2. Heating and hot water electrification
3. Summer cooling
4. Lighting upgrades & appliance electrification



Zero Emissions New Developments

Brightside is committed to zero emissions new construction, defined as buildings that produce zero emissions in their operation, deriving all energy needs from 100% clean and renewable sources.²

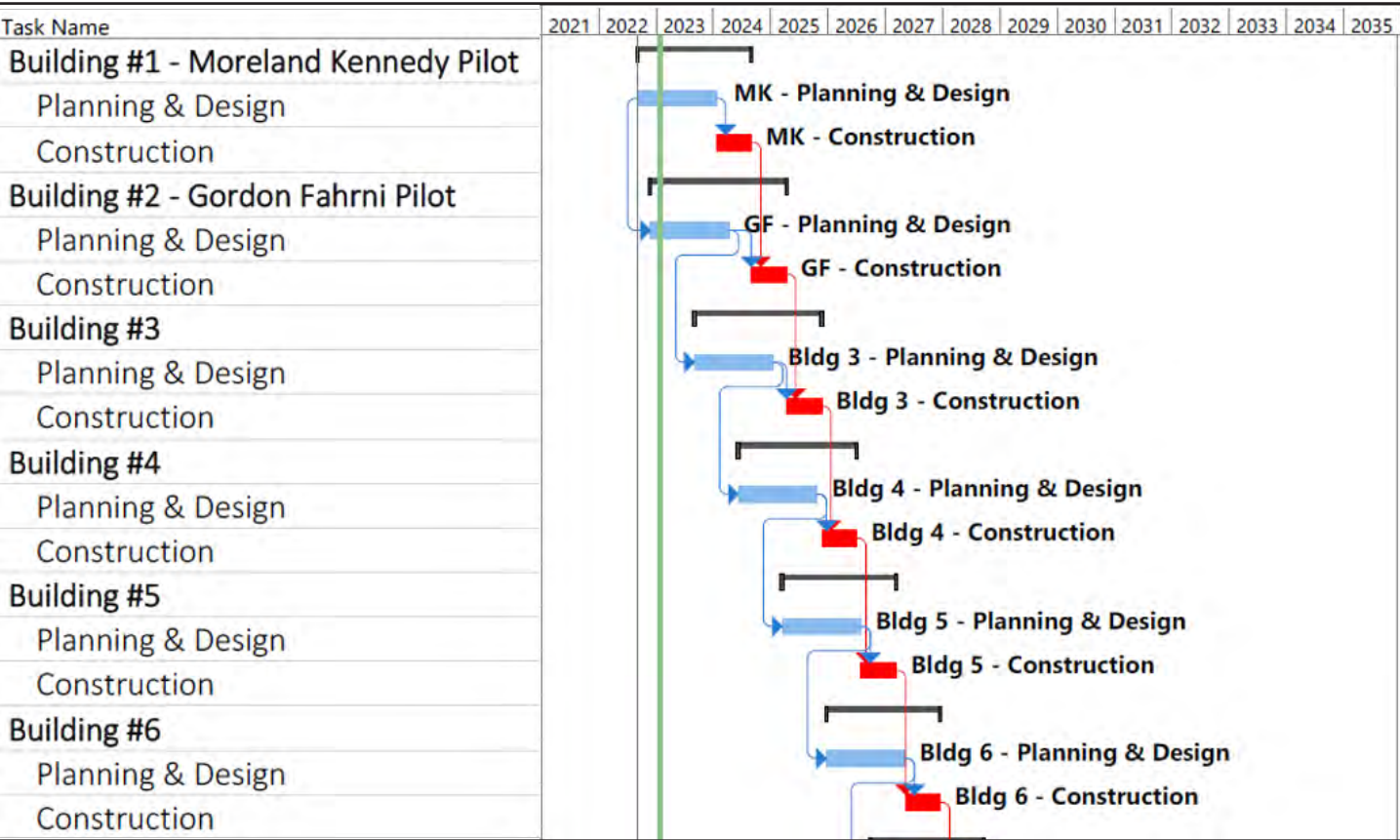
Net Zero Emissions Existing Buildings

Brightside's existing building approach focuses on net zero retrofits by eliminating fossil fuels thereby reducing GHG emissions from operations to as close to zero as possible. Remaining emissions will be balanced out on an organizational or building level through renewable energy generation or carbon removal.

²Source: Metro Vancouver, Climate 2050 Roadmap Buildings (2021)

Net-Zero Retrofit Schedule & Timeline

To achieve Brightside’s ambitious 2035 net zero target, ~ 2 buildings will need to be retrofitted every year.



We planned for a slower start with ~ 6 retrofits being completed by 2027, allowing time for internal capacity building and resourcing.

After that, the cadence and speed of retrofit planning and implementation would need to increase to 2 retrofits per year, until all 21 existing properties have been refurbished by 2035.

Over time, Brightside may acquire existing properties and grow its portfolio. Emissions from new and acquired buildings will be integrated into the emissions baseline and climate-aligned capital plan.

Net Zero Retrofit Pilots

In 2022, Brightside initiated two net zero retrofit pilots. The objectives are to test the technical and financial feasibility of bringing both buildings to zero emissions and making them climate resilient. Given BC’s clean electricity grid, both pilots involve mechanical system electrification. Both projects also serve as test cases for using new innovative financial tools and incentives. Pilot scope:

- Heat pump conversions for space heating & domestic hot water
- Heat pumps will provide summer cooling
- Window upgrades
- Lighting upgrades & appliance electrification



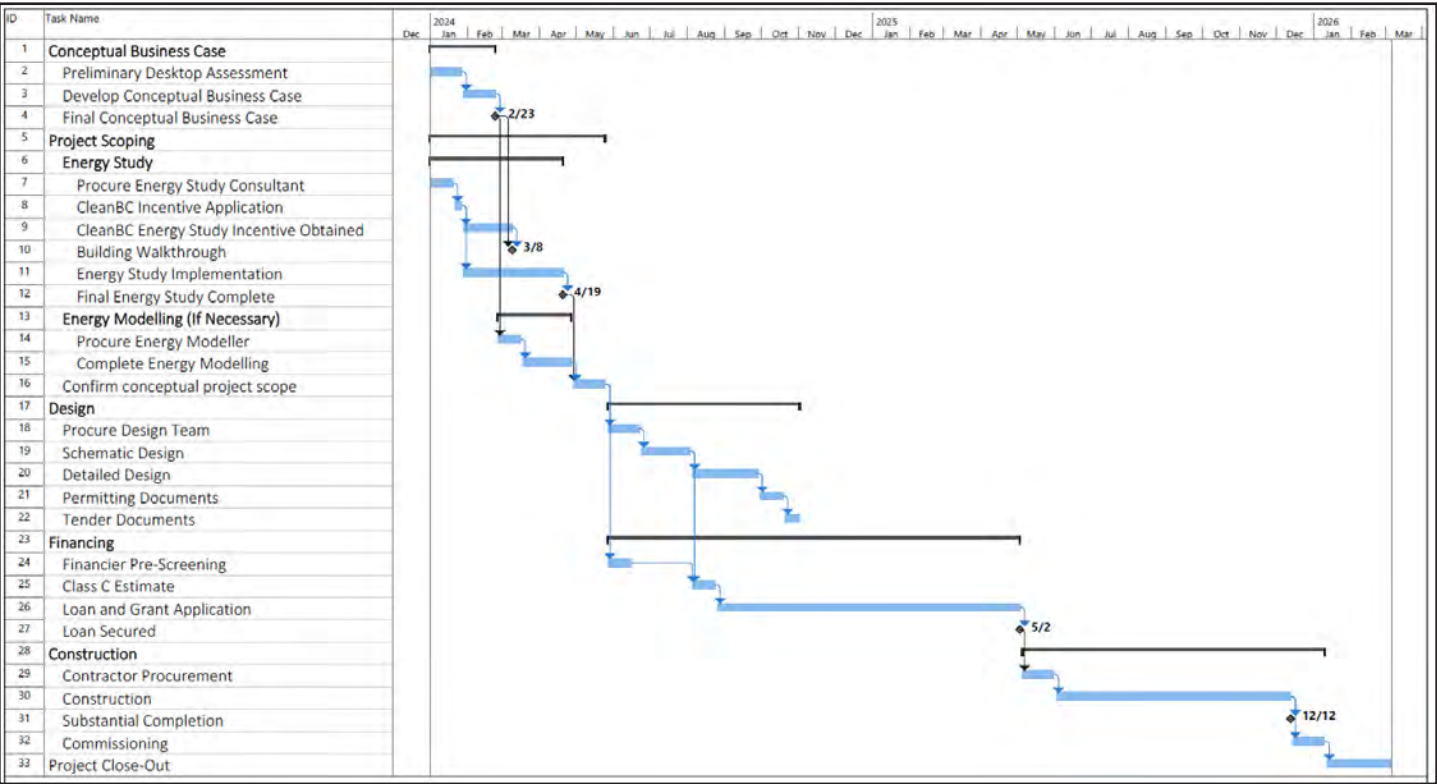
Moreland Kennedy House



Gordon Fahrni House

Construction Year	1974	1969
Number of units	31 bachelor & one-bedroom	42 bachelor & one-bedroom
Heating and hot water	Gas boiler	Gas boiler
Climate Resilience	No cooling Some original single-pane windows	No cooling All original single-pane windows

Net Zero Retrofits: Sample Project Schedule



Managing Risk & Supporting Activities

Supporting activities will be important for successful implementation:

Internal Capacity Building

- Build internal capacity for carbon accounting and progress reporting
- Recruit internal or external resource for retrofit implementation & project management
- Educate Board and staff on targets and implications for their work

Financing

- Incorporate cost for abatement activities into financial planning
- Align reduction activities with investment cycles
- Explore all financing and incentive opportunities to lower costs

Communication

- Communicate your targets and commitments externally (after first successes)
- Share lessons learned with non-profit housing community

Governance

- Set internal structure & accountability for emissions reductions
- Regularly inform Executive and Board of progress
- Link Executive remuneration to emissions performance

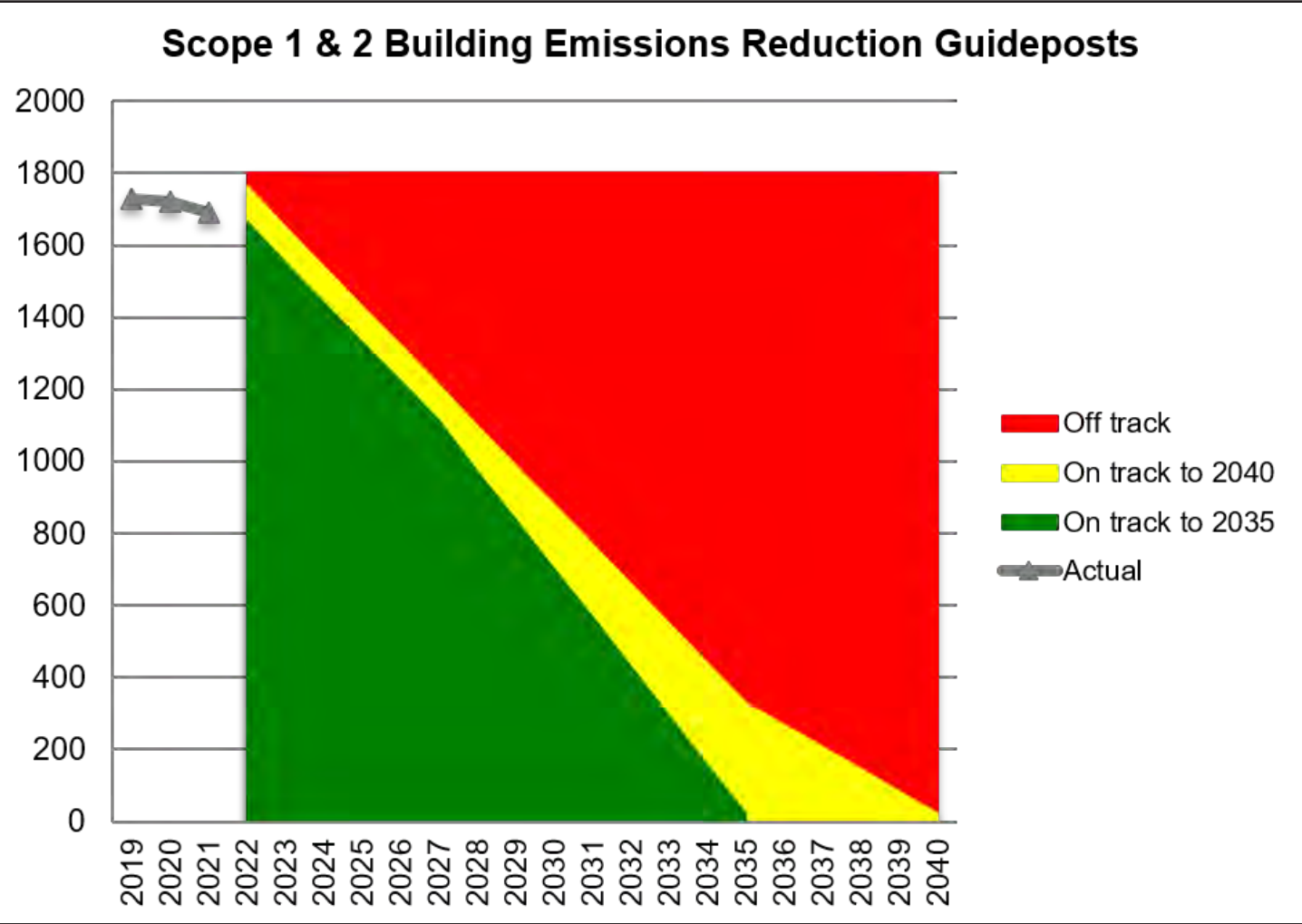


Reporting on Progress

For transparency and standardization of climate-related reporting we recommend for Brightside to include climate-related information in the organization’s impact report. Disclosure should be in line with accepted industry standards, such as the Sustainability Accounting Standards Board (SASB) or the Task Force for Climate-related Financial Disclosures (TCFD) Recommendations.

Given that four new properties are being constructed in 2023, we recommend for the next GHG inventory to be completed in 2024. This will allow the new buildings to be integrated into Energy Star Portfolio Manager and for their data to be included in the inventory. Total Scope 1 & 2 GHG emissions and the 2027 reduction target have been integrated into Brightside’s Key Performance Indicators and will be reviewed on an annual basis. The portfolio’s emissions intensity will be tracked at each inventory.

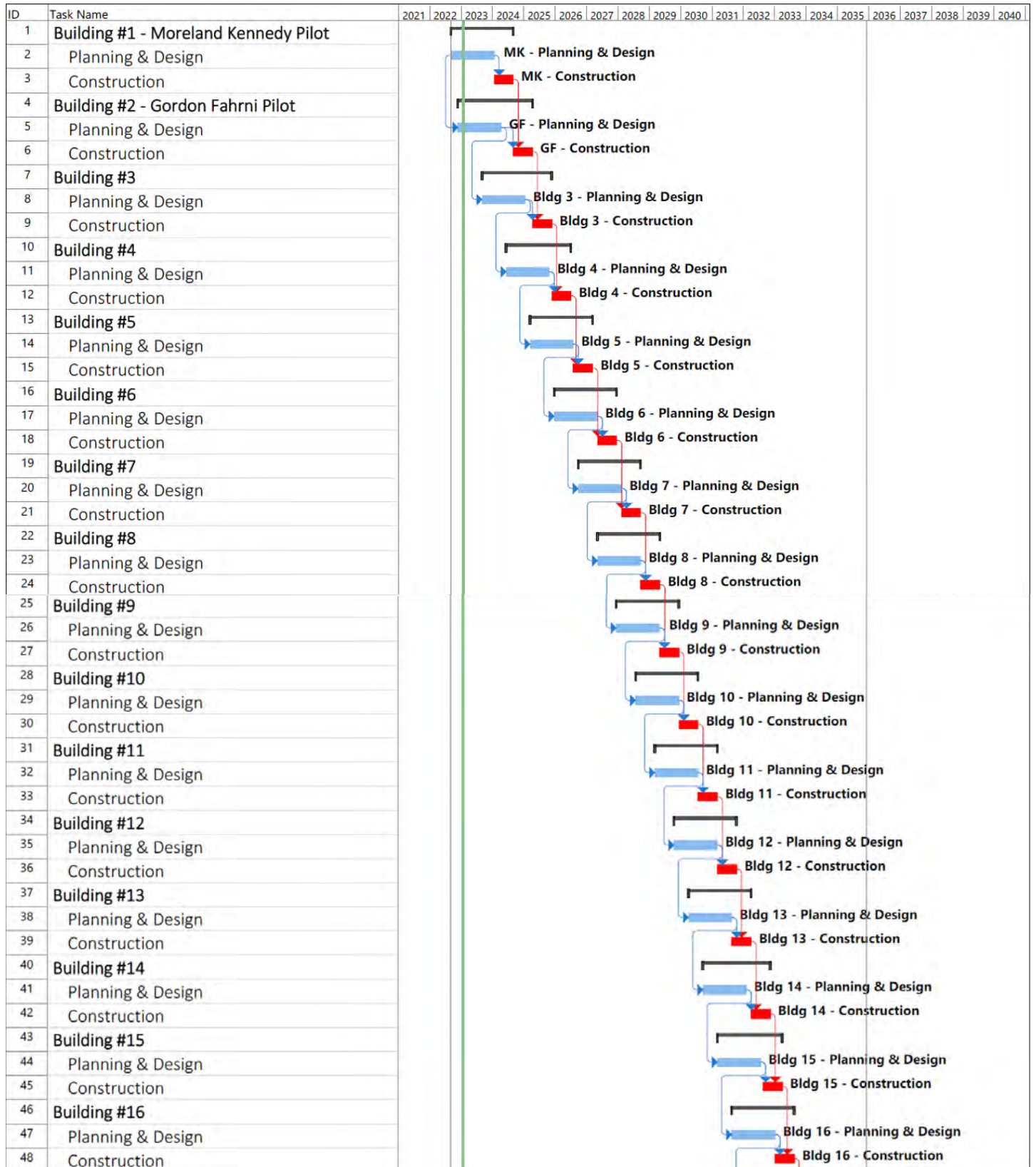
The graph below will help to visualize and track progress:



The background of the slide is a close-up, high-resolution photograph of a dense forest floor covered in lush green ferns. The fronds are intricate and layered, creating a rich texture. A solid, dark purple horizontal band is superimposed over the center of the image, providing a contrasting background for the title text.

Appendices

2035 Net Zero Retrofit Schedule



2035 Net Zero Retrofit Schedule Cont'd

ID	Task Name	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
49	Building #17																				
50	Planning & Design																				
51	Construction																				
52	Building #18																				
53	Planning & Design																				
54	Construction																				
55	Building #19																				
56	Planning & Design																				
57	Construction																				
58	Building #20																				
59	Planning & Design																				
60	Construction																				
61	Building #21																				
62	Planning & Design																				
63	Construction																				



GHG Emissions Boundary

Brightside's GHG Emissions Boundary

We set Brightside's organizational boundaries using the operational control approach, as defined by the World Resources Institute's (WRI) and the World Business Council for Sustainable Development's (WBCSD) Greenhouse Gas Protocol ("GHG Protocol"), wherein "control" is determined by whether the reporting company can introduce and implement sustainability measures at the asset level.

The GHG emissions boundaries outlined here are based on data from December 31, 2021. Any changes to Brightside's boundaries or baseline occurring in future inventories will be captured in future reports.

Scope 1 & 2 GHG Emissions Boundary



Brightside's targets include over 95% of their Scope 1 & 2 emissions. The emissions sources for Scope 1 & 2 are related to operational energy consumption (fuels, electricity, and district energy systems) at properties and vehicles under the organization's operational control. Fugitive emissions from refrigerant leaks at Brightside managed sites were estimated and included in the inventory but found to be immaterial.

Scope 3 GHG Emissions Boundary



Brightside's first GHG inventory includes detailed accounting for 2 of the 15 categories of Scope 3 emissions outlined by the GHG Protocol. They are detailed in the GHG Emissions Summary table. The other Scope 3 categories likely relevant for Brightside are highlighted in blue in the table. We recommend calculating the remaining Scope 3 emissions as part of the next inventory.



Glossary

Baseline Emissions

The emissions that have occurred in the past which provide a benchmark against which future performance is measured.

Base Year

A historic reference year against which a company's emissions are tracked over time.

Carbon Dioxide Equivalent (CO₂e)

The typical unit to measure the impact of atmospheric gases on climate change. The unit expresses the impact of a greenhouse gas in term of the amount of carbon dioxide that would need to be emitted to achieve a similar impact.

Decarbonization

Reducing carbon by shifting from energy derived from hydrocarbons such as oil, coal, and natural gas, to sources of energy that do not generate greenhouse gas emissions.

Embodied Carbon

The greenhouse gases emitted during the construction of a building, including extraction of raw materials, manufacture, transport and refinement of materials, and fuels used during the construction phase of the building or structure.

Greenhouse Gas (GHG)

A gas that absorbs and emits radiant energy within the thermal infrared range, causing the greenhouse effect. GHGs include carbon dioxide; methane; nitrous oxide; hydrofluorocarbons, and others.

Greenhouse Gas Protocol (GHG Protocol)

The GHG Protocol supplies the world's most widely used greenhouse gas accounting standards. The standards' developments are facilitated by the World Resources Institute (WRI) and the World Business Council for Sustainable Development (WBCSD).

Heat Pump

A device that pulls energy out of air or water for the purpose of either heating or cooling a space. They work from an input of electricity and are highly energy efficient.v

Net Zero Emissions

Achieved when anthropogenic emissions of greenhouse gases to the atmosphere are equal to anthropogenic removals over a specified period. Importantly, net zero emissions refers to all GHGs (not just carbon).

Net Zero Emissions Retrofit

Reducing GHGs from operations to as close to zero as possible. Remaining emissions will be balanced out on an organizational or building level through renewable energy generation or carbon removal.

Operational Carbon

The greenhouse gases emitted during the operational phase of a building, typically from its energy consumption.

Science Based Targets

Emissions-reduction targets that are in line with what the latest climate science deems necessary to limit global warming to 1.5°C.

Scope 1 Emissions

Direct emissions from sources controlled or owned by an organization.

Scope 2 Emissions

Indirect emissions associated with the purchase of electricity and district energy for site consumption.

Scope 3 Emissions

Emissions resulting from activities and sources not owned or controlled by the reporting organization but existing within its value chain.

Zero Emissions Building

A building that produces zero emissions in its operation, deriving all energy needs from 100% clean and renewable sources.

The image shows a sunset over a field of tall grass. The sky is a mix of orange, yellow, and pink, while the grass is dark green with some golden highlights. The word 'Affine' is written in a large, white, sans-serif font. To its right, the words 'Climate Solutions' are written in a smaller, white, sans-serif font. Below 'Affine', the tagline 'Our Climate, Your Future' is written in a white, sans-serif font.

Affine Climate Solutions

Our Climate, Your Future

About Affine

Affine Climate Solutions is a non-profit climate consultancy that specializes in building decarbonization. We also develop and implement financially prudent net-zero action plans. Affine's expertise spans zero emissions new construction, retrofits, low embodied carbon, and climate resilience. We work with both borrowers and lenders to create low carbon construction and deep emission retrofit projects paired with transition finance solutions. By combining turnkey retrofit project services with financing and robust project management, Affine is optimally positioned to help clients plan and implement net zero buildings.

Why choose to work with Affine?

Affine's non-profit status enables us to operate a multi-tiered fee structure. While corporate clients obtain first class consultancy services at competitive market rates, our mission is to serve organizations with limited resources at a discounted rate. As a non-profit, Affine can obtain public funding to support clients' decarbonization work. Grants are also used to perform frontier research that yields cutting-edge advice.

Interested in learning more?

Email us at hello@affineclimate.ca to get started.

Affine brings clarity to your decarbonization goals.



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Brightside

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