



Champlain College Greenhouse Gas Inventory FY2020 *The COVID edition**

*Burlington campus was shut down / in remote-mode from March – June 2020

Why do we track our greenhouse gas emissions?

- Since 2017, Champlain* is a member of the [Burlington 2030 District](#).
 - Goal: working to reduce building energy consumption, water use and transportation emissions 50% by 2030
 - *technically, only the CCM building is represented in this membership
- Support City of Burlington's [Climate Action Plan](#) goals
 - Goals: The first target requires leveling off the growth of emissions by 2016 and bring them back to 2010 levels. The second target involves an actual reduction of the 2010 emission levels by 2025. (p.10)
- Support State of Vermont's [Greenhouse Gas reduction goals](#)
 - The goals legislators adopted in 2006 call for a 50% reduction of the state's greenhouse gas emissions below their 1990 levels by 2028, and a 75% reduction by 2050.

[Climate Change is a Racial Equity Issue](#)



Why? Students want it

[Prospective Students Show Increased Interest in Campus Environmental Commitment](#)

In Princeton Review's latest survey (2021) of high school students, called Hopes & Worries, the percentage of students for whom a college's environmental commitment would impact their decision of where to attend jumped from **66 percent in past years to 75 percent.**



Included Emission Sources at Champlain College

Scope 1 – Direct

- Natural Gas Consumption
- Vehicle Fleet & Shuttle
- Fertilizer
- Refrigerants

28%

Scope 2 – Upstream

- Electricity Purchased from the Regional Grid

32%

Scope 3 – Indirect

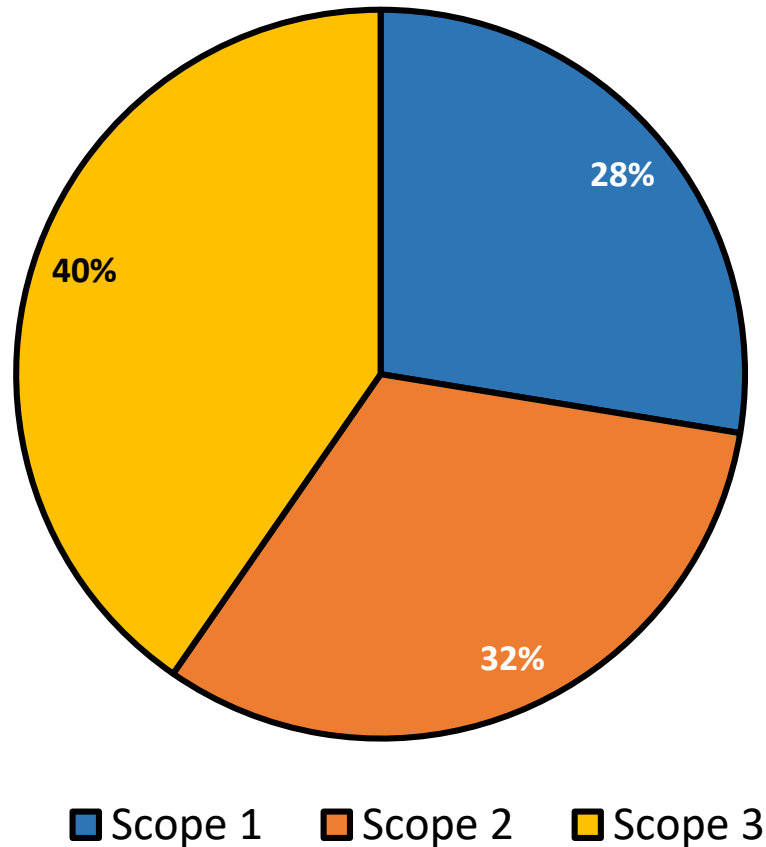
- Employee & Student Commuting
- Employee Air Travel & Student Study Abroad
- Personal Mileage Reimbursement
- Landfill Waste
- Wastewater
- Purchased Paper
- T&D Losses

40%

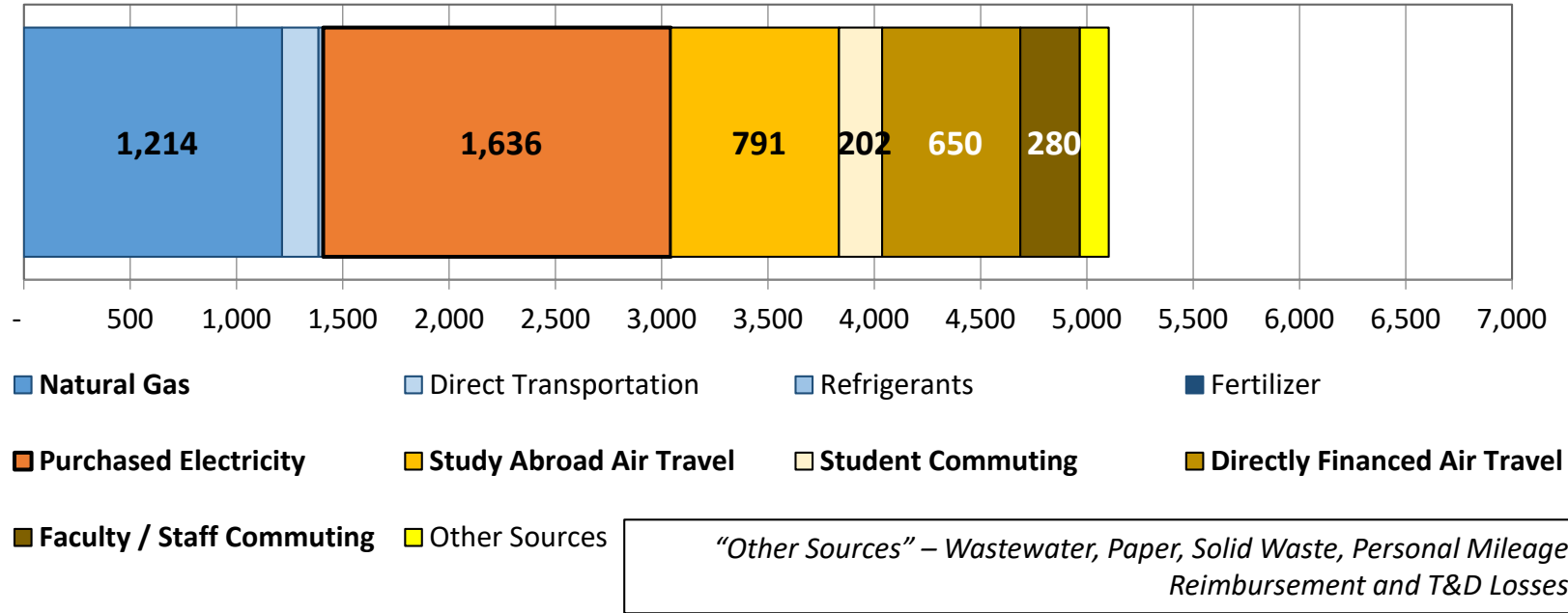
Increasingly Difficult to Control and Mitigate These Sources of Emissions

Summary of Champlain's GHG Emission Sources

GHG Emissions by Scope



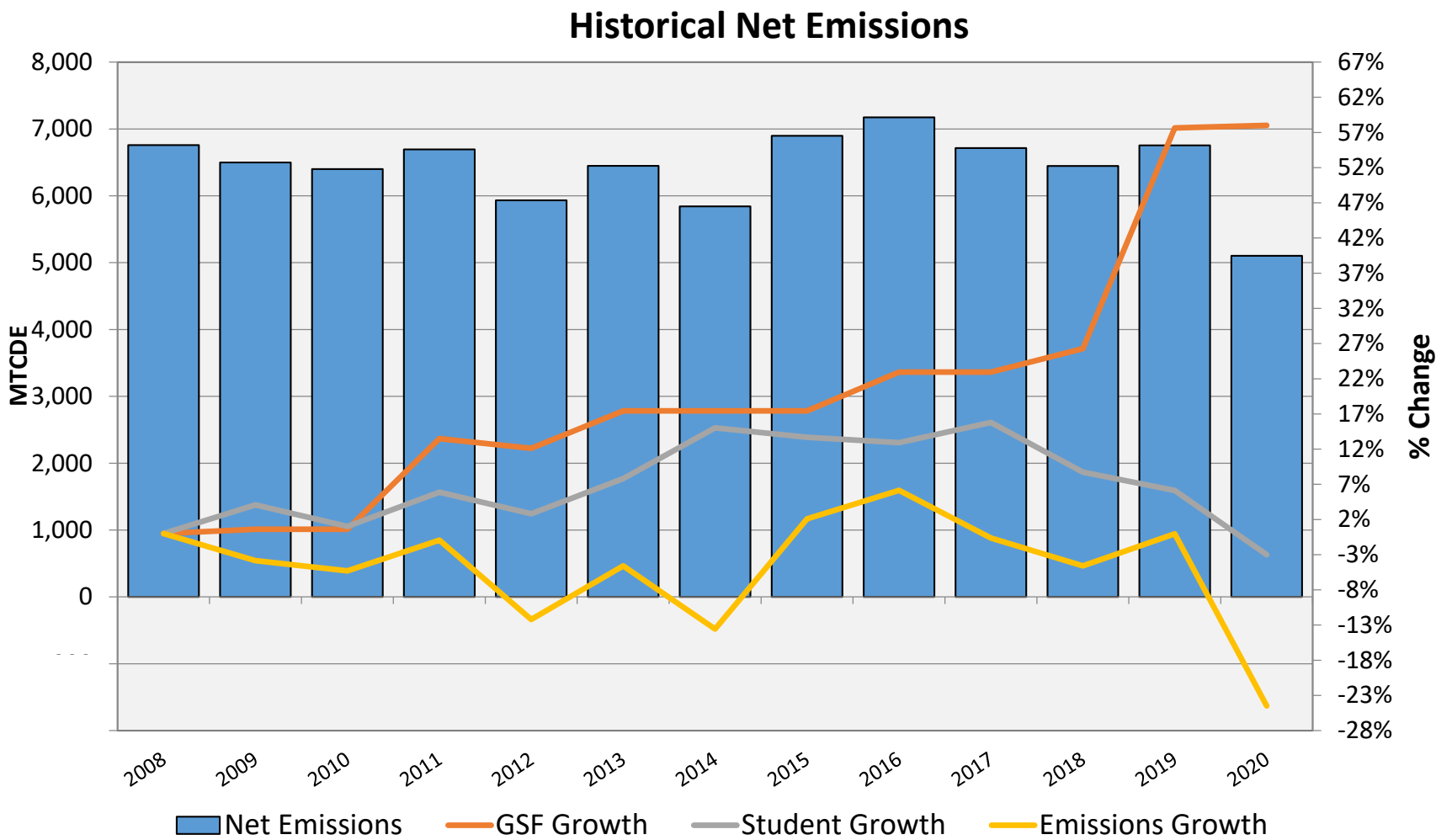
Campus GHG Emissions by Source - MTCDE



Half of Champlain's emissions are from Scope 3 – Indirect to Campus Operations. This increases the difficulty of future reductions.

Emissions reduction efforts should prioritize major sources, such as those are bolded above

Emissions Significantly Lower due to COVID shutdown



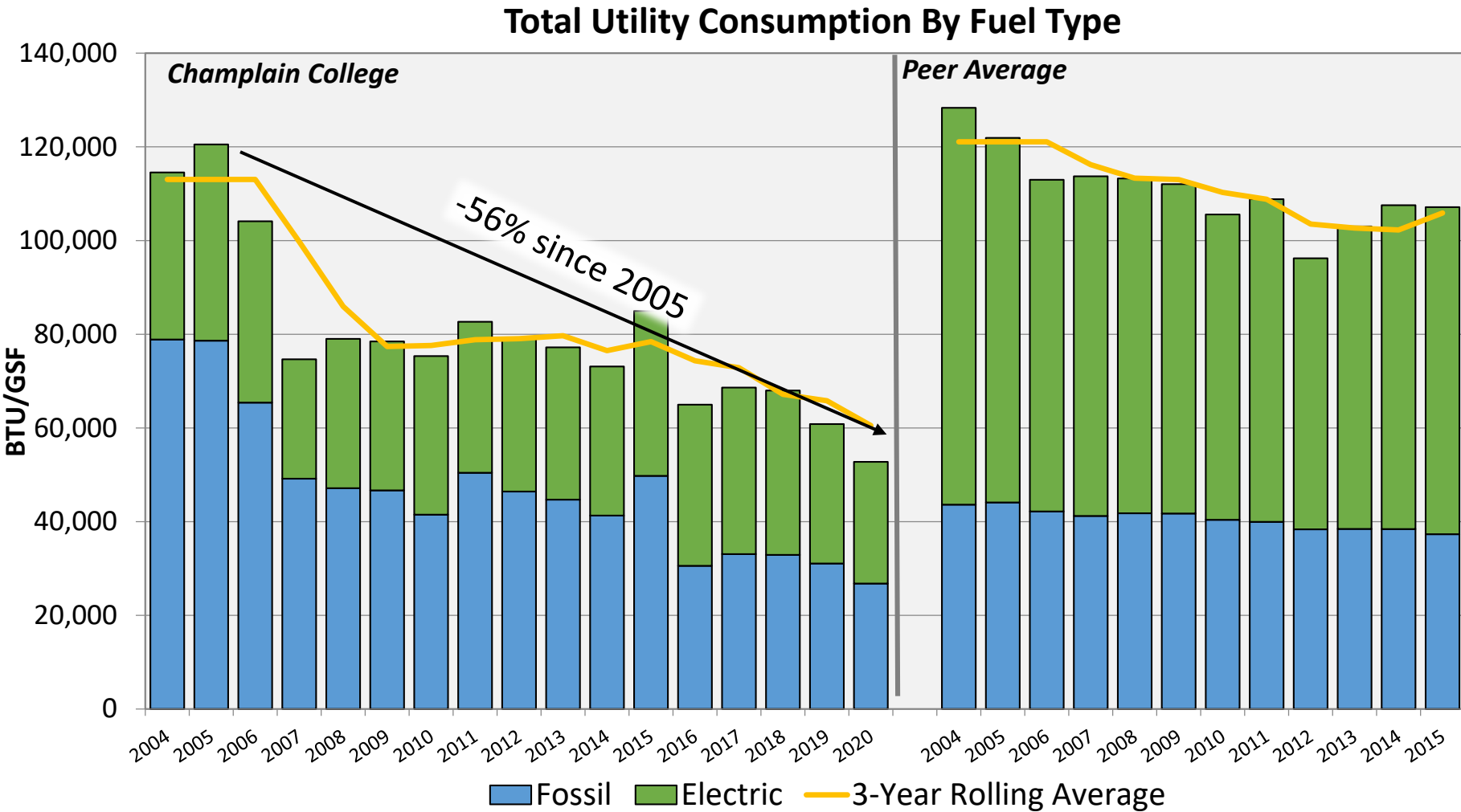
Scopes 1 & 2 Decreased by 15%

March-June 2020 shutdown decreases energy use overall; RNG nets a ~3% decrease in natural gas emissions for Perry Hall

Scope 3 Decreased 35%

Significant decrease due to pandemic-related travel limitations

Energy Use Well Below Peers' Historical Performance



Gas – 14% Gross Decrease
Residential: 13% net decrease
Acad/Admin: 14% net decrease

Electricity – 13% Gross Decrease
Residential: 17% net decrease
Acad/Admin: 14% net decrease

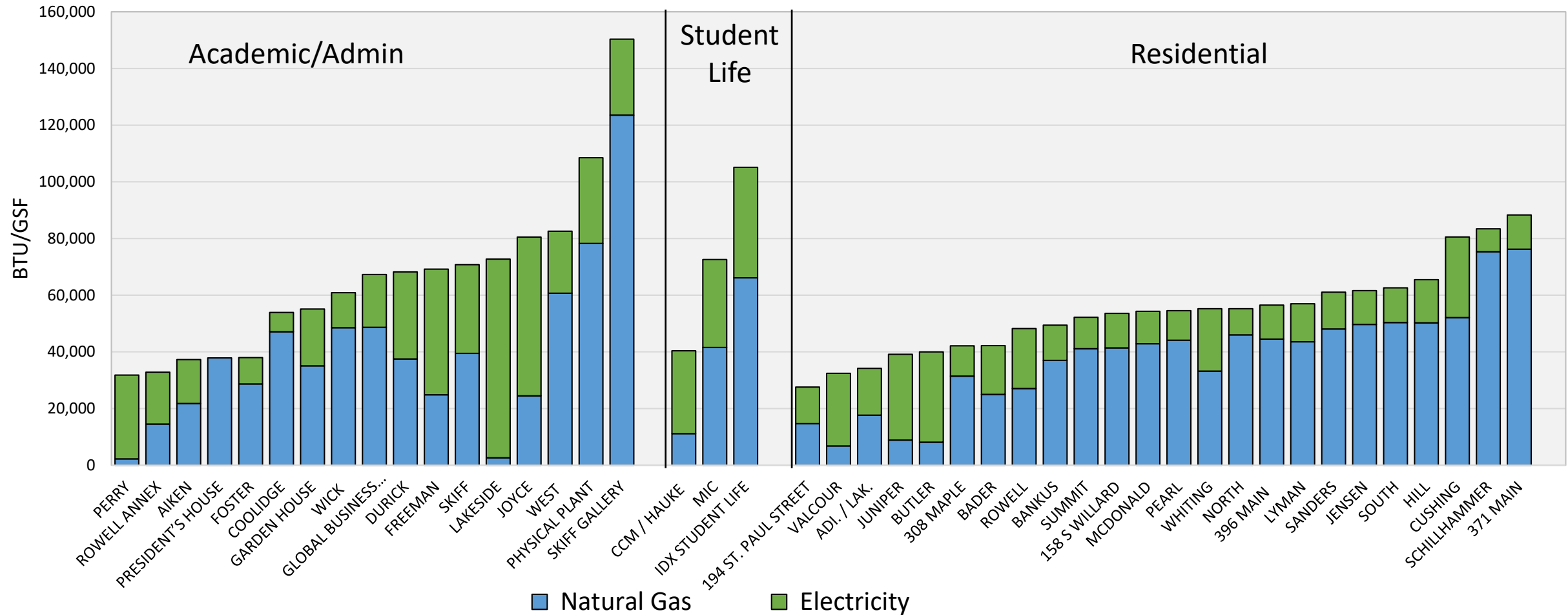
Decreases likely due to campus shutdown / pandemic



Sustainability Peers: Bentley University, University of Vermont, Boston College, Babson College, Siena College, Wesleyan University, Carleton College, Hamilton College, Hampshire College
Data from Sightlines ROPA+ Presentation November 2016

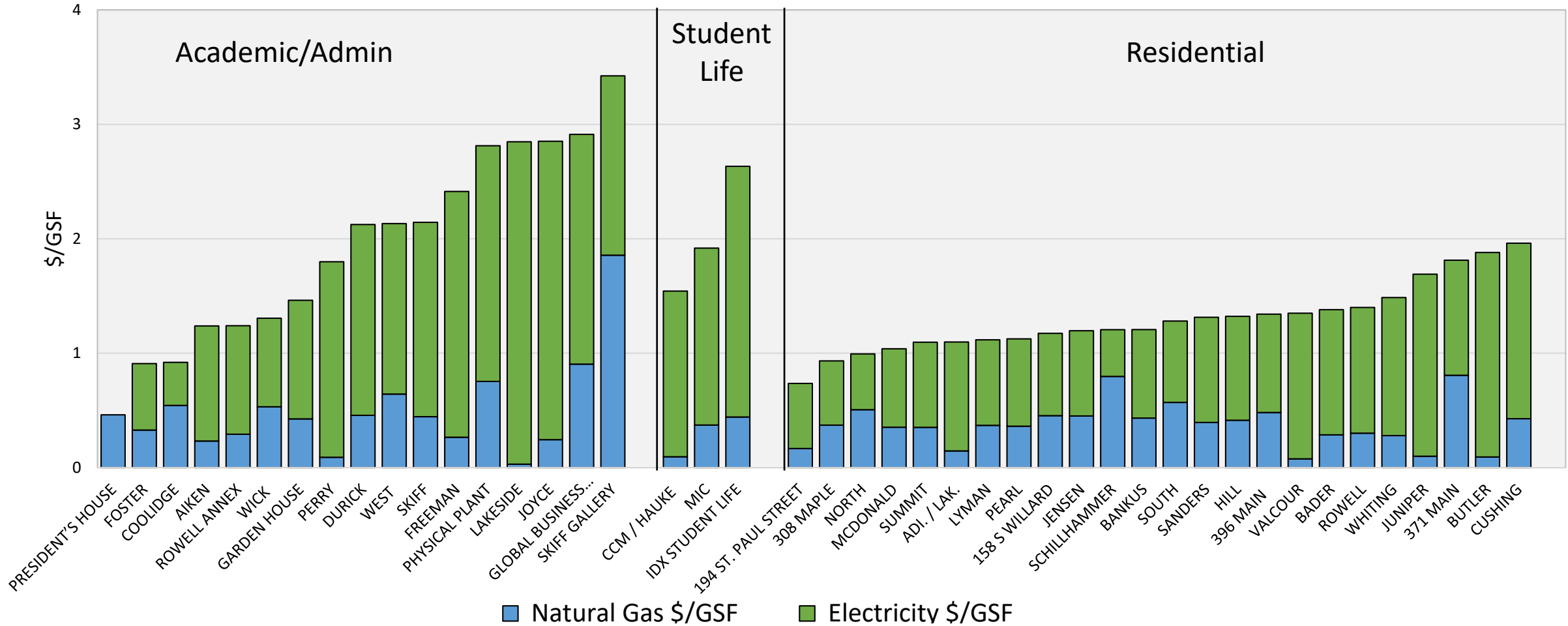
FY20 Energy Consumption by Building

Total Energy Consumption



FY20 Energy Costs by Building

Total Energy Costs per Gross Square Foot



FY20 Energy Costs by Building

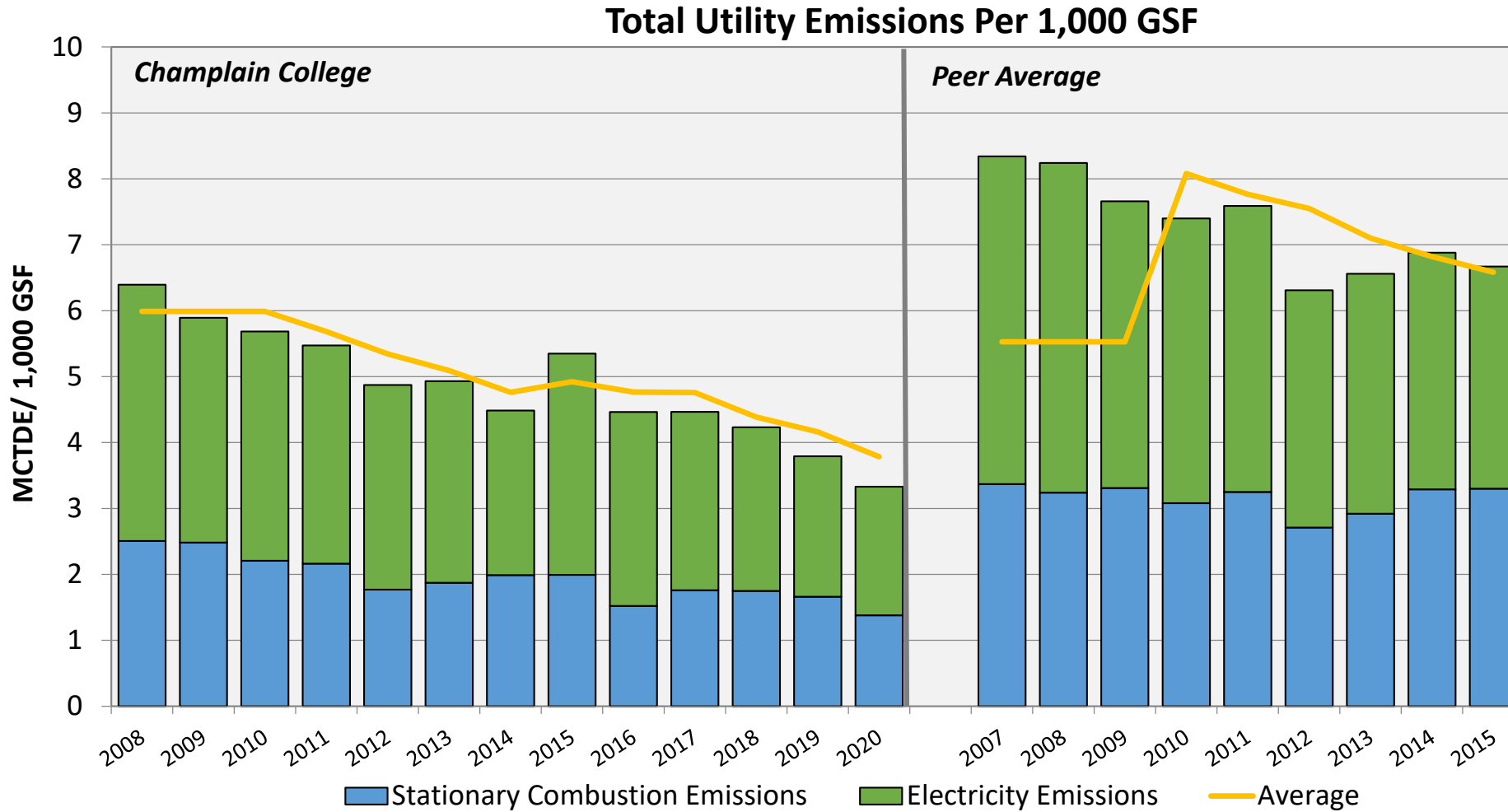
ACAD ADMIN Bldg	\$ Natural Gas	\$ Electricity	Total \$
PRESIDENT'S HOUSE	\$1,611	\$0	\$1,611
SKIFF GALLERY	\$1,175	\$992	\$2,167
ROWELL ANNEX	\$842	\$2,732	\$3,574
COOLIDGE	\$2,205	\$1,524	\$3,729
FOSTER	\$299	\$4,074	\$4,373
GARDEN HOUSE	\$1,861	\$4,531	\$6,392
WICK	\$2,800	\$4,074	\$6,874
WEST	\$2,391	\$5,537	\$7,928
DURICK	\$1,844	\$6,730	\$8,574
AIKEN	\$3,190	\$13,776	\$16,966
PHYSICAL PLANT	\$7,537	\$20,591	\$28,128
FREEMAN	\$3,187	\$25,754	\$28,941
SKIFF	\$7,055	\$26,922	\$33,977
JOYCE	\$5,014	\$53,409	\$58,423
PERRY	\$3,007	\$57,055	\$60,062
GLOBAL BUSINESS CENTER	\$22,075	\$48,958	\$71,033
LAKESIDE	\$1,212	\$111,432	\$112,644
STUDENT LIFE BLDG			
MIC	\$11,104	\$46,195	\$57,299
IDX STUDENT LIFE	\$22,075	\$109,431	\$131,506
CCM / HAUKE	\$8,295	\$126,257	\$134,552

RES HALLS	\$ Natural Gas	\$ Electricity	Total \$
308 MAPLE	\$1,940	\$2,932	\$4,872
NORTH	\$2,734	\$2,635	\$5,369
CARRIAGE	\$2,063	\$3,746	\$5,809
158 S WILLARD	\$3,512	\$5,554	\$9,066
SCHILLHAMMER	\$6,244	\$3,203	\$9,447
LYMAN	\$3,162	\$6,385	\$9,547
BADER	\$2,334	\$8,906	\$11,240
MCDONALD	\$3,855	\$7,493	\$11,348
396 MAIN	\$4,237	\$7,567	\$11,804
JENSEN	\$4,504	\$7,430	\$11,934
HILL	\$3,810	\$8,362	\$12,172
PEARL	\$3,940	\$8,297	\$12,237
BANKUS	\$4,516	\$8,072	\$12,588
SANDERS	\$3,840	\$8,931	\$12,771
ROWELL	\$3,000	\$10,929	\$13,929
371 MAIN	\$6,230	\$7,769	\$13,999
SOUTH	\$7,187	\$8,966	\$16,153
SUMMIT	\$5,376	\$11,360	\$16,736
WHITING	\$3,279	\$14,135	\$17,414
CUSHING	\$3,892	\$13,950	\$17,842
VALCOUR	\$2,313	\$38,225	\$40,538
ADI. / LAK.	\$5,982	\$39,051	\$45,033
JUNIPER	\$2,854	\$45,710	\$48,564
BUTLER	\$2,479	\$47,773	\$50,252
194 ST. PAUL STREET	\$29,278	\$99,646	\$128,924

Total Energy Costs	FY19	FY20
Res Hall Electric	\$449,518	\$466,358
Res Hall Gas	\$163,900	\$134,525
Academic Electric	\$728,967	\$761,355
Academic Gas	\$137,158	\$110,780
Totals	\$1,479,543	\$1,473,018

Despite two-month shut down, costs did not decrease significantly.

Like Consumption, Emissions Below Peers



Emissions per Square Foot drop 12% in FY20, likely due to campus shut down from March-June 2020.

Champlain's gross utility emissions are 40% below 2008 levels, despite a 58% increase in building space since then.

Sustainability Peers: Bentley University, University of Vermont, Boston College, Babson College, Siena College, Wesleyan University, Carleton College, Hamilton College, Hampshire College

Data from Sightlines ROPA+ Presentation November 2016

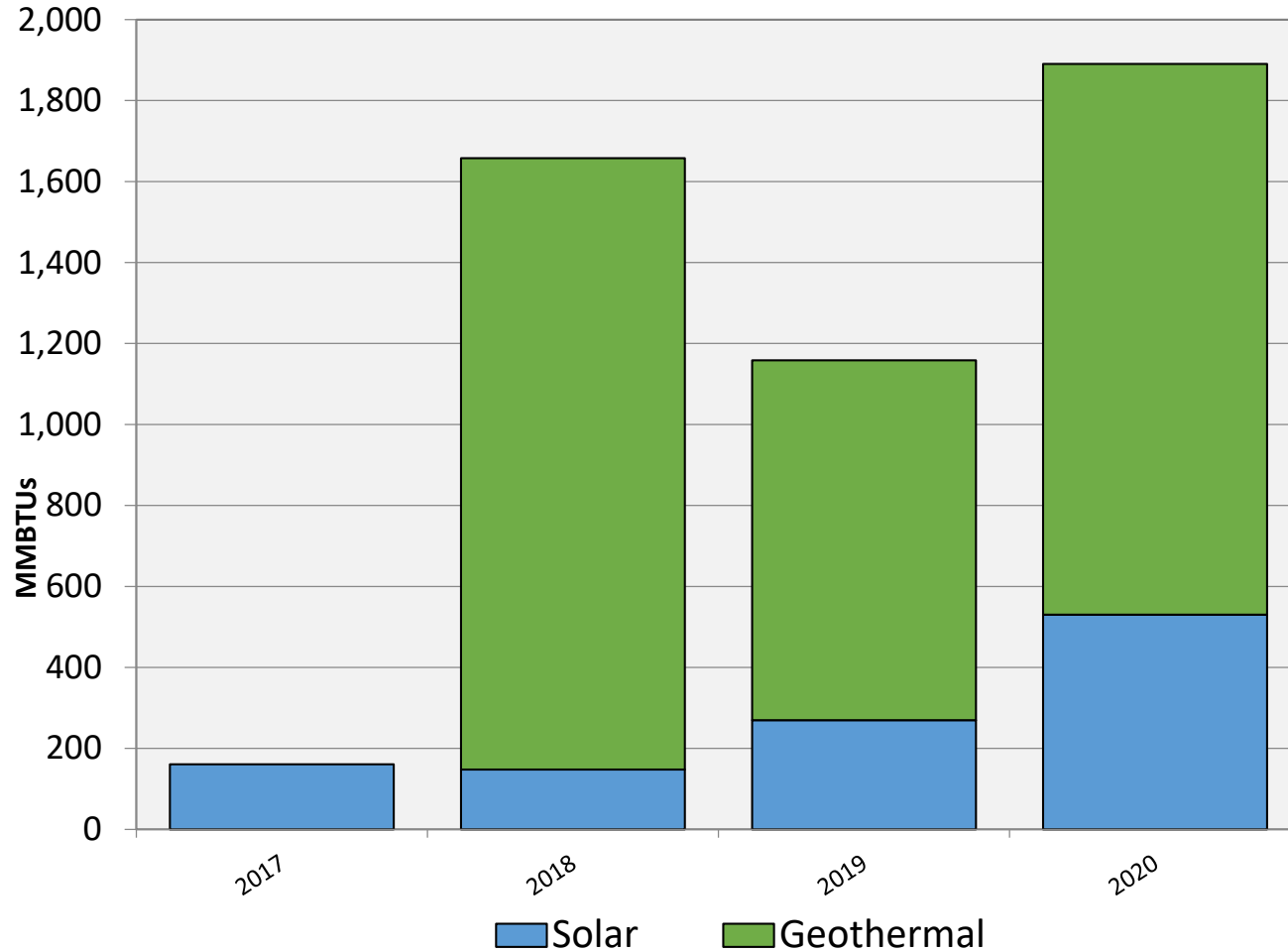


**T&D Losses included in Electricity Emissions bar*

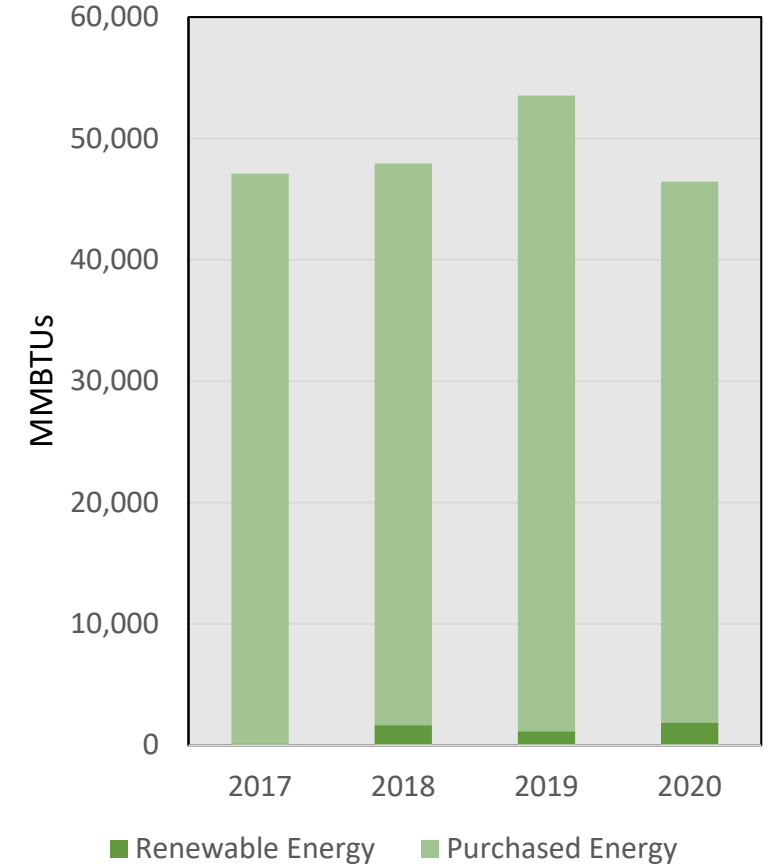


Renewable Energy is a growing part of our solution

Renewable Energy Generated Onsite at Champlain



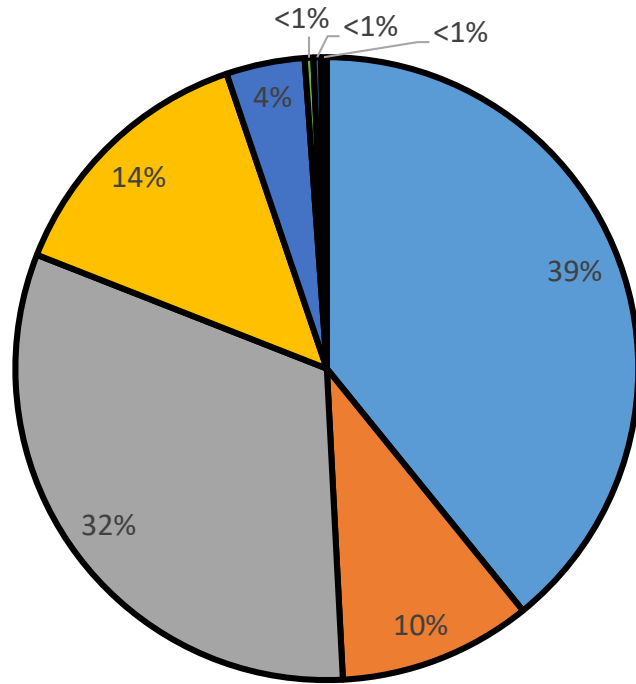
Total Energy Consumption at Champlain



Onsite renewable energy was 4% of our total energy consumption in FY2020.

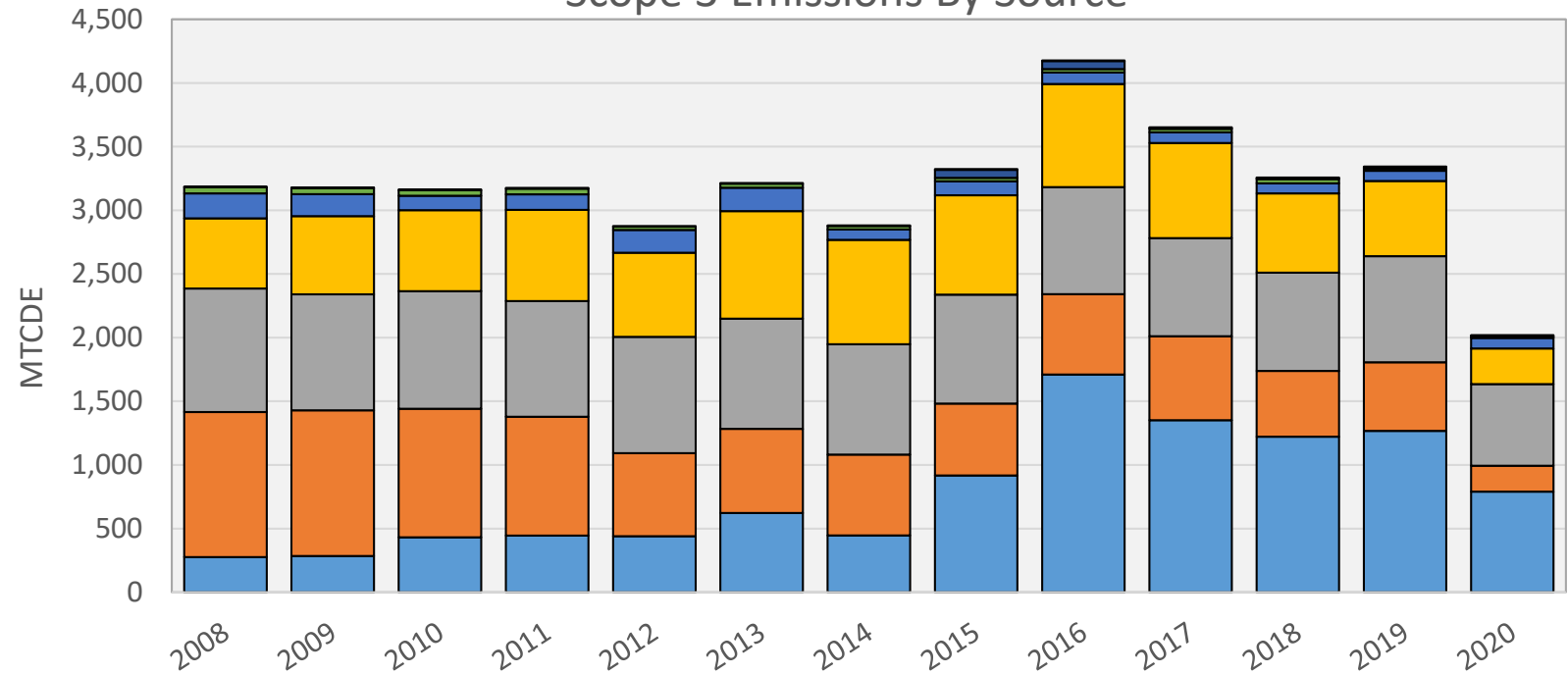
Scope 3: Air Travel & Commuting Are Top Four Sources

FY20 Scope 3 GHGs by Source



- Study Abroad
- DF Air Travel
- T&D Losses
- DF Ground Travel
- Student Commuting
- Faculty/Staff Commuting
- Paper
- Wastewater

Scope 3 Emissions By Source

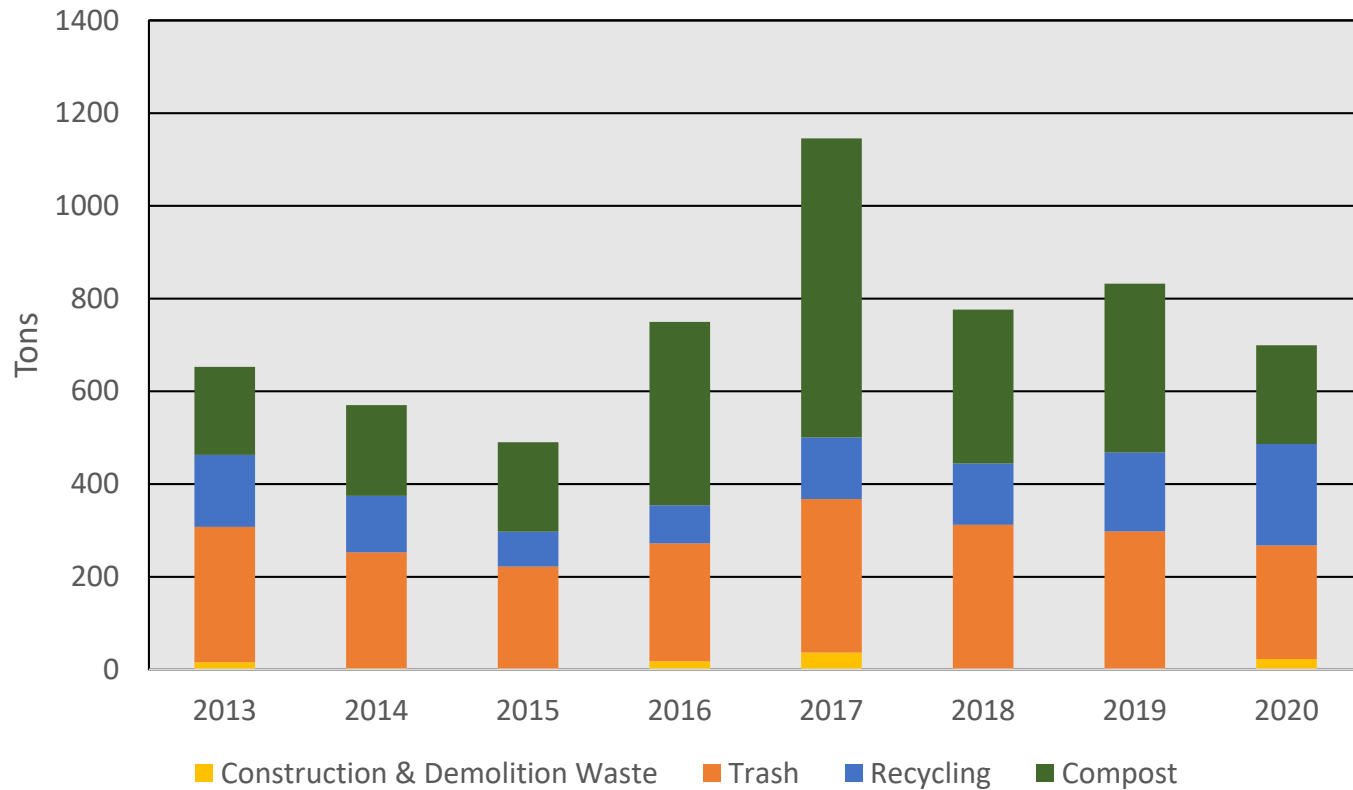


- **FY 20 Scope 3 Emissions – fewer international courses and travel due to pandemic**
- **Changing Composition of Scope 3 – With more students living on campus, commuting emissions are dropping**
- **Transportation survey data via CATMA may be more accurate**

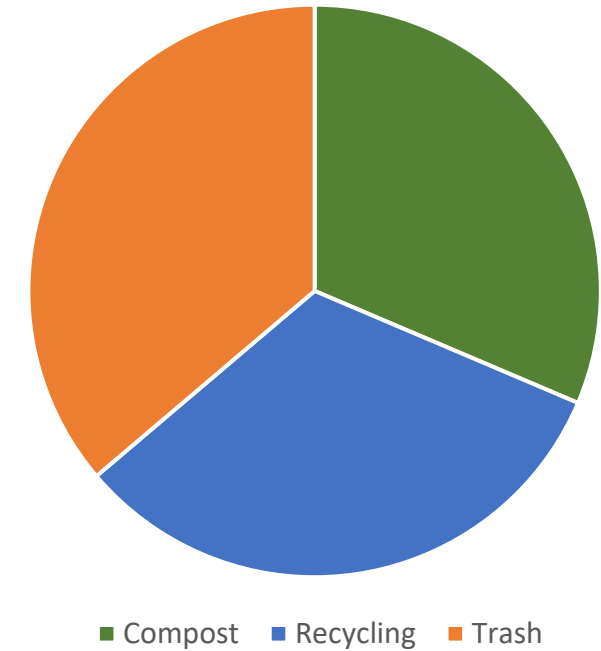
Scope 3: A closer look at Waste

smaller emissions impacts, but highly tangible

Total Waste Generated



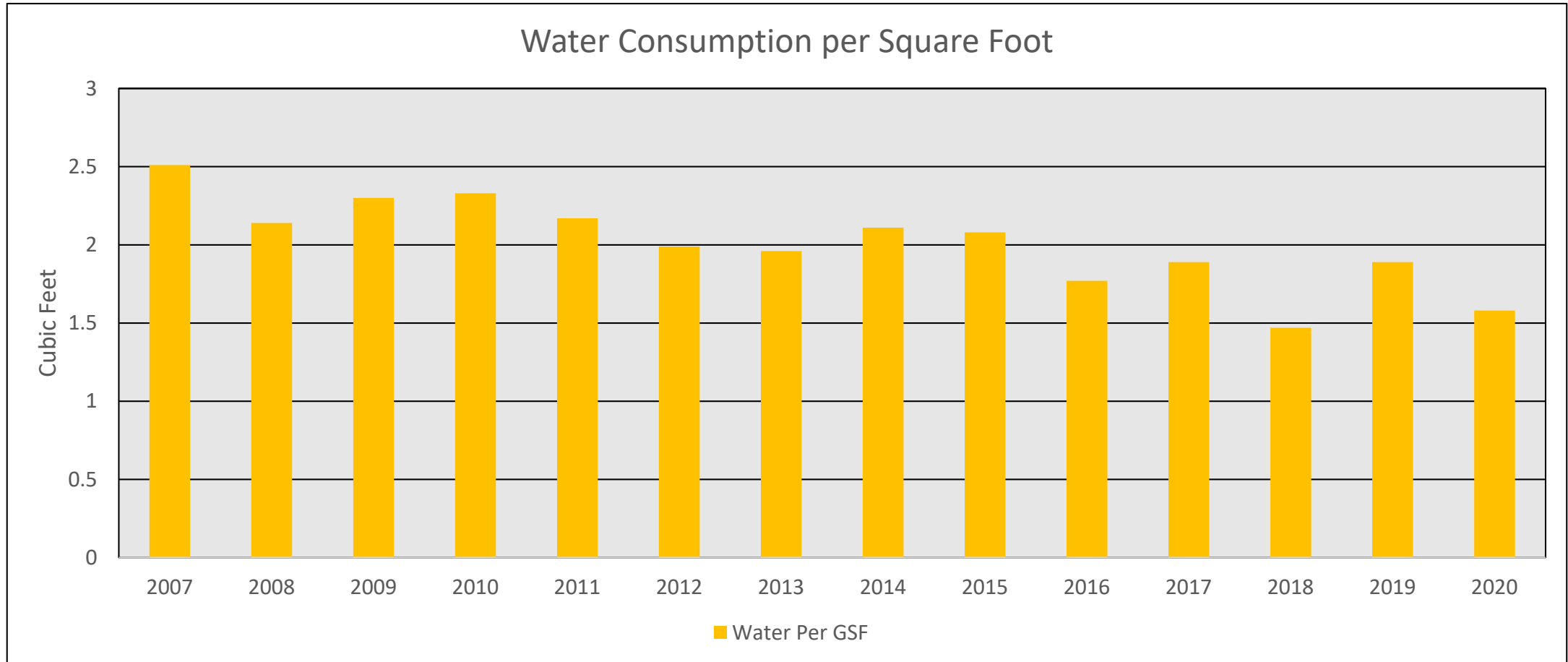
2020 Diversion Rate



36% of our waste was landfilled in FY2020. Equals a total 64% diversion rate.

Scope 3: A closer look at Water

smaller emissions impacts, but impacts energy use and Lake Champlain

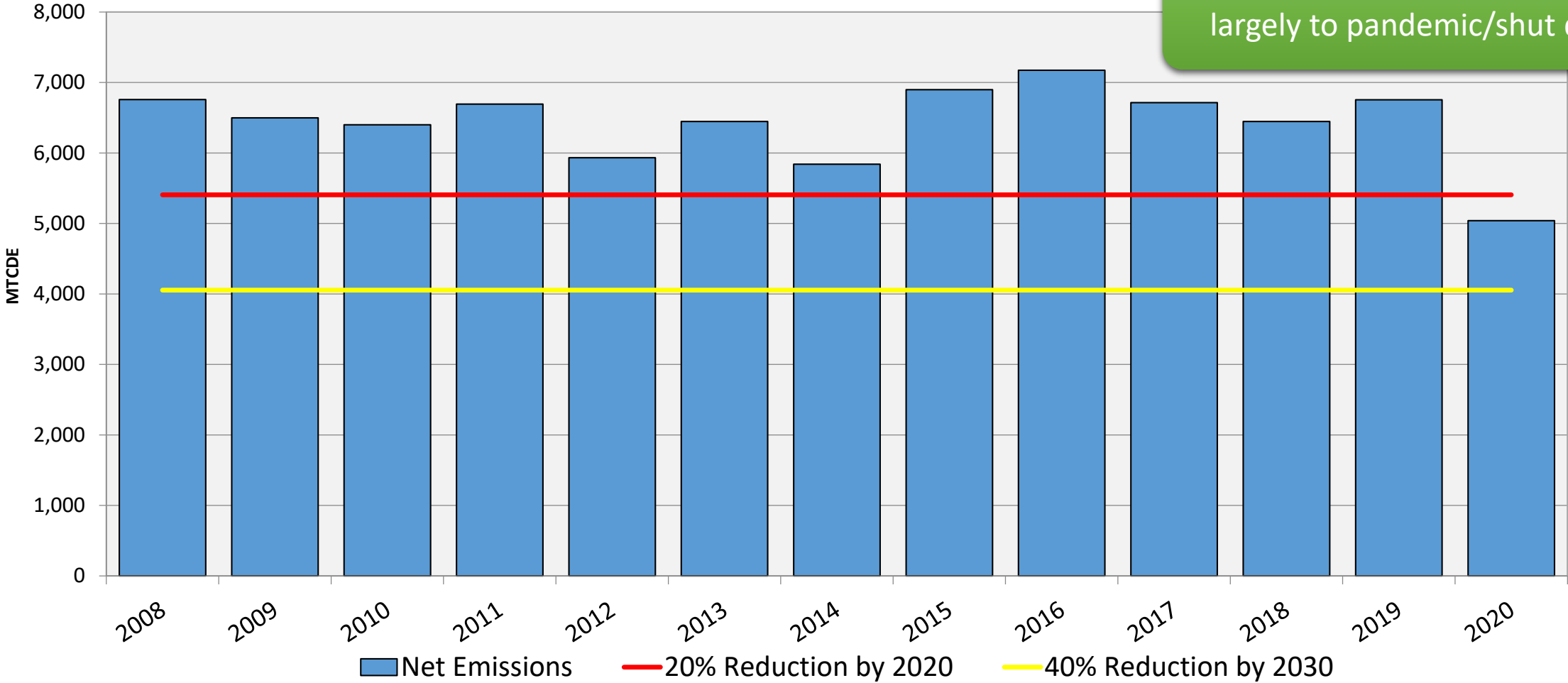


Water usage per GSF has decreased 37% since 2007

Net Emissions vs. Common Reduction Targets

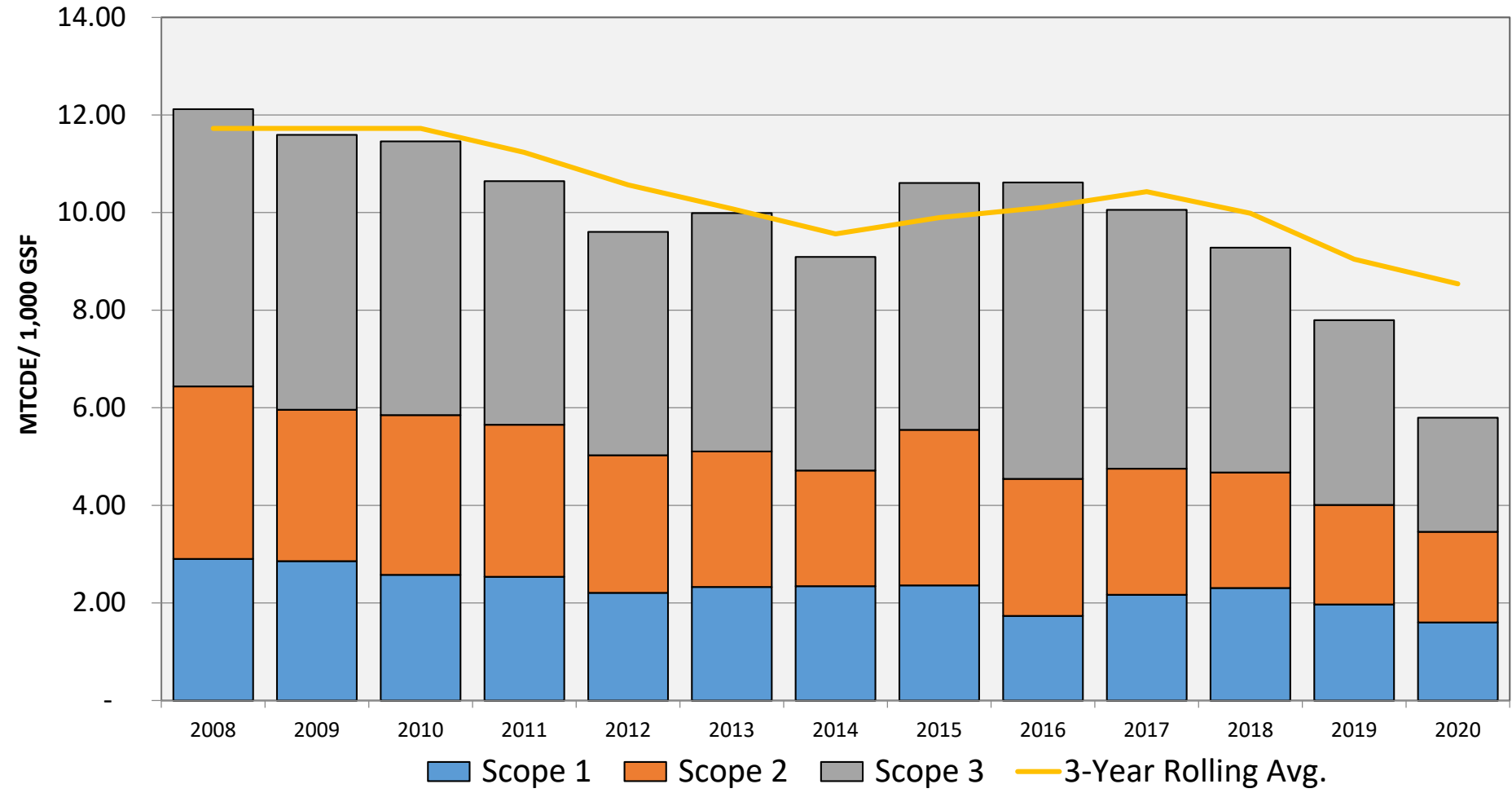
Historical Net Emissions

Achieved 20% reduction, but due largely to pandemic/shut down



Tracking Campus Emissions per Square Foot

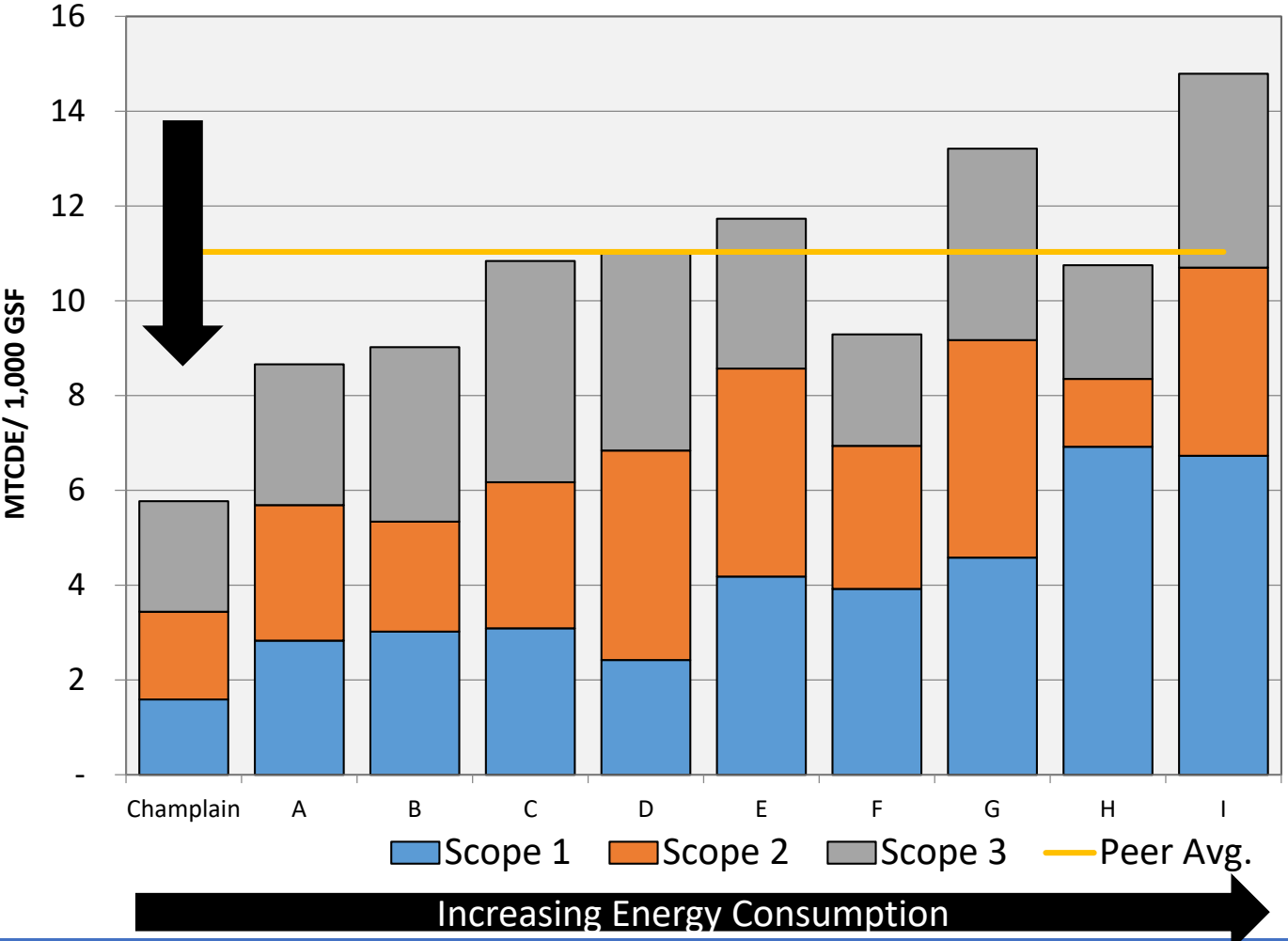
Gross Emissions per 1,000 GSF Year Over Year



Additional square footage of 194 St. Paul Street pulls down normalized emissions metric in FY19; pandemic shutdown results in more decreases in FY20.

Benchmarking Campus Emissions to Peers

Gross Emissions per 1,000 Square Feet



Scope 1 & 2 emissions per GSF reflect the energy efficiency of campus buildings.

In a typical year, Scope 3 emissions per GSF (mainly study abroad, employee air travel and student commuting) are exaggerated due to Champlain's much higher population density (i.e. more tailpipe emissions divided by less campus building space).

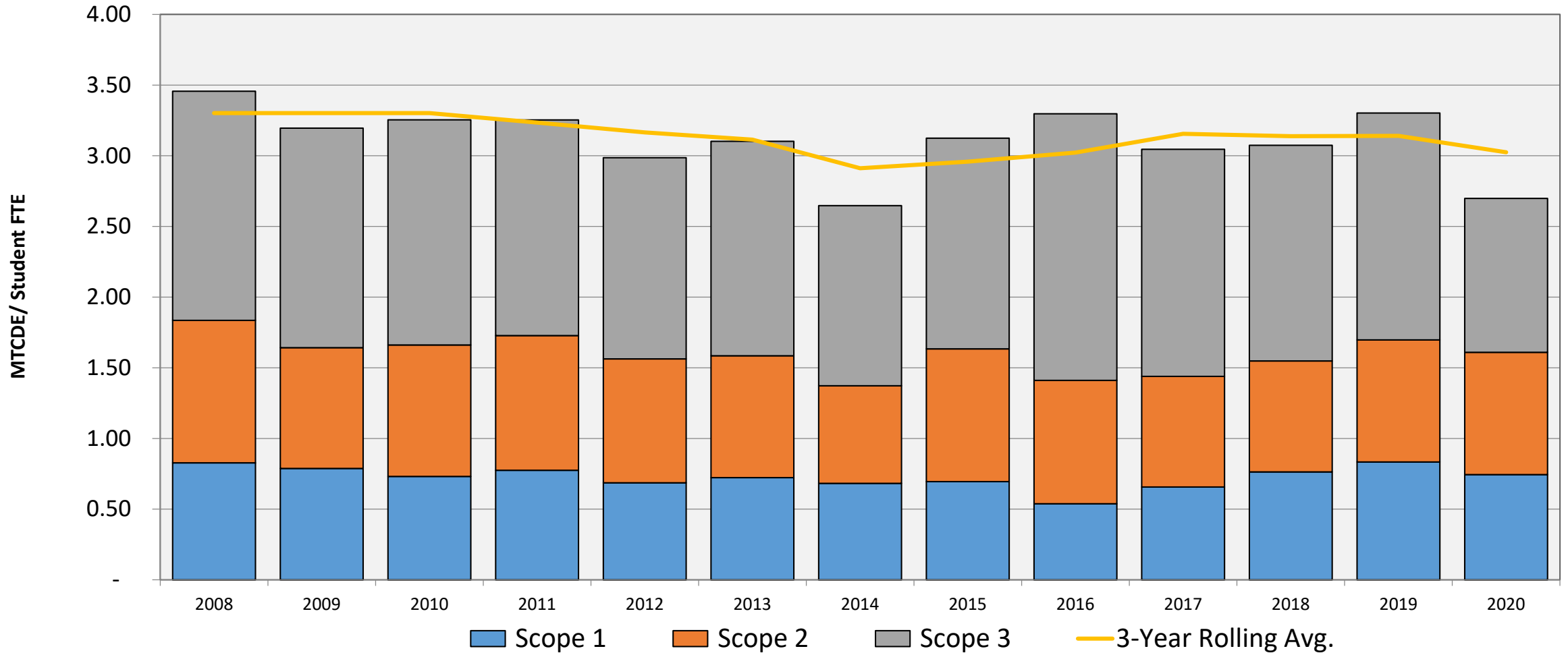
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Peer data from Sightlines ROPA+ Presentation November 2016



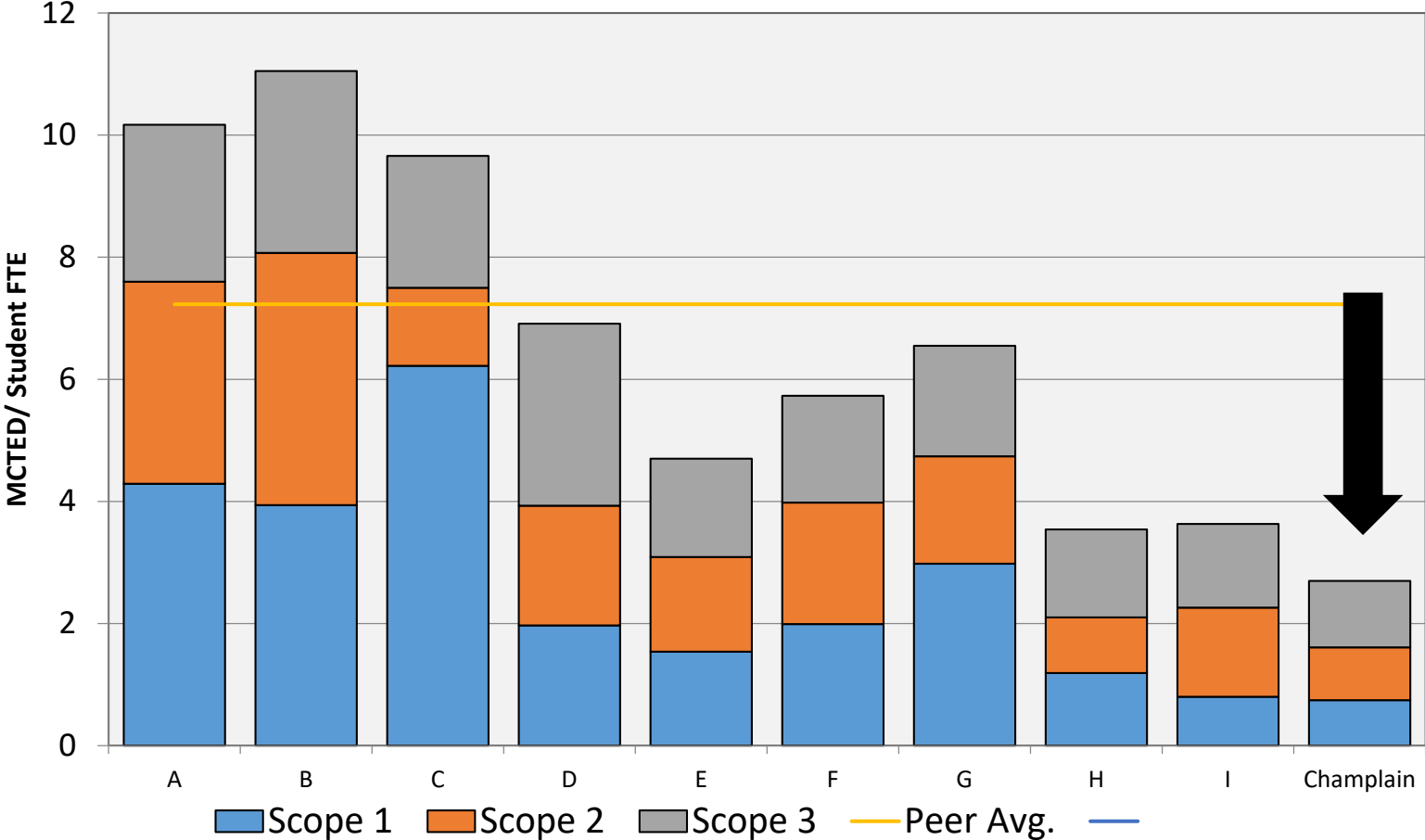
Tracking Campus Emissions per Student

Gross Emissions per Student Year Over Year



Benchmarking Campus Emissions to Peers

Gross Emissions per Student FTE



Despite continued physical growth and lower enrollment in 2019 and 2020, Champlain College's educational model still generates over 60% fewer carbon emissions per student than the average peer institution – based on data from 2016.

Increasing Campus Population Density →

Sustainability Peers: Bentley University, University of Vermont, Boston College, Babson College, Siena College, Wesleyan University, Carleton College, Hamilton College, Hampshire College

Peer data from Sightlines ROPA+ Presentation November 2016



Concluding Observations

- Champlain continues its dominant performance in normalized emissions benchmarks relative to the Sightlines peer group for FY16. However, the lack of substantive gross reductions since 2018 raises concerns about the ability for the College to achieve substantial reductions moving forward.
- **What might be next?** A [Climate Action Plan](#) for Champlain College that takes us to carbon neutrality by 2030, guided by the values of the 2025 framework.

Champlain 2025: A STRATEGIC FRAMEWORK

Mission

Champlain College educates adaptable thinkers, daring change-makers, and inclusive innovators who shape professions and inspire communities.

Values

INNOVATION: We anticipate the future and thrive in dynamic conditions.

ENGAGED LEARNING: We commit to learning so everyone does meaningful work.

INCLUSIVITY: We practice inclusive teamwork and value diverse individual strengths.

PRACTICALITY: We provide experiential professional education.

INTERCONNECTEDNESS: We connect with people and places, from the local to the global.

Notes

- First time this data input and analysis in [SIMAP](#) tool conducted by Christina Erickson – may have different calculations, formulas, etc. from prior consultant
- Used Location-Based Scope 2 Method in SIMAP (instead of Market-Based)
- Will need to stop using Sightlines Peer data soon, as this is becoming way out of date (from 2016)