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Babson College

FY24 Sustainability Presentation

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What is Included in a Greenhouse Gas Inventory?

Scope 1:
From sources owned or controlled by Babson

- On-Campus Stationary
- Vehicle Fleet
- Refrigerants
- Fertilizer

Scope 2:
From the generation of electricity purchased by Babson

- Purchased Electricity

Scope 3:
From sources not directly controlled by Babson

- Directly Financed and Study Abroad Travel
- Waste and Wastewater
- Student, Faculty, and Staff Commuting
- Paper Purchasing
- Transmission and Distribution Losses

Increasingly Difficult to Track, Control and/or Mitigate

Two Ways to Normalize Emissions for Consumption

GHG Emissions per 1,000 GSF EUI Adjusted

Stresses intensity of operations.

$$\frac{\text{Gross GHG Emissions}}{\text{EUI Adjusted GSF}} \times 1{,}000$$

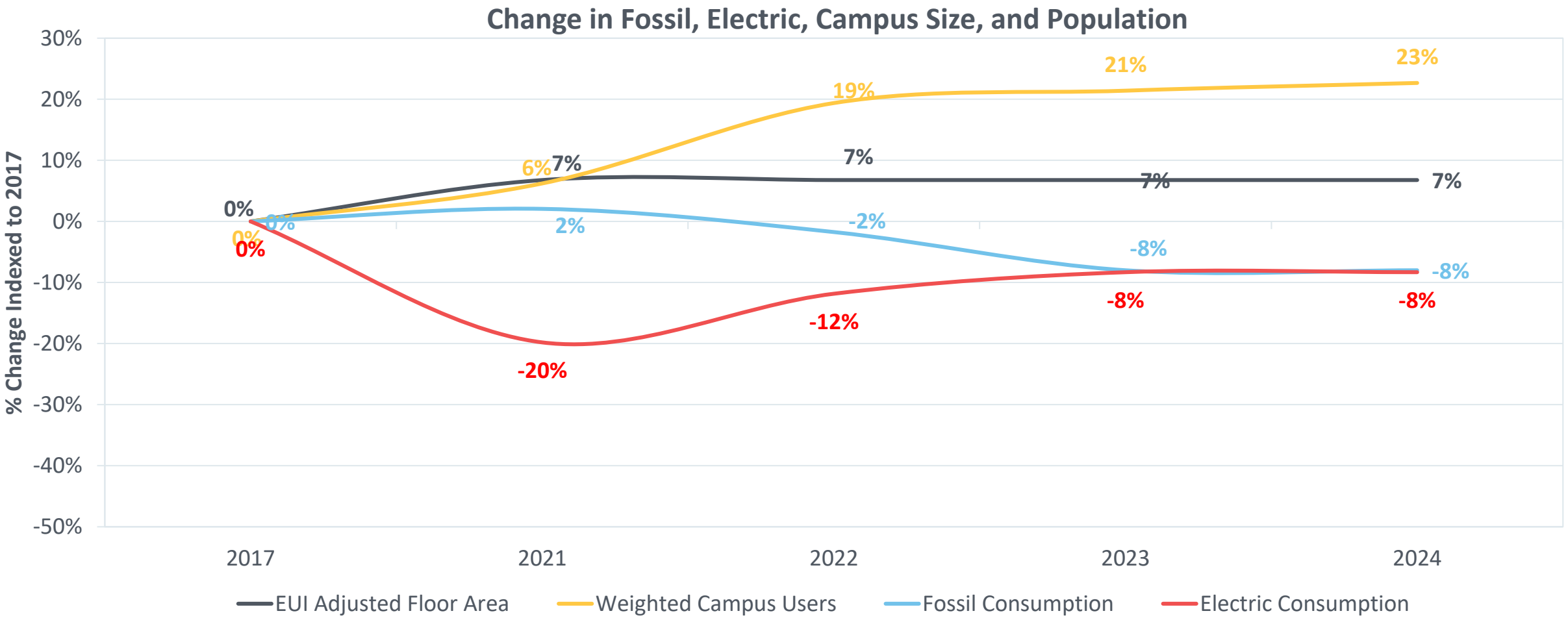
GHG Emissions per Weighted Campus User

Stresses efficient use of space.

$$\frac{\text{Gross GHG Emissions}}{\text{Weighted Campus User}}$$

Increase in Population and GSF; Decrease in Utility Consumption

Through strategic energy management and Covid implications, utility consumption has decreased compared to 2017



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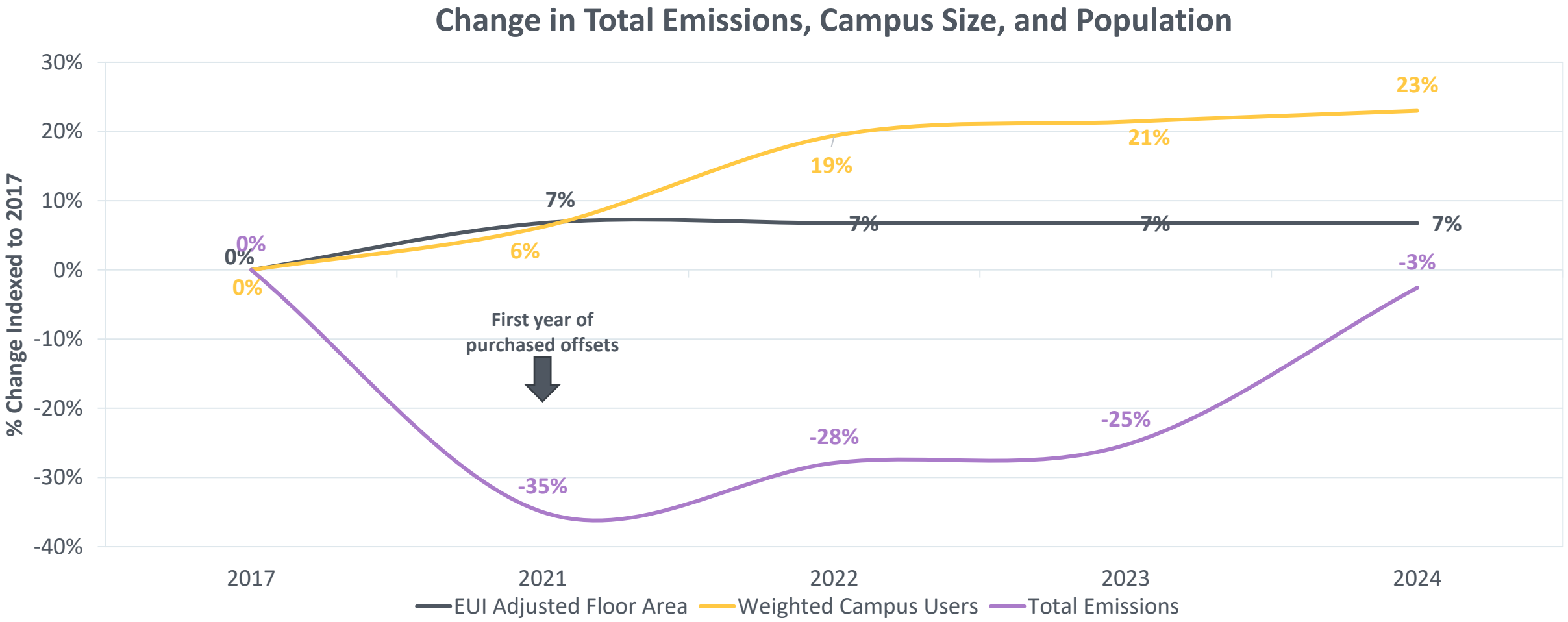
Emissions Have Decreased 3% From 2017 to 2024

Babson emissions returning to pre-pandemic levels, primarily due to Scope 3 other travel



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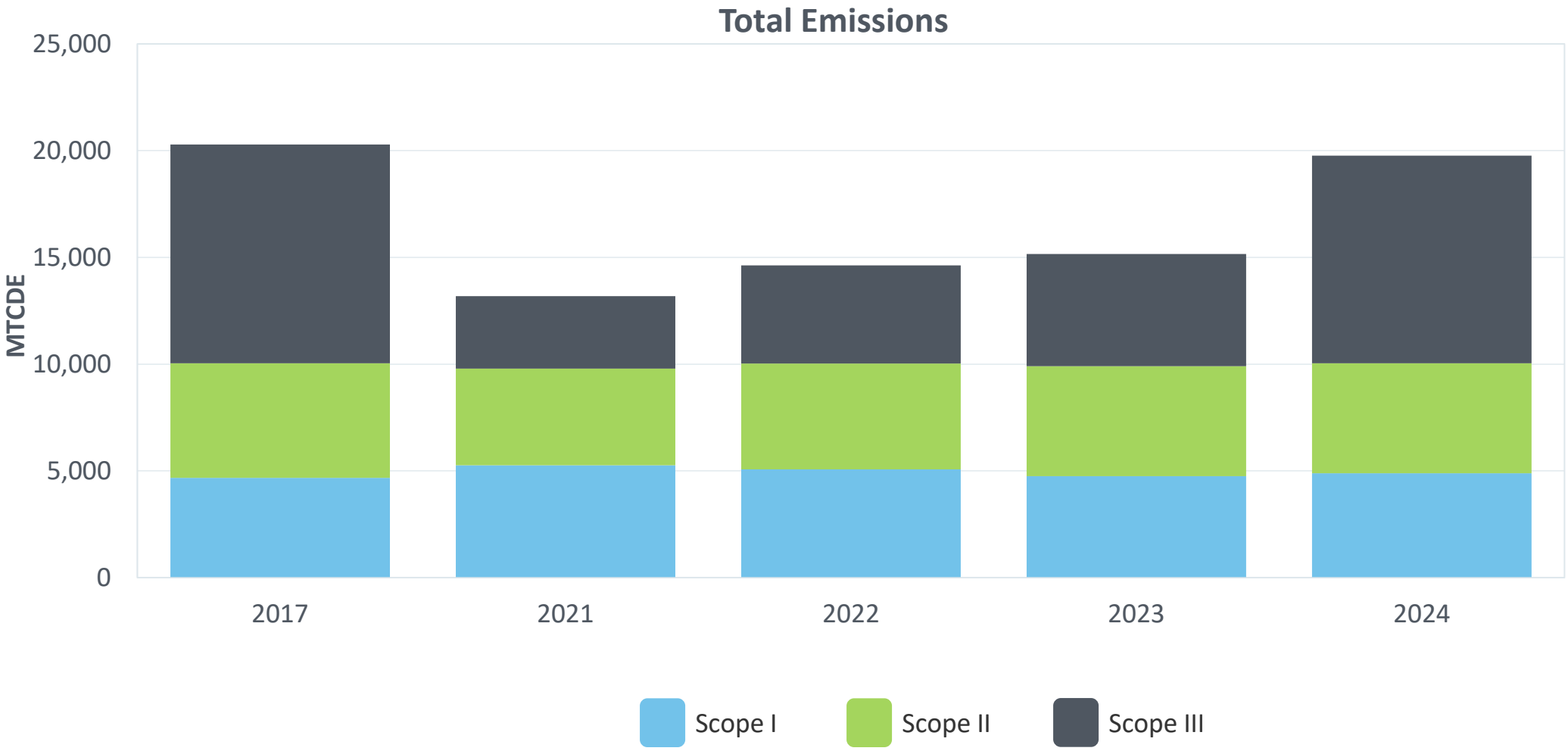
Slight Decrease in Scopes 2 & 3 Emissions Since 2017

Emissions reductions driven by increased building efficiency and purchasing of market mechanisms



Change in Emissions From 2017

Scope 3: -5%

Scope 2: -4%

Scope 1: +5%

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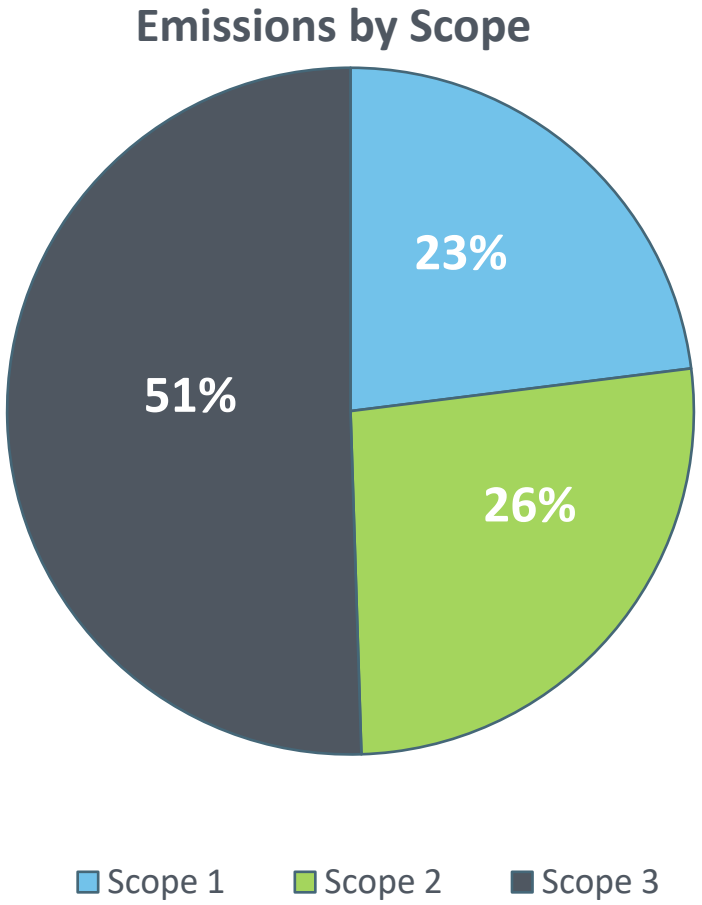
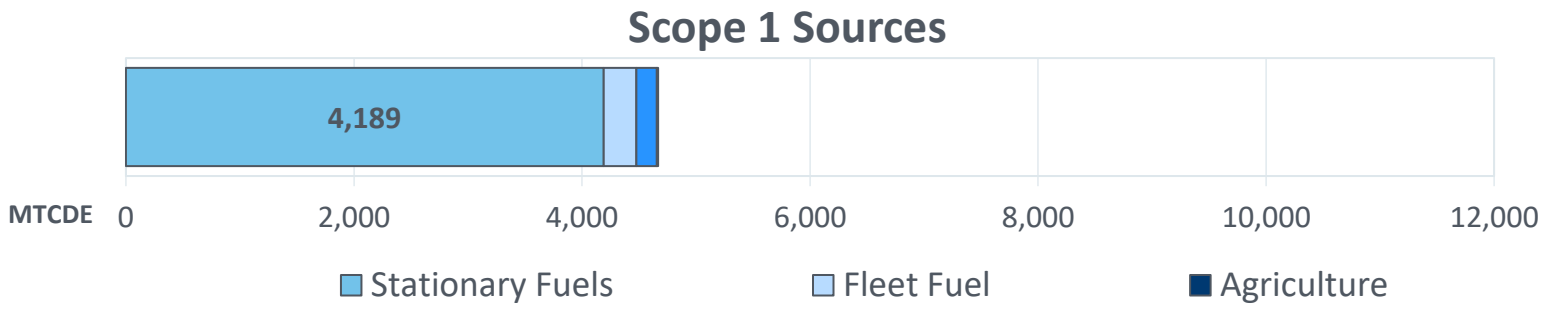
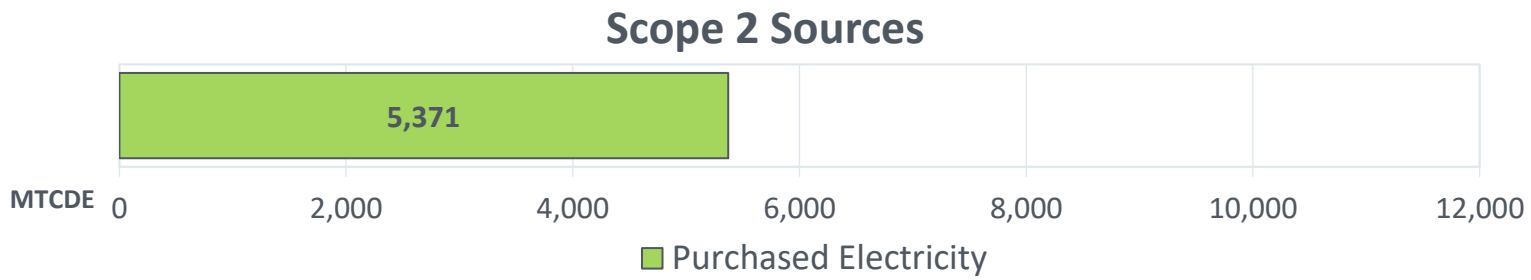
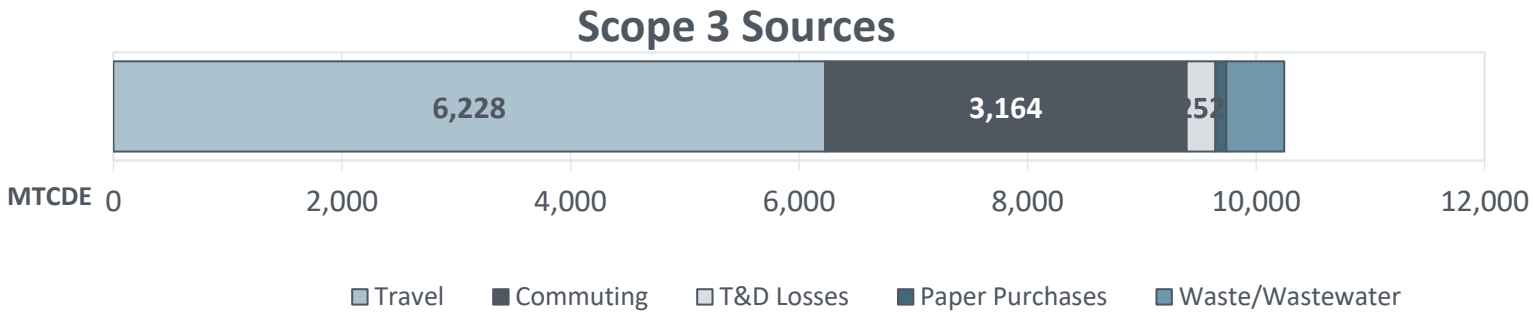
2017 Total Emissions Profile at Babson

*Babson's 2017 emissions total **20,285 MTCDE***









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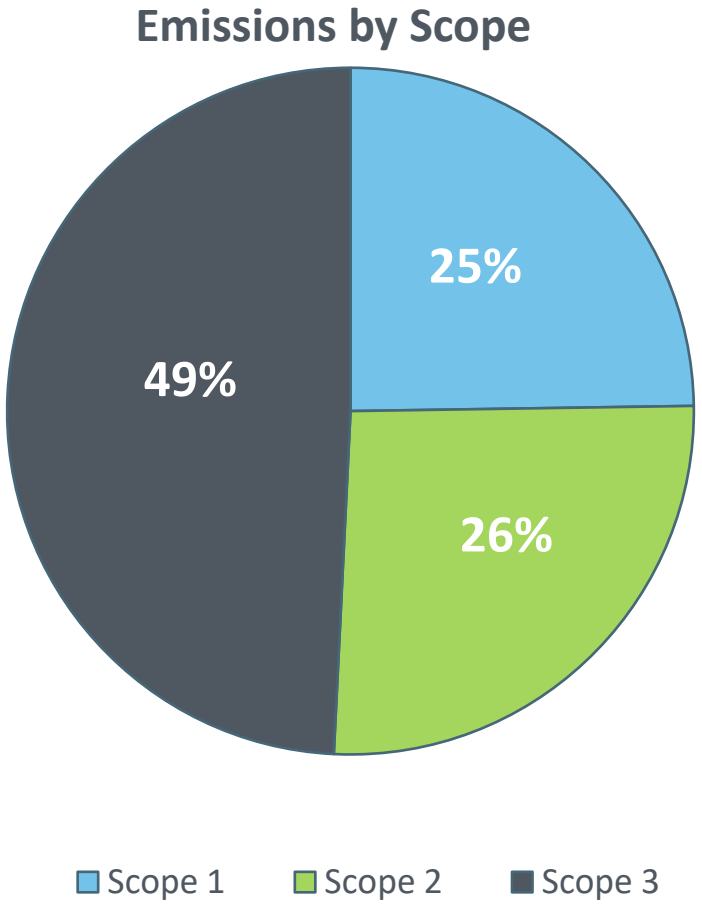
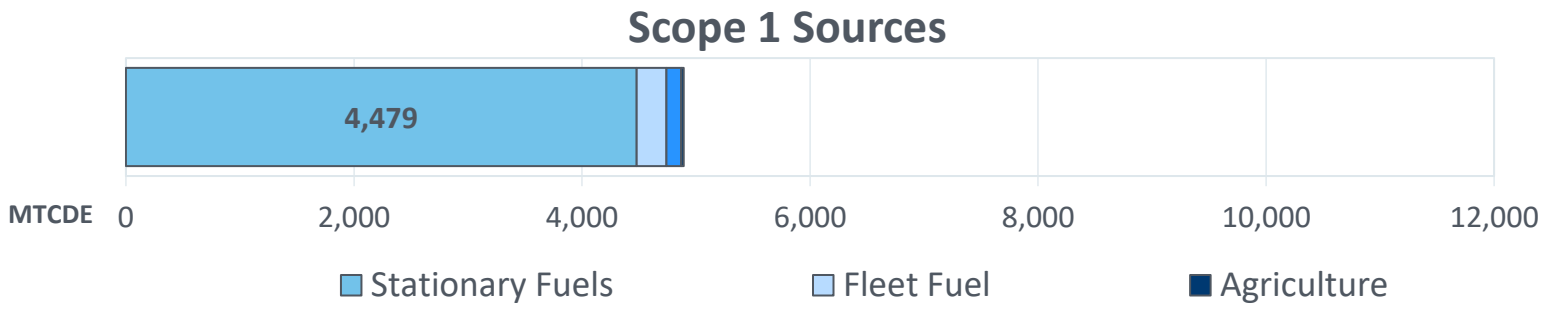
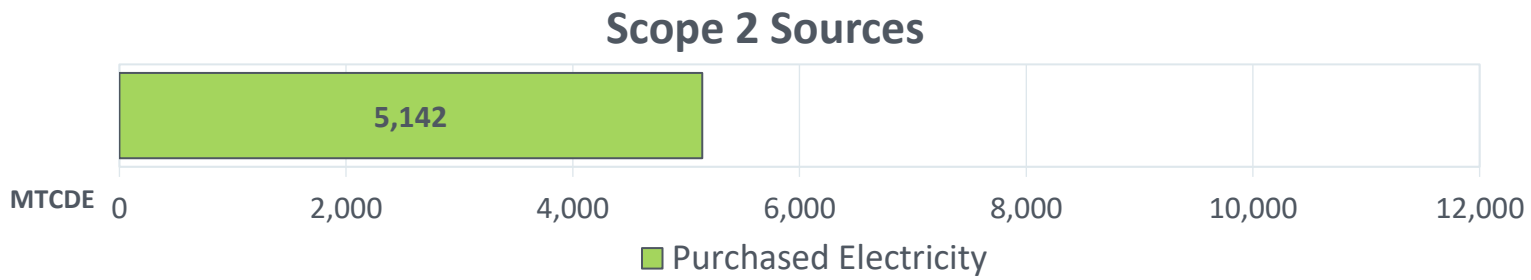
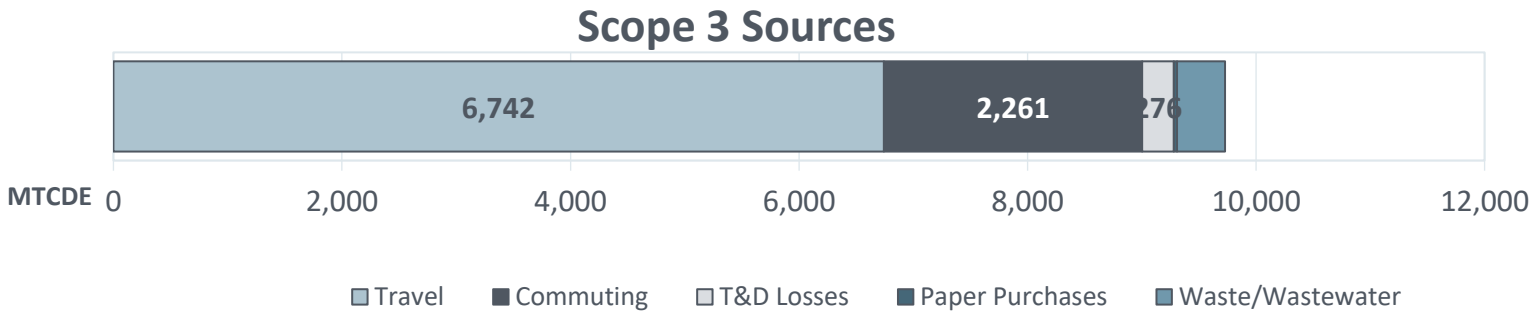
2024 Total Emissions Profile at Babson

*Babson's 2024 emissions total **19,764 MTCDE***









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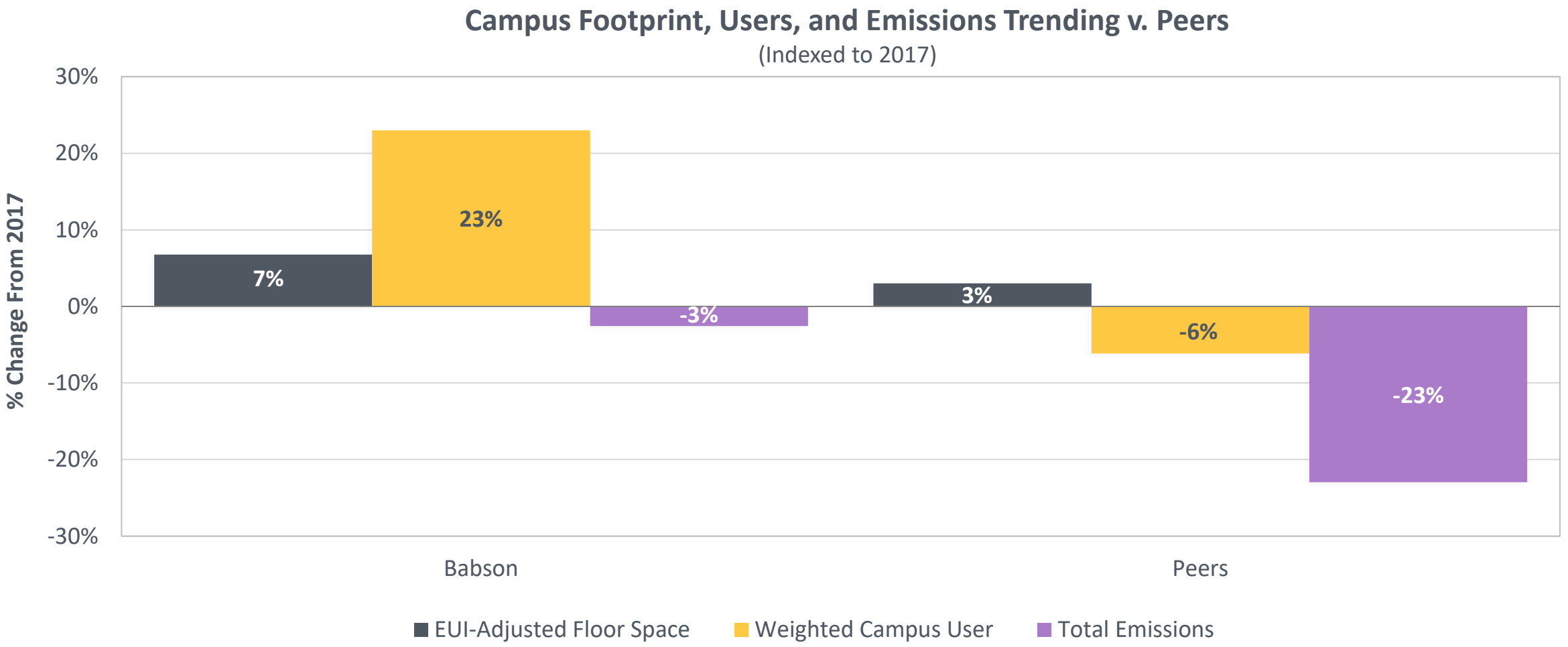
Sustainability Benchmarking

Peer Institutions Used For Benchmarking

Institution Name	Location:	Carbon Neutral Date	GSF Range	Enrollment Range
Babson College	**Wellesley, MA**	**2050**	**1 – 2.5M**	**2,500 – 5,000**
Bentley University	Waltham, MA	2030	1 – 2.5M	2,500-5,000
Carleton College	Northfield, MN	2050	1 – 2.5M	5,000 – 10,000
Emerson College	Boston, MA		1 – 2.5M	5,000 – 10,000
Fitchburg State University	Fitchburg, MA		1 – 2.5M	5,000 – 10,000
Rider University	Lawrence Township, NJ	2050	1 – 2.5M	Under 2,000
Siena College	Loudonville,NY		1 – 2.5M	2,500-5,000
Worcester State University	Worcester, MA	2050	Less Than 1M	5,000-10,000

Babson Has Experienced More Growth Compared to Peers

Despite growth in campus footprint and campus users, Babson has reduced 3% of total emissions



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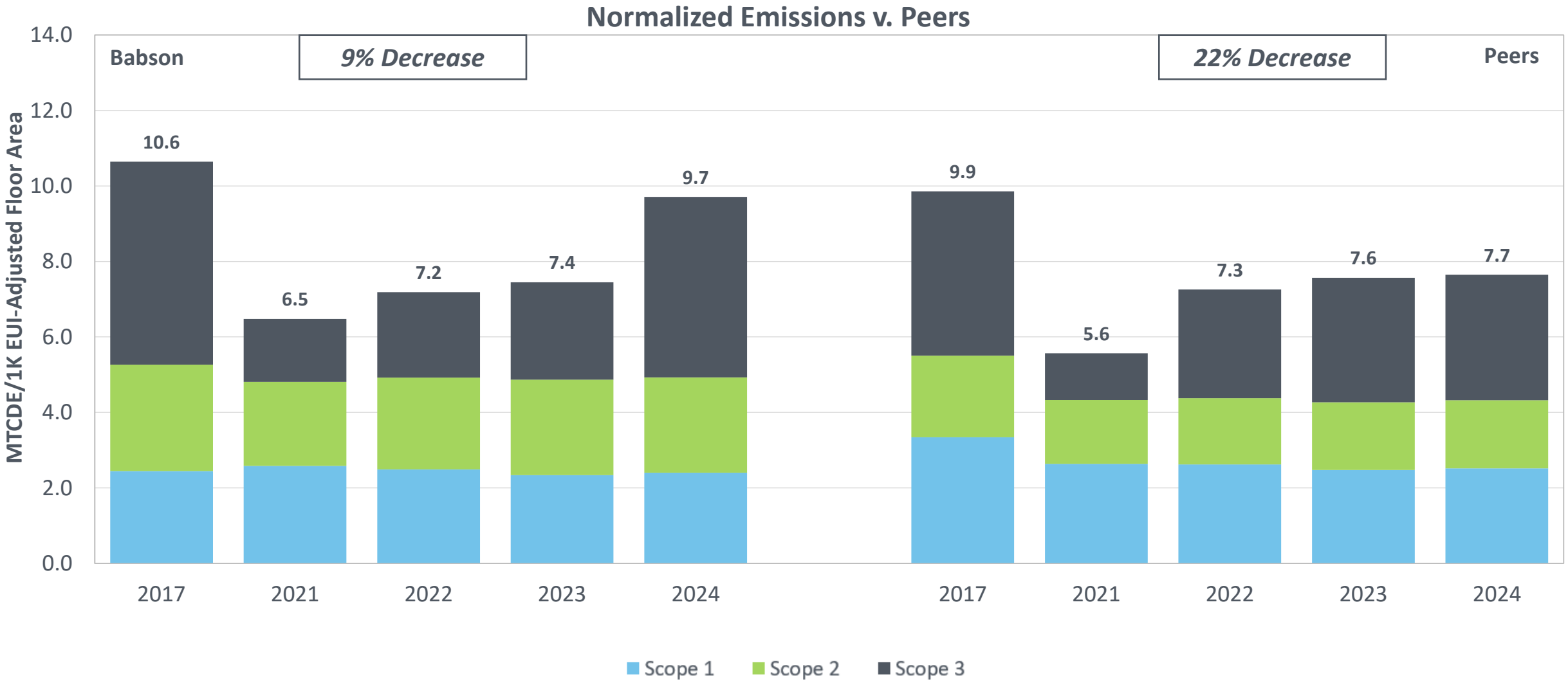
Babson's Emissions Trending Upward Post Pandemic

Main driver behind Babson's increasing emissions in 2024 due to other travel increase



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2024 Emissions at Babson Compared to Peer Levels

Scopes 2 & 3 above peer average

Peers listed by density factor

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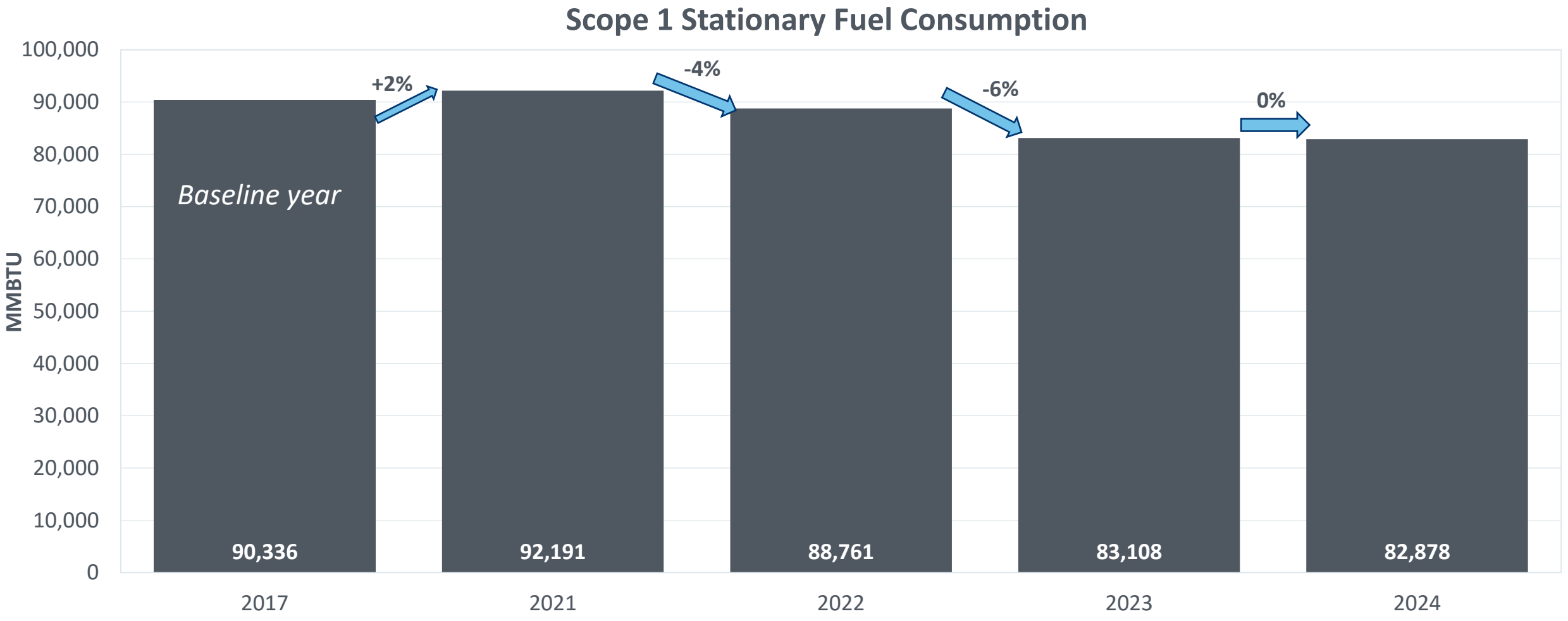
Scope 1 Emissions Profile

Natural Gas Consumption Has Decreased 8% From 2017



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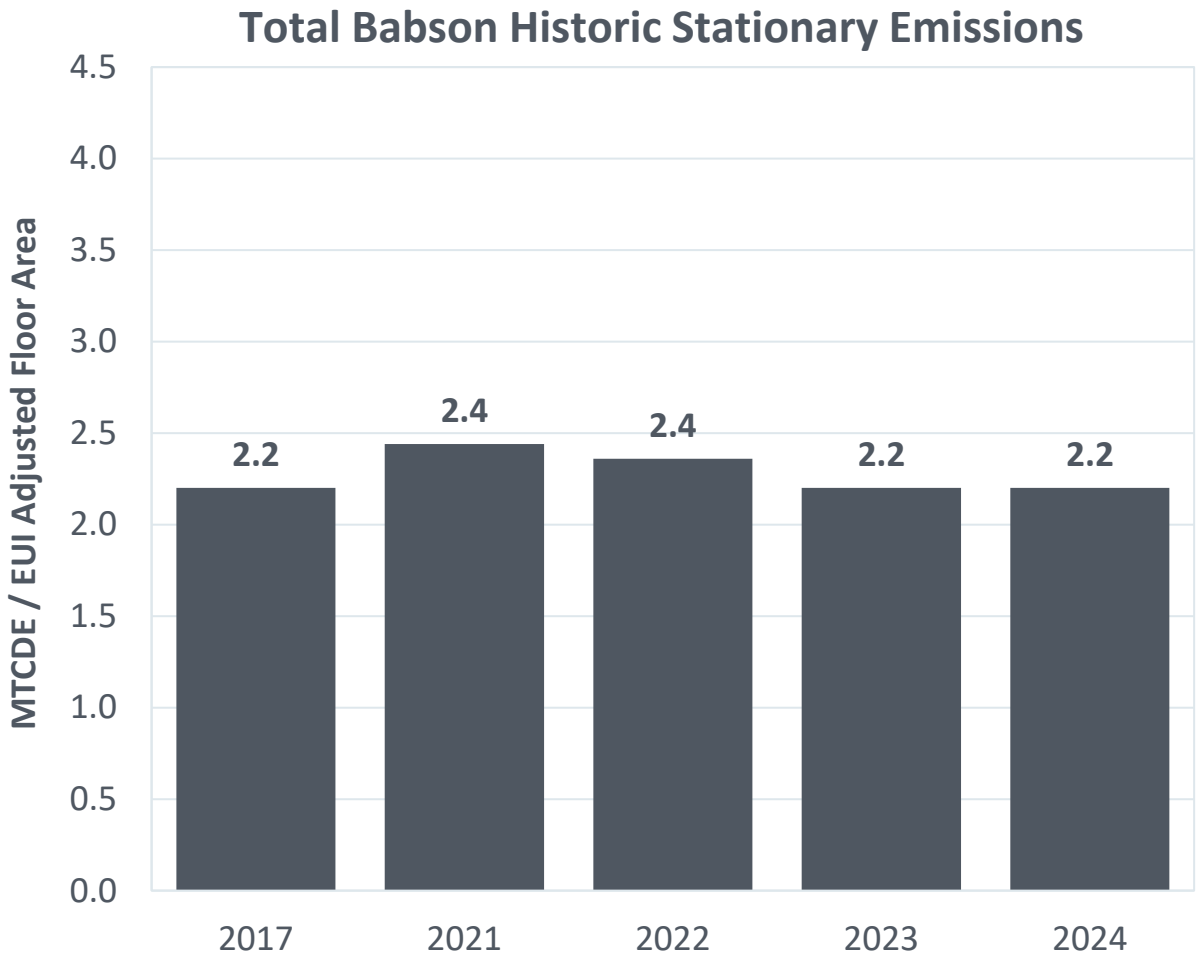
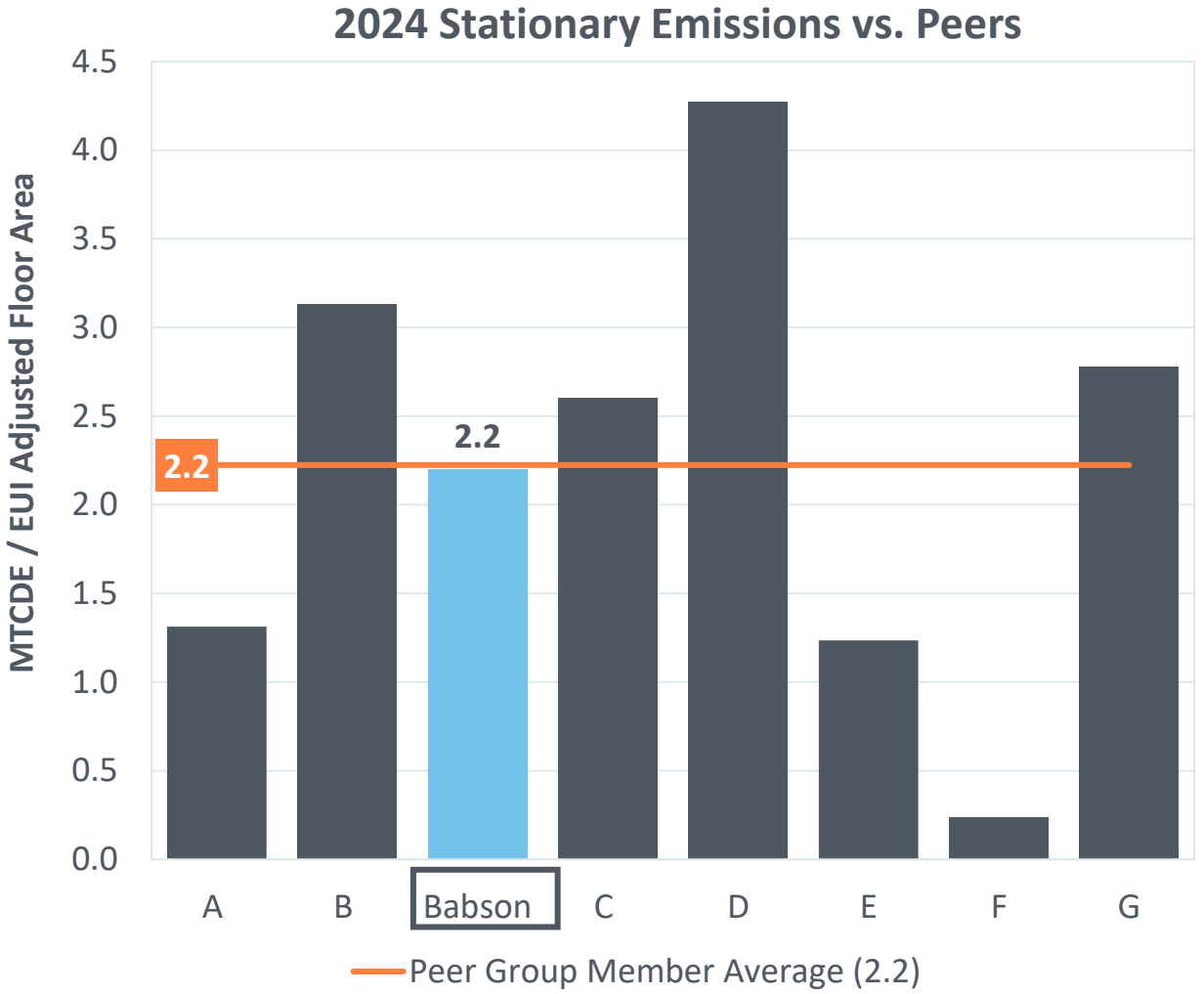
Stationary Emissions at Babson Align with Peer Average





Peers listed by density factor

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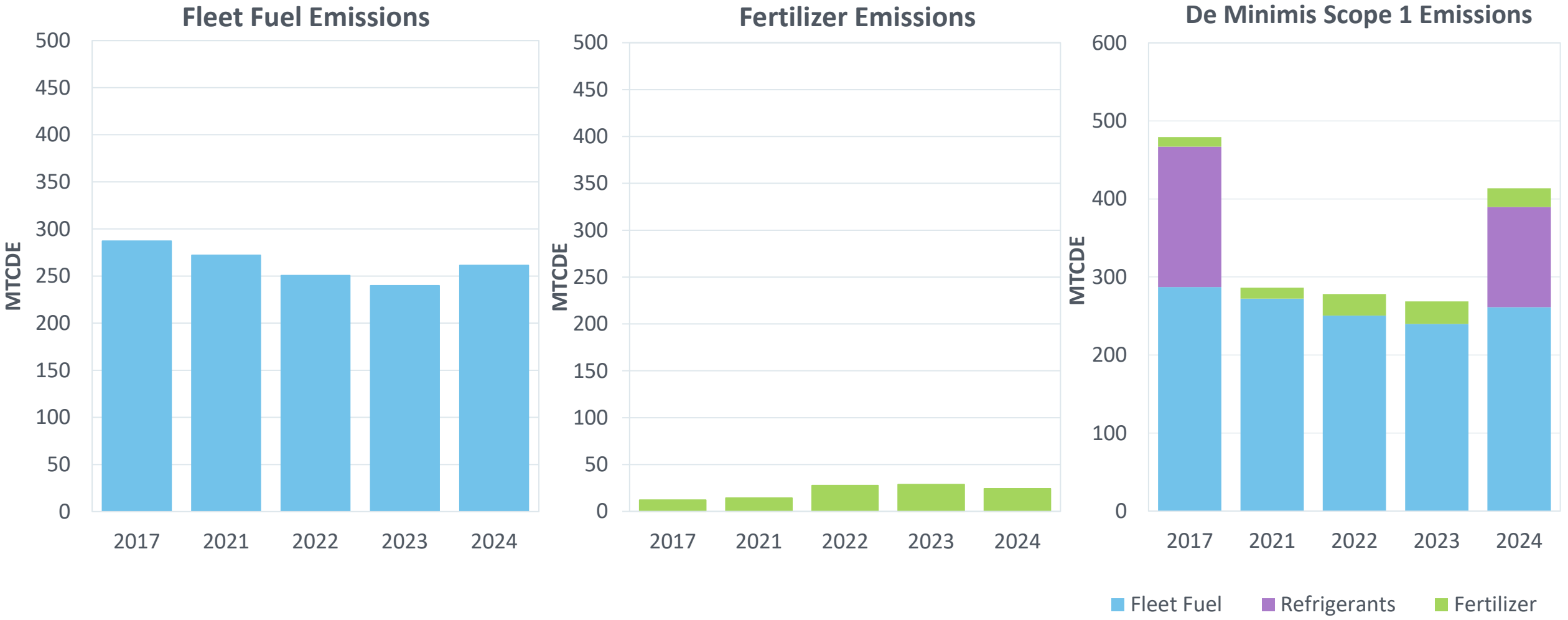
Scope 1 De Minimis Emissions Decreases by 14% in 2024

Refrigerant data only collected in 2017 and 2024



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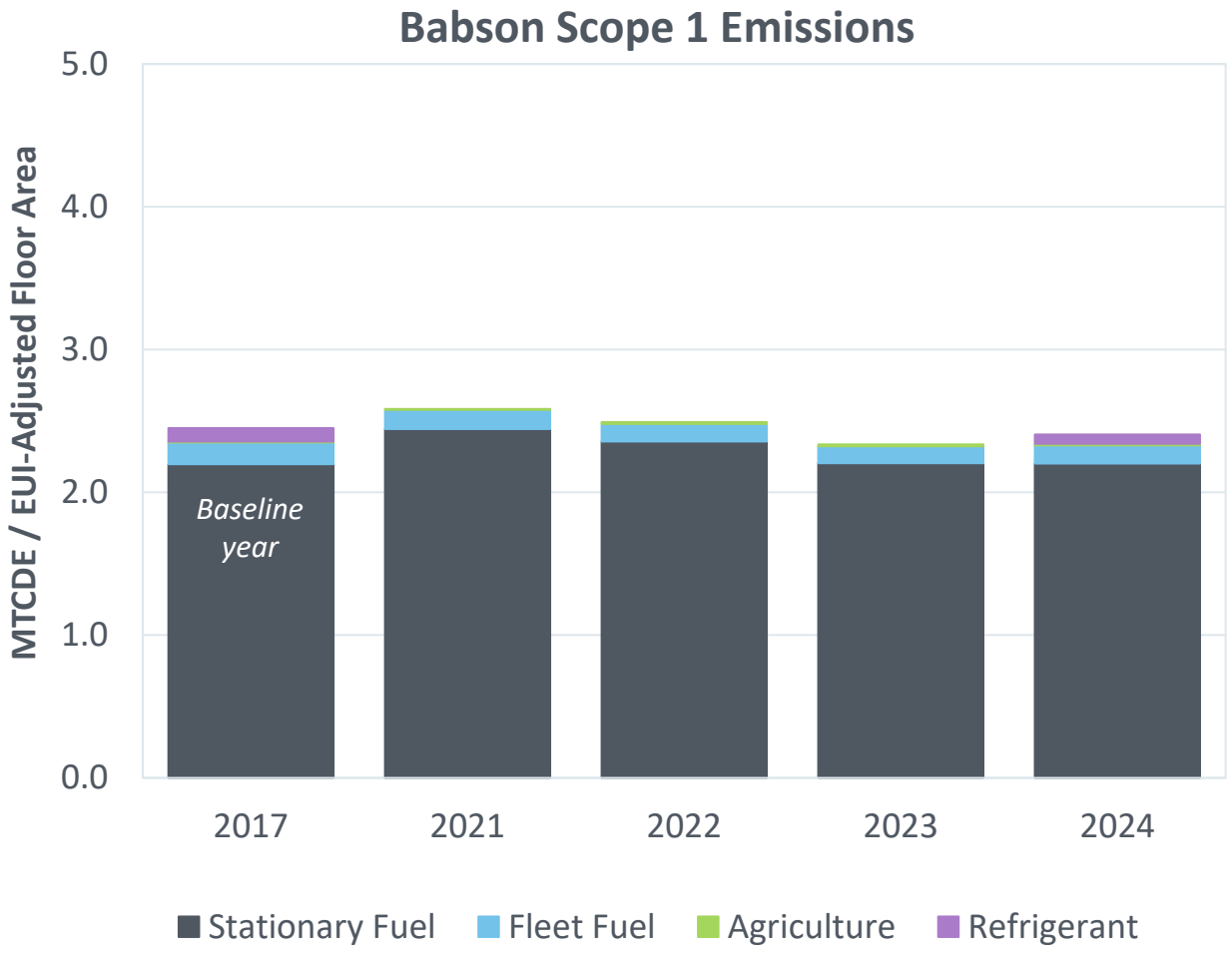
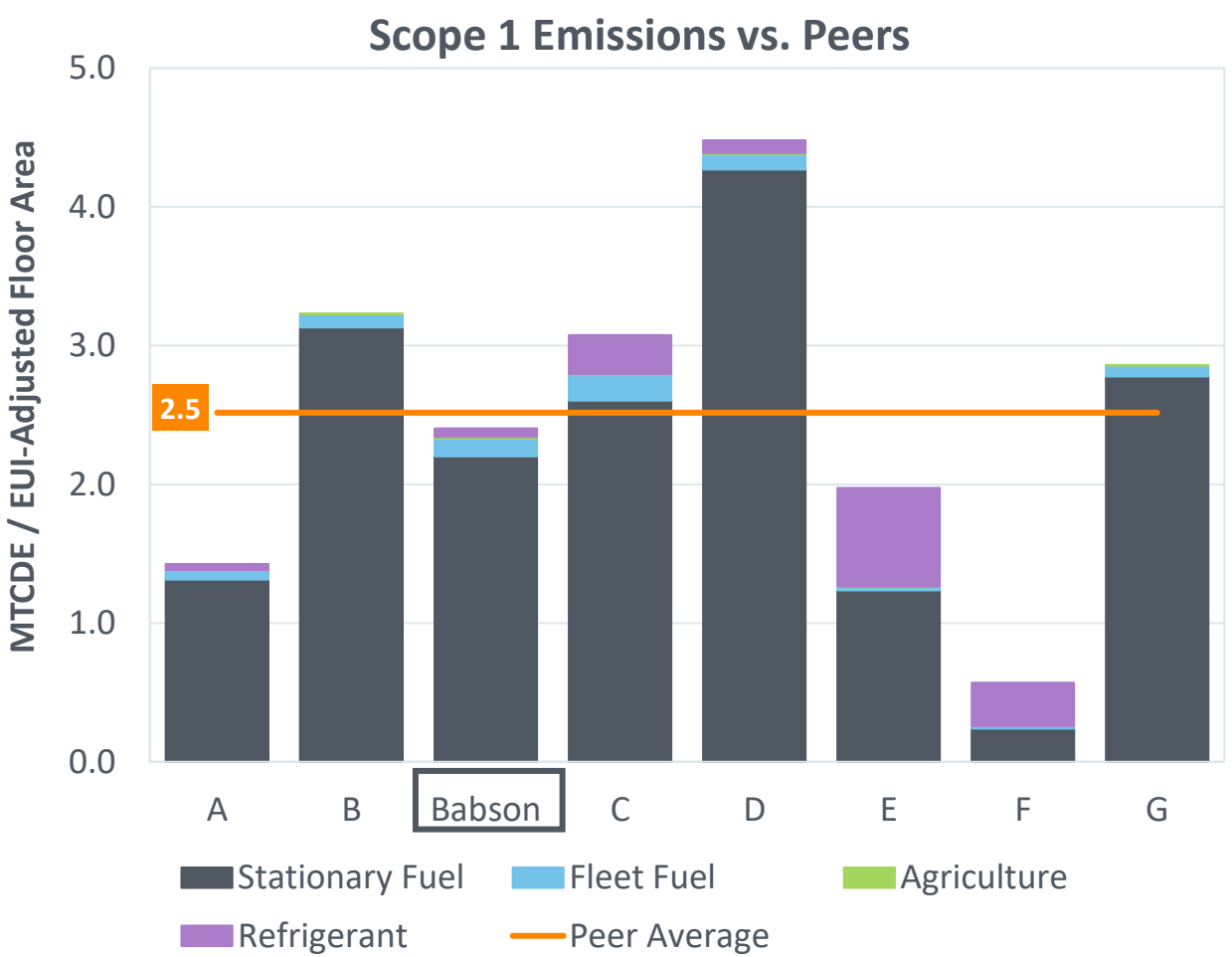
Scope 1 Summary: 2024 Emissions Slightly Below Peers

Prioritization of mechanical investments places Babson's emissions below peers





Peers listed by density factor

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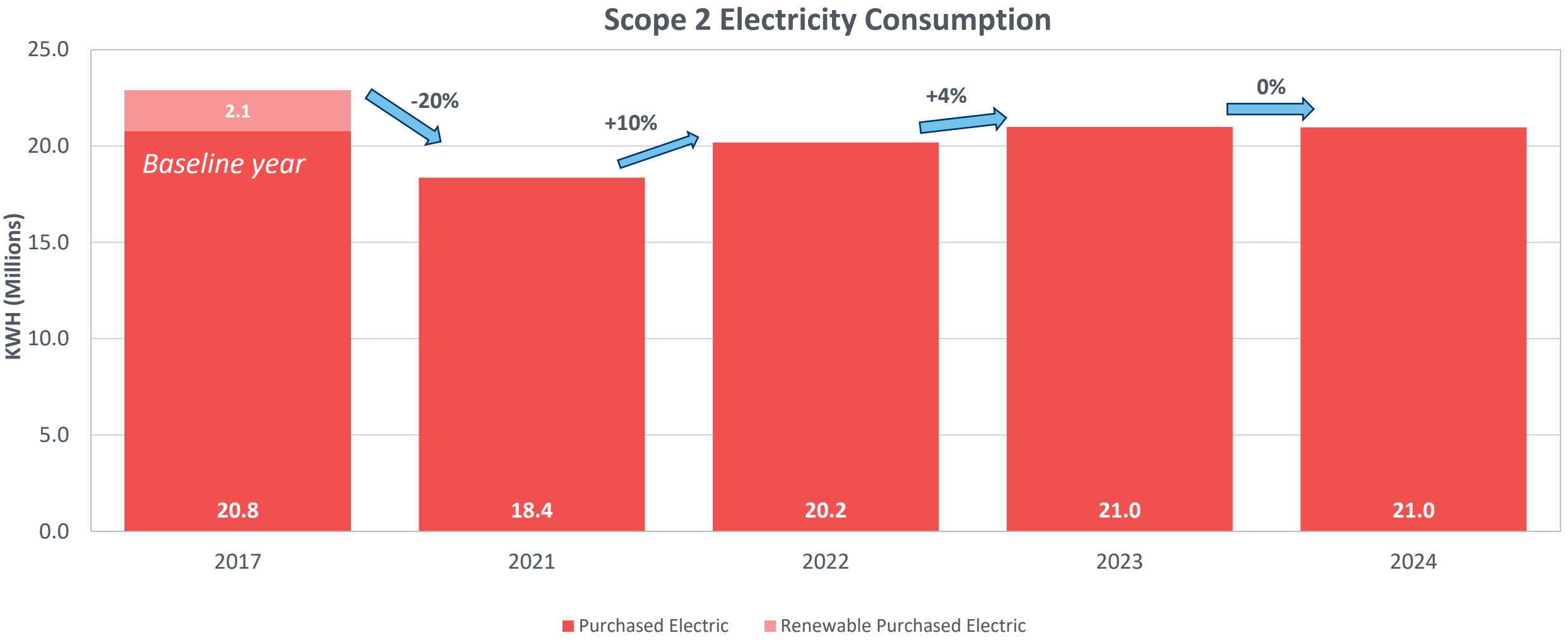
Scope 2 Emissions Profile

Electric Consumption Plateaus Since 2023

*Babson decreases consumption **8%** since 2017*



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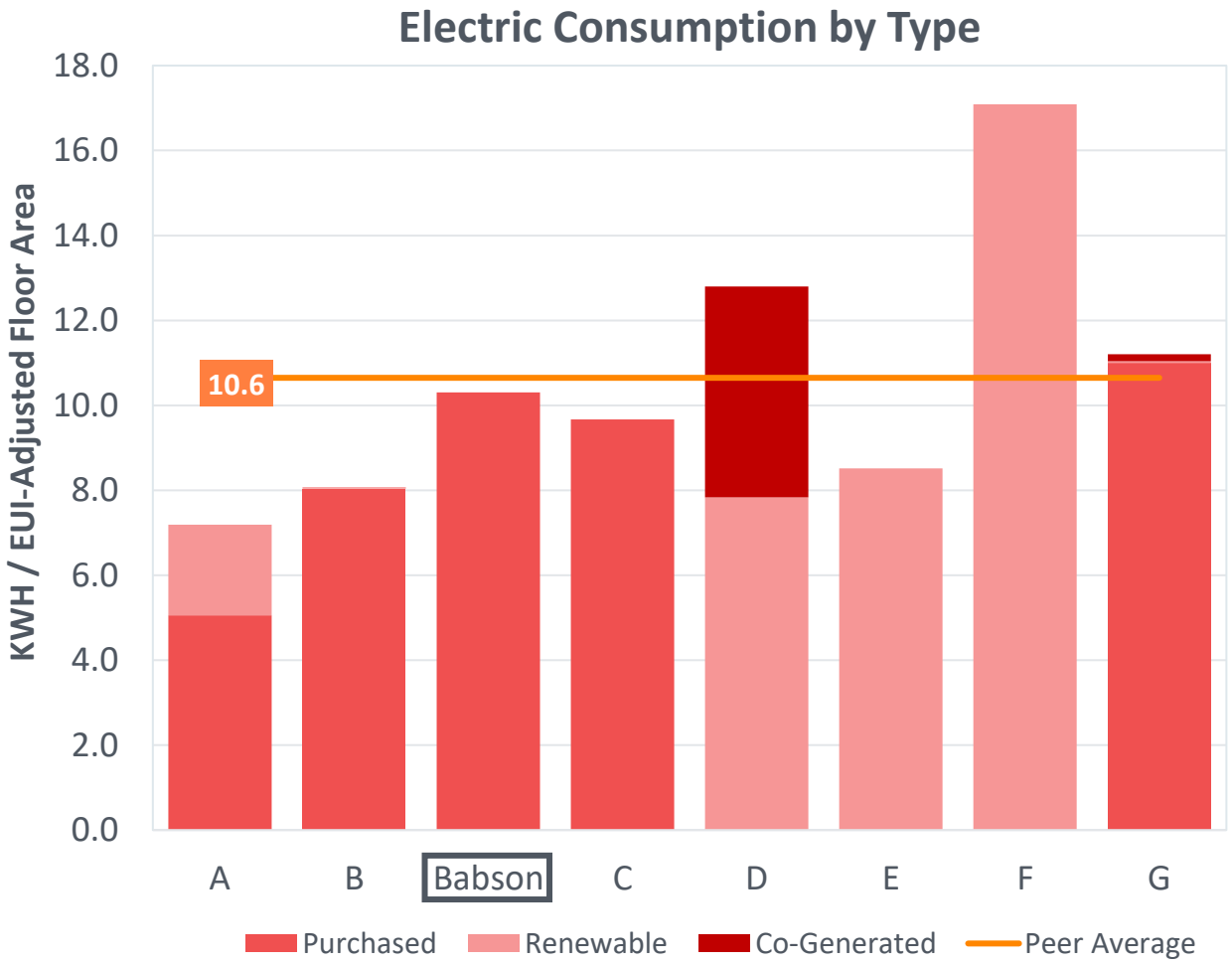
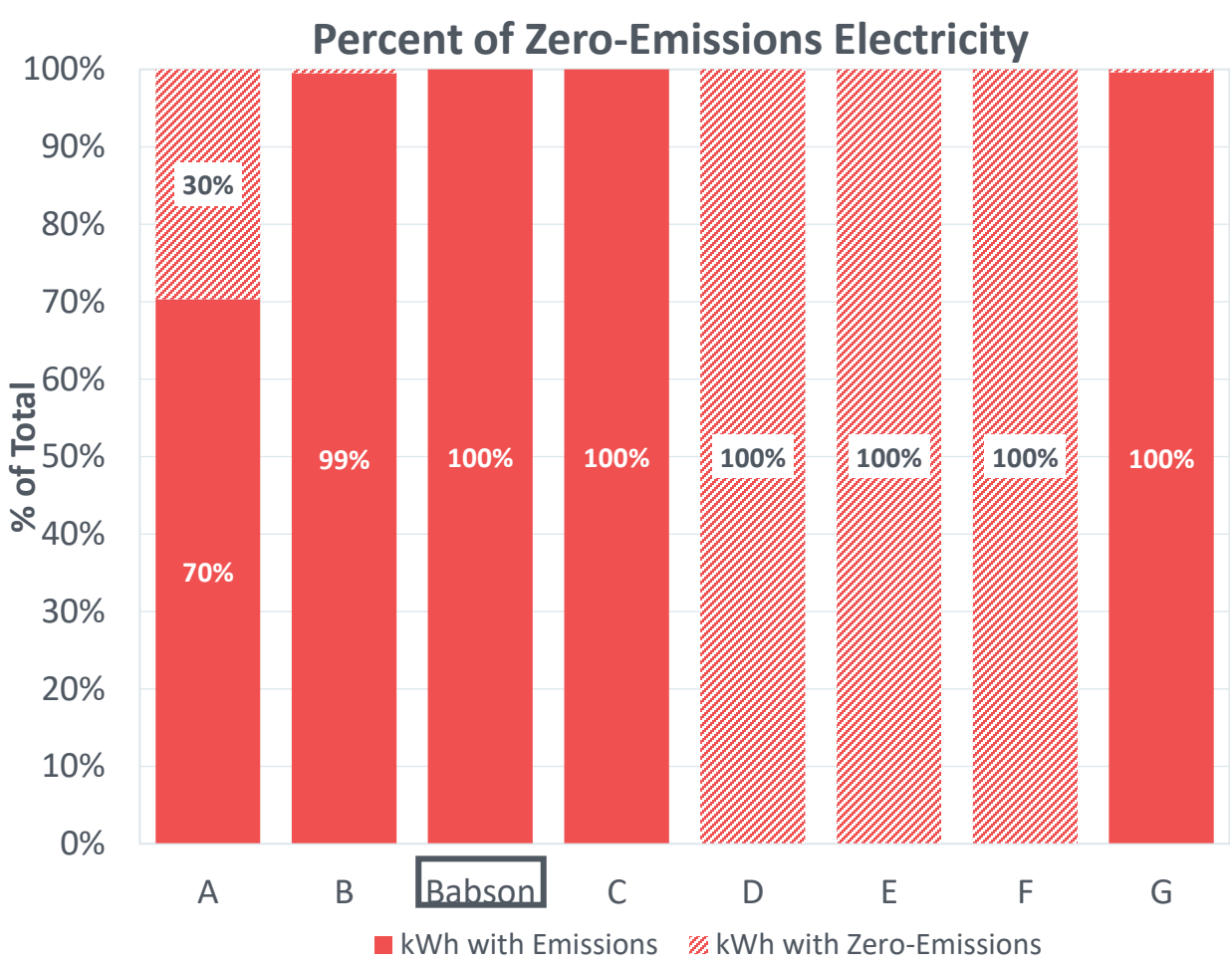
Babson Among Peer Average for Electric Consumption Without the Purchase of RECs

Peers have a mix of purchased electricity, co-generated electricity and renewable electricity





Peers listed by density factor

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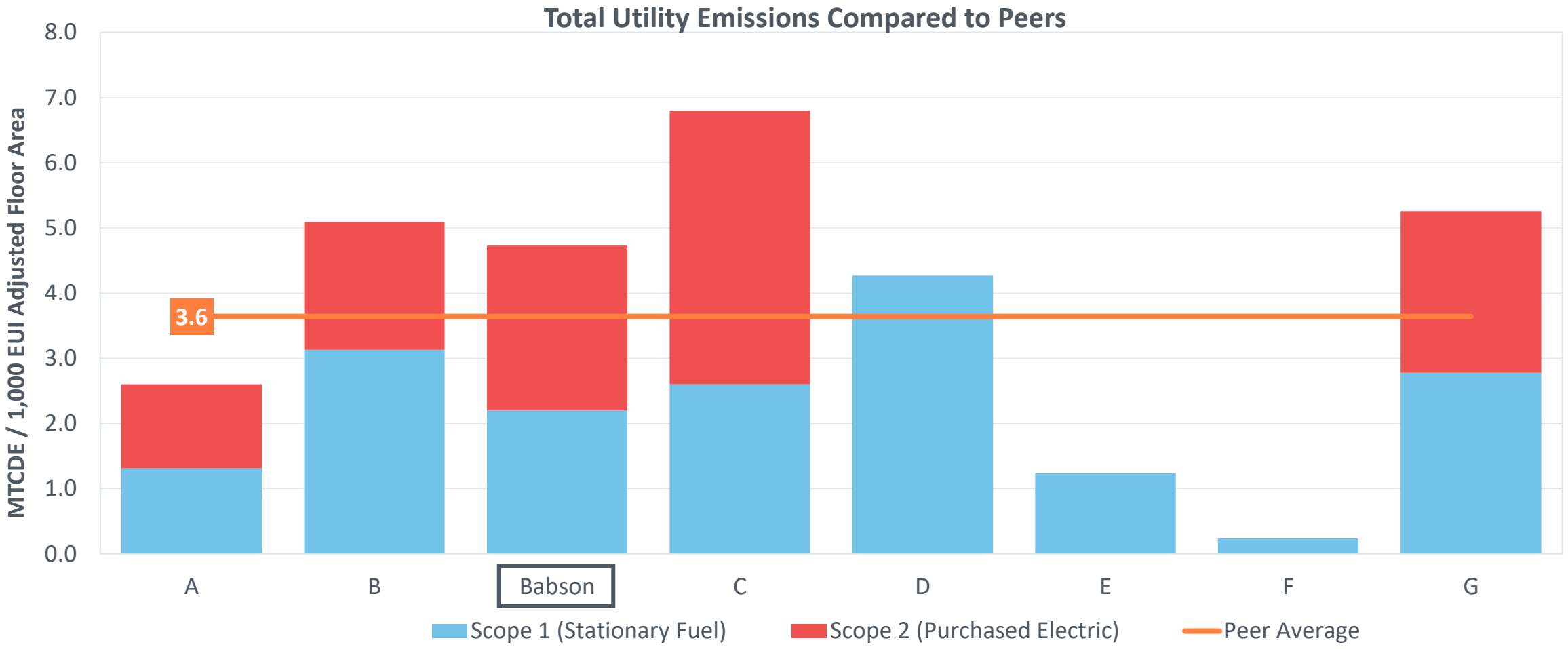
Utility Emissions at Babson Above Peer Average

Purchased electric accounts for 53% of Babson's utility emissions



Peers listed by density factor

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Aligning Babson Utility Consumption With State Regulations

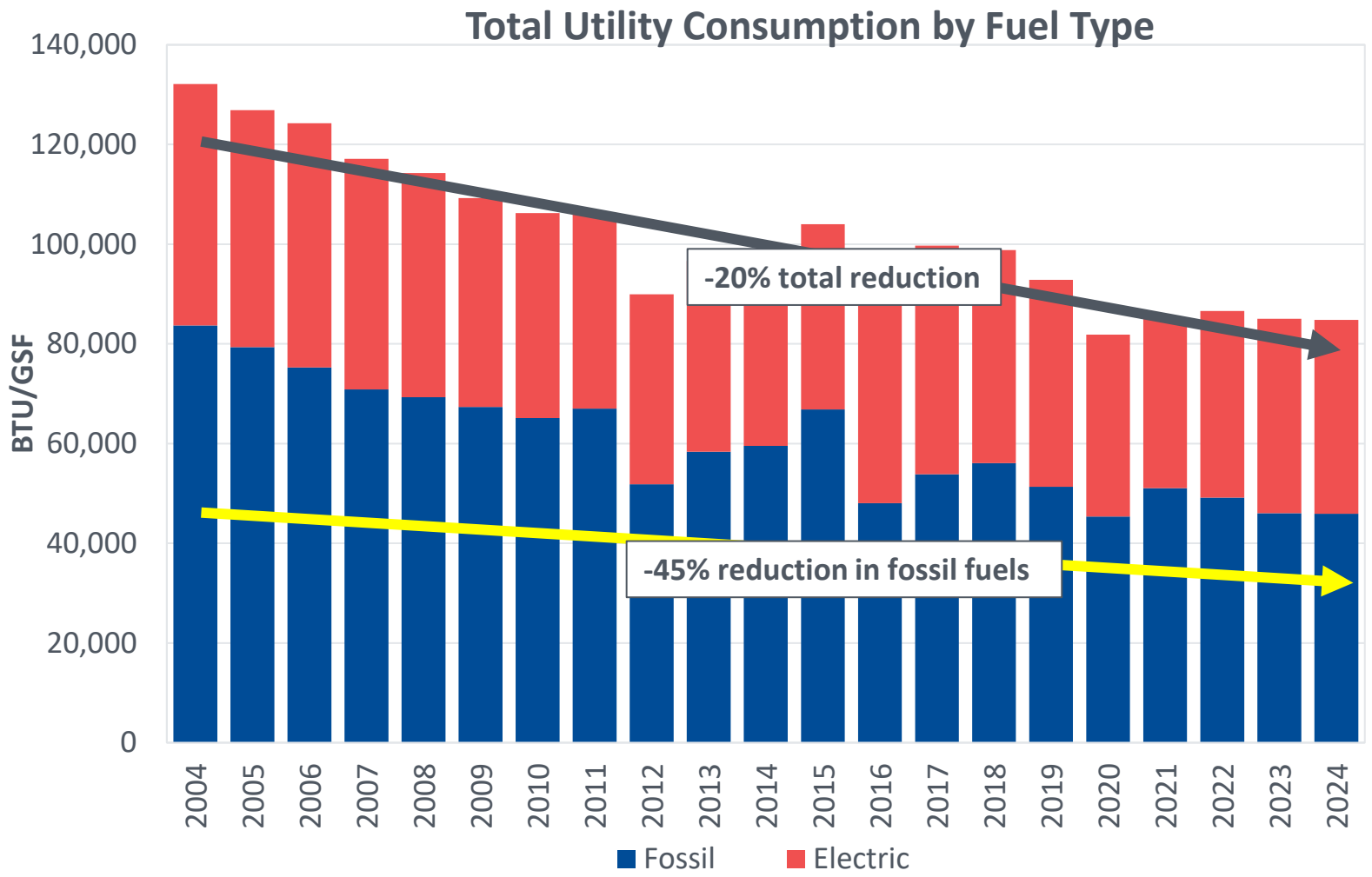
Babson On Track with Massachusetts Executive Order

With similar consumption to 2023, Babson is surpassing the total emission reduction needed by 2025

Massachusetts Executive Order No. 594
Leading By Example: Decarbonizing and Minimizing Environmental Impacts of State Government

Agencies as a whole, and to the greatest extent feasible, individually, shall meet or exceed the following fiscal year targets where applicable:

1. Reduce emissions from a 2004 baseline associated with the burning of onsite fossil fuels at buildings and in vehicles:
    1. 20% in 2025
    2. 35% in 2030
    3. 60% in 2040
    4. 95% in 2050



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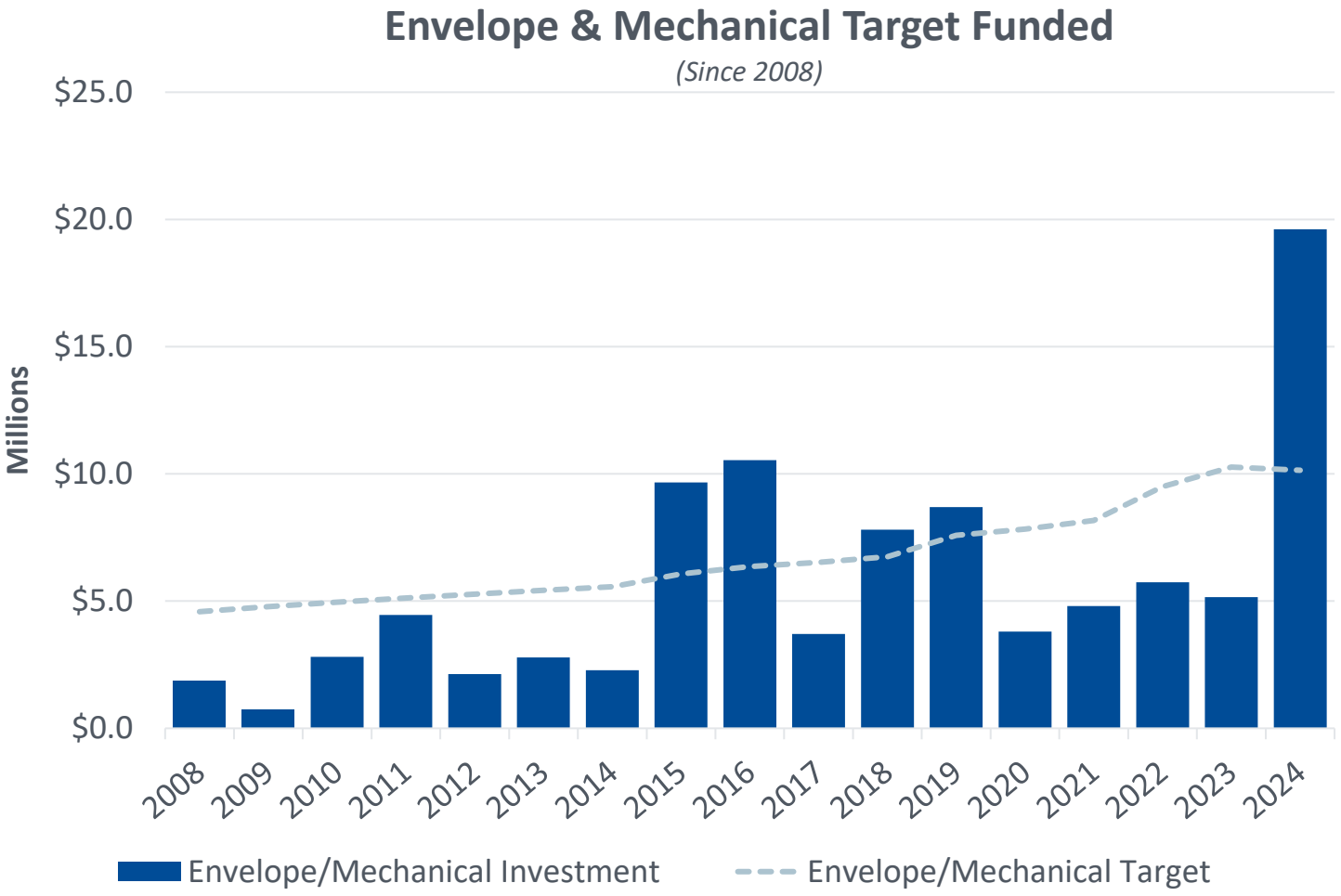
Investments Should Target Envelope/Mechanical Systems

Heating and cooling fuels are responsible for 49% of total emissions at Babson in 2024



Examples of Envelope & Mechanical Decarbonization Capital Strategies:

- *Envelope:*
  - *Air seal exteriors penetrations*
  - *Add insulation to walls and roofs*
  - *Window replacement and storm windows*
- *Electrification of Energy End-Uses and Supply:*
  - *Heating electrification: boiler or furnace to heat pump*
  - *Cooling electrification: absorption chiller to electric chiller*
  - *Water heating electrification: natural gas to heat pumps*
  - *Cooking electrification: ovens, griddles, fryers*
- *Heating, Ventilation, Air Conditioning and Refrigeration:*
  - *Enhanced energy recovery ventilation*
  - *Convert constant air volume to variable air volume*
  - *Demand controlled ventilation*
  - *Refrigeration retrofits and controls*
- *Water heating:*
  - *Water conservation retrofits*

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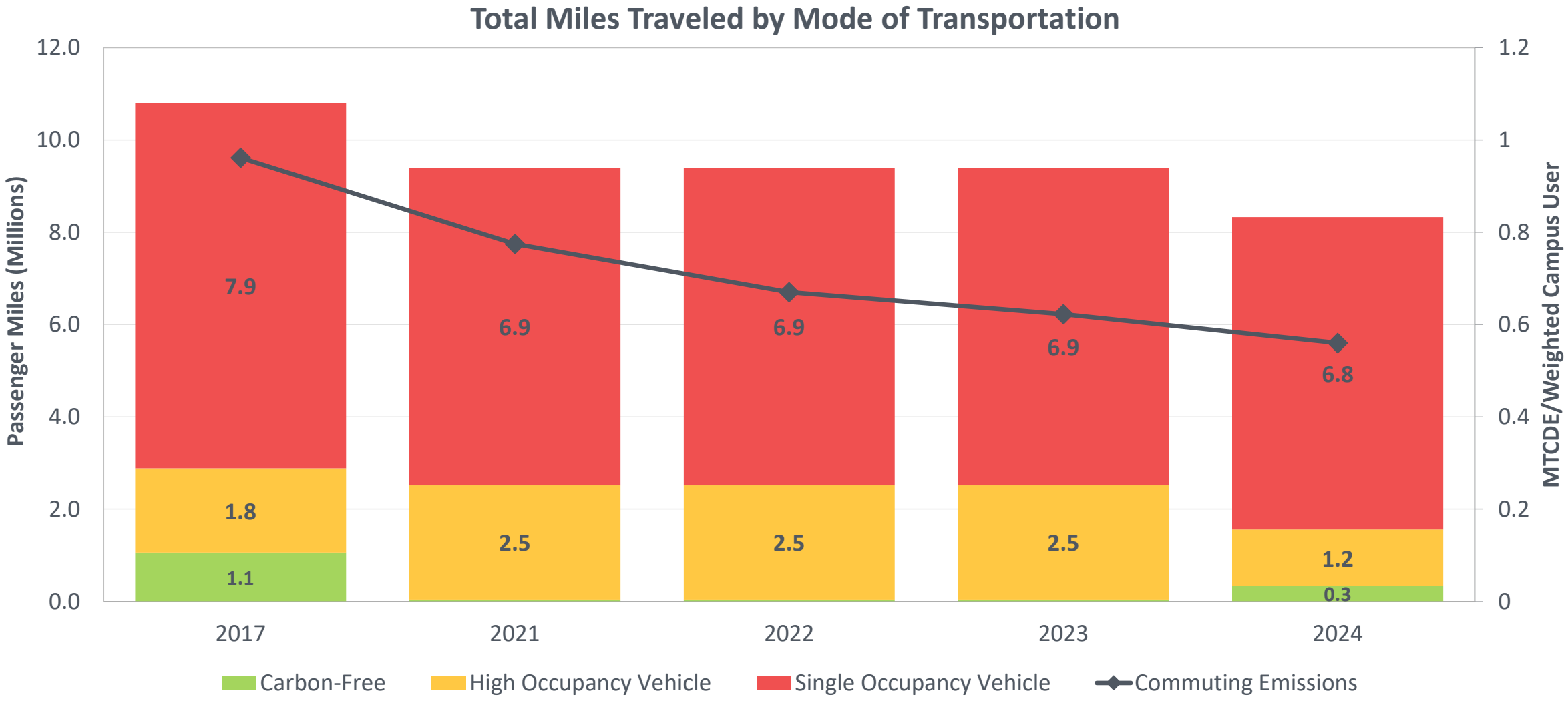
Scope 3 Emissions Profile

Commuting Survey Distributed in March of 2025

Carbon-free increases in most recent commuting survey while total passenger miles decreases since 2017



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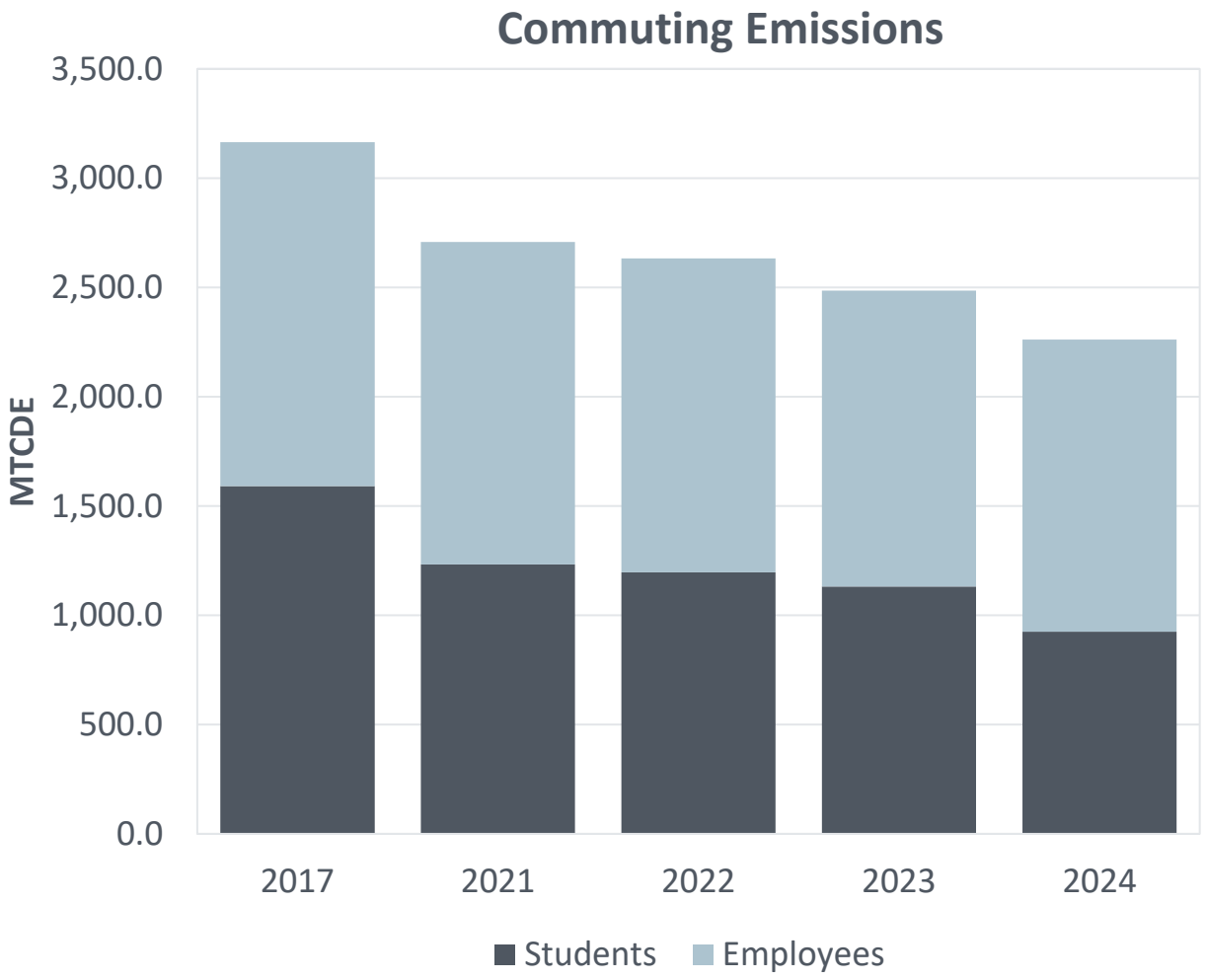
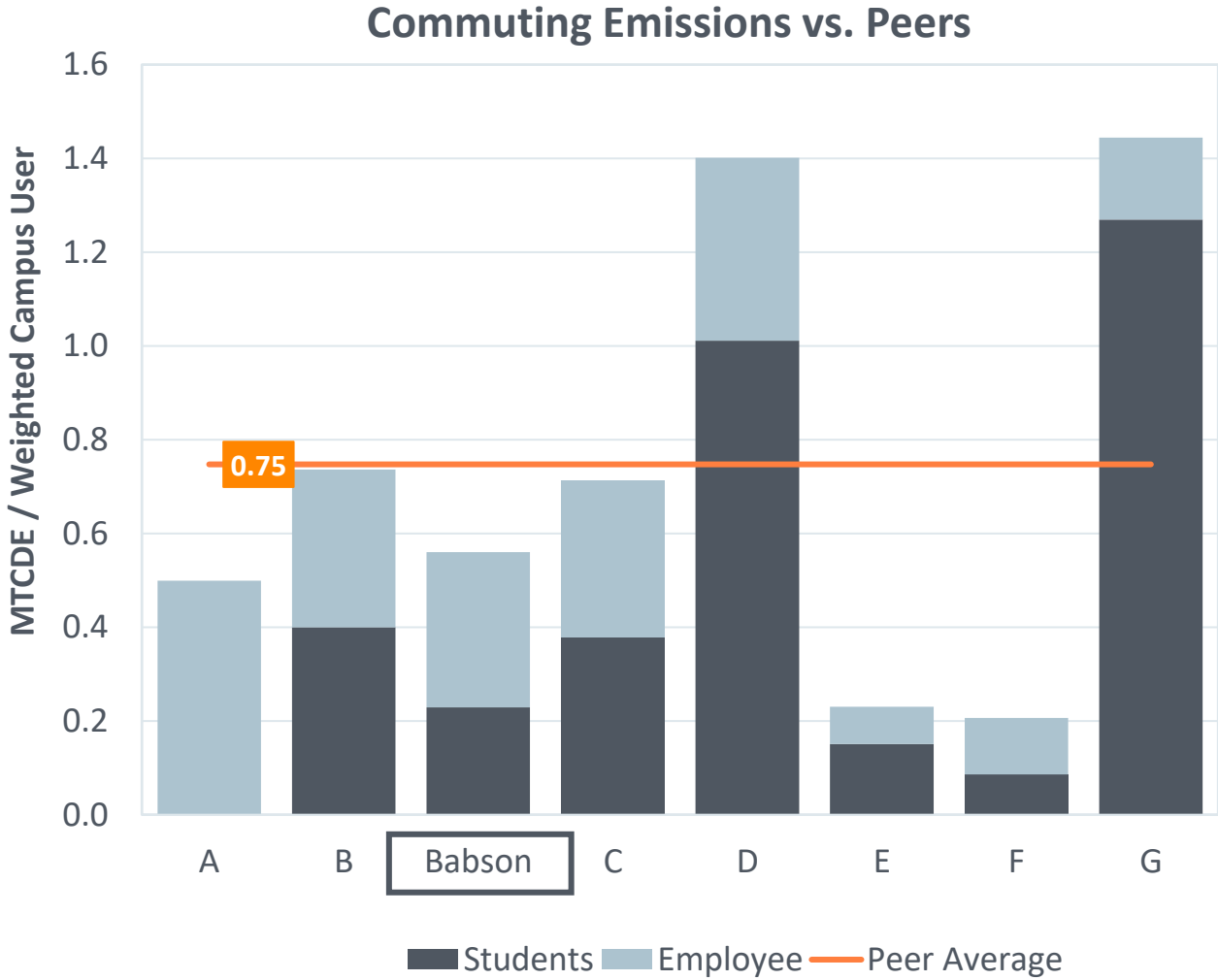
Commuting Emissions Decrease 29% From 2017

Combined with Babson's urban location and increased carbon-free commuting, emissions have decreased





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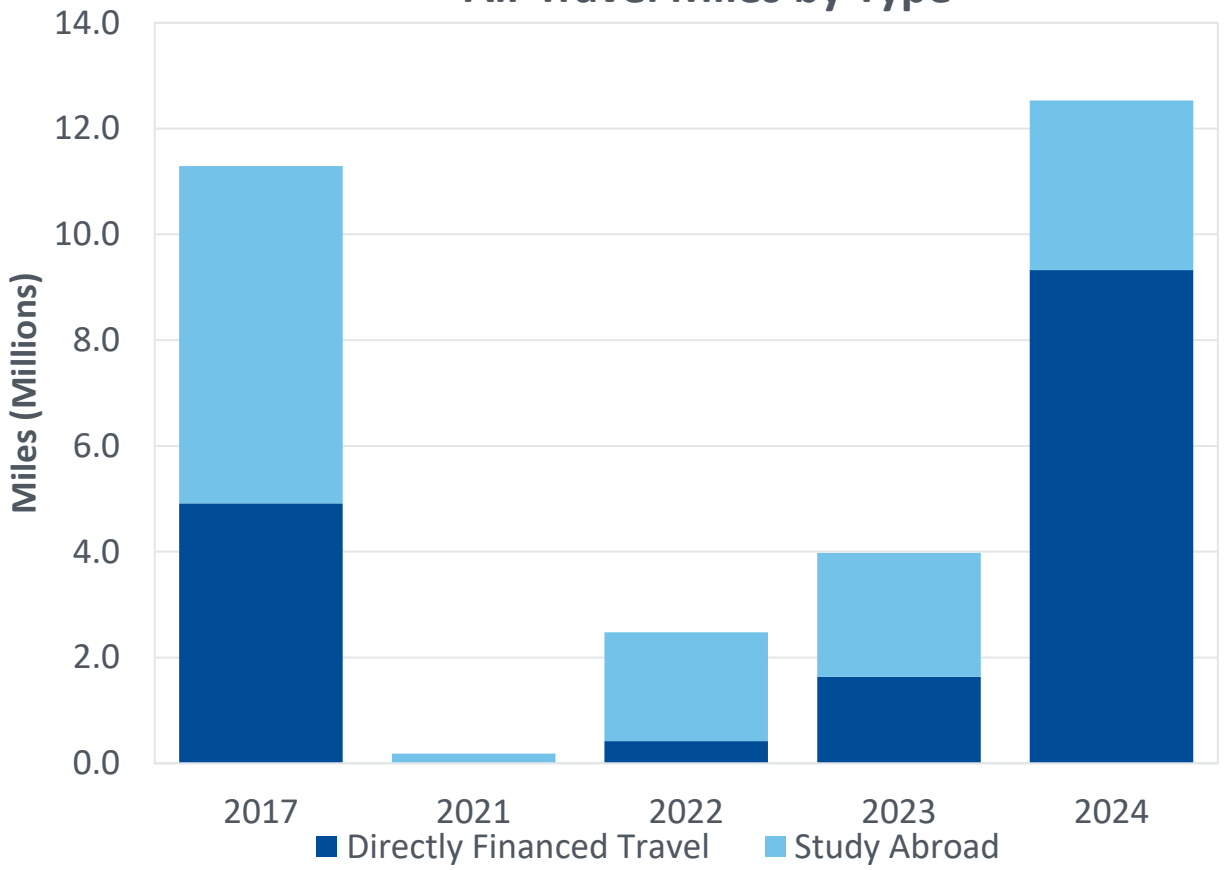
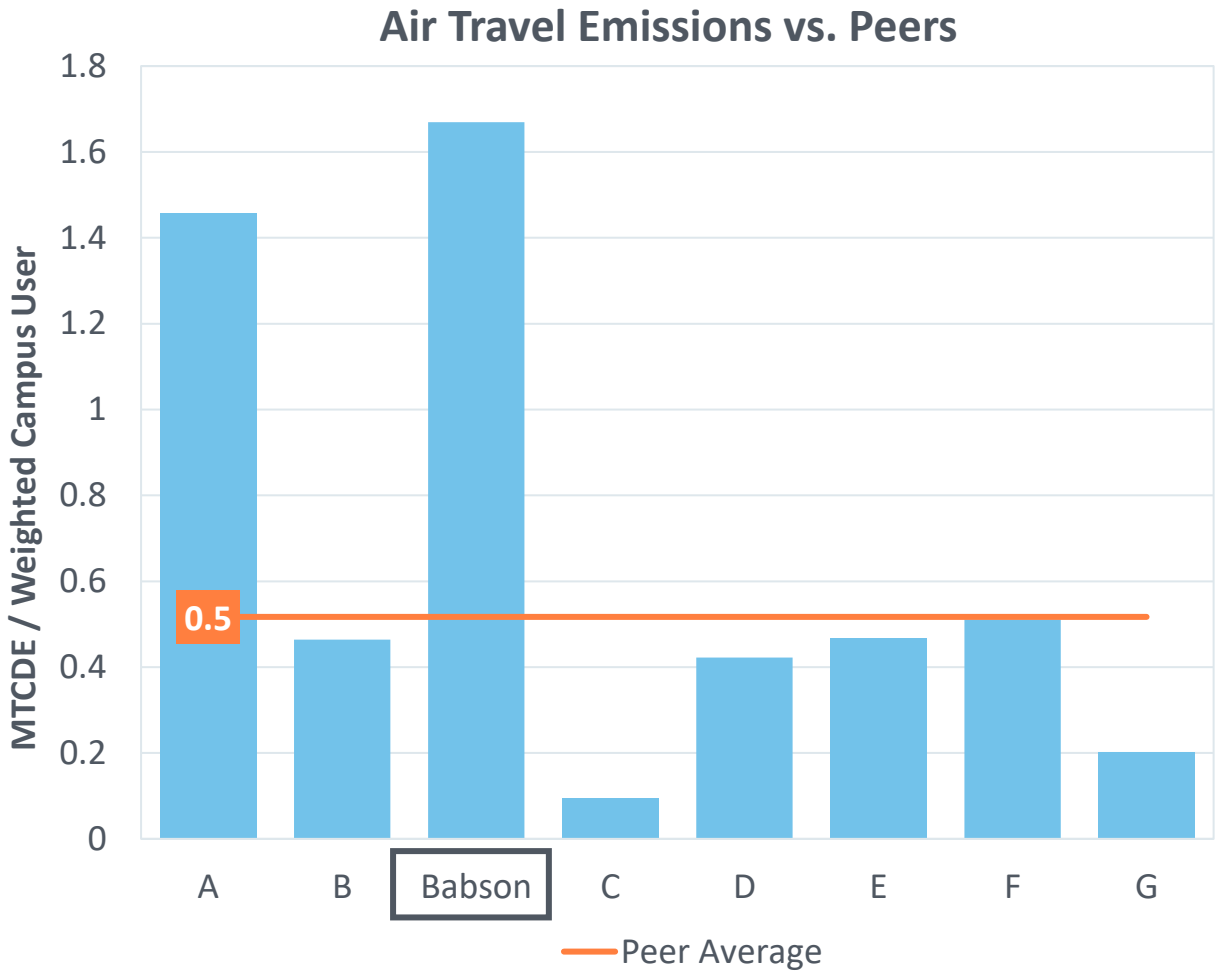
Travel Emissions 11% Higher Than 2017 Levels

Babson greatly exceeds peer average for air travel emissions, increase partially attributed to flights to Singapore





**Limited travel in 2021 due to COVID restrictions*

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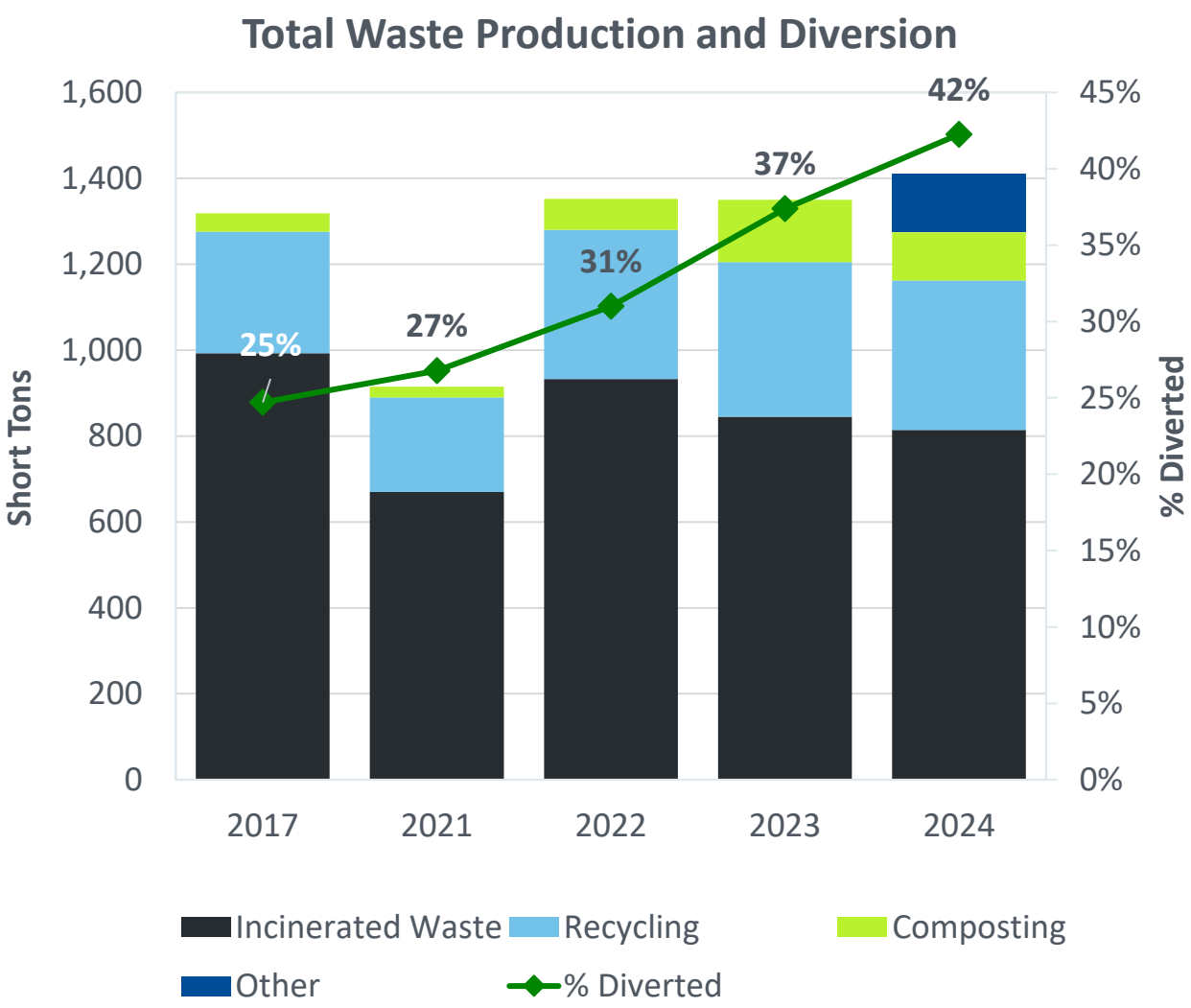
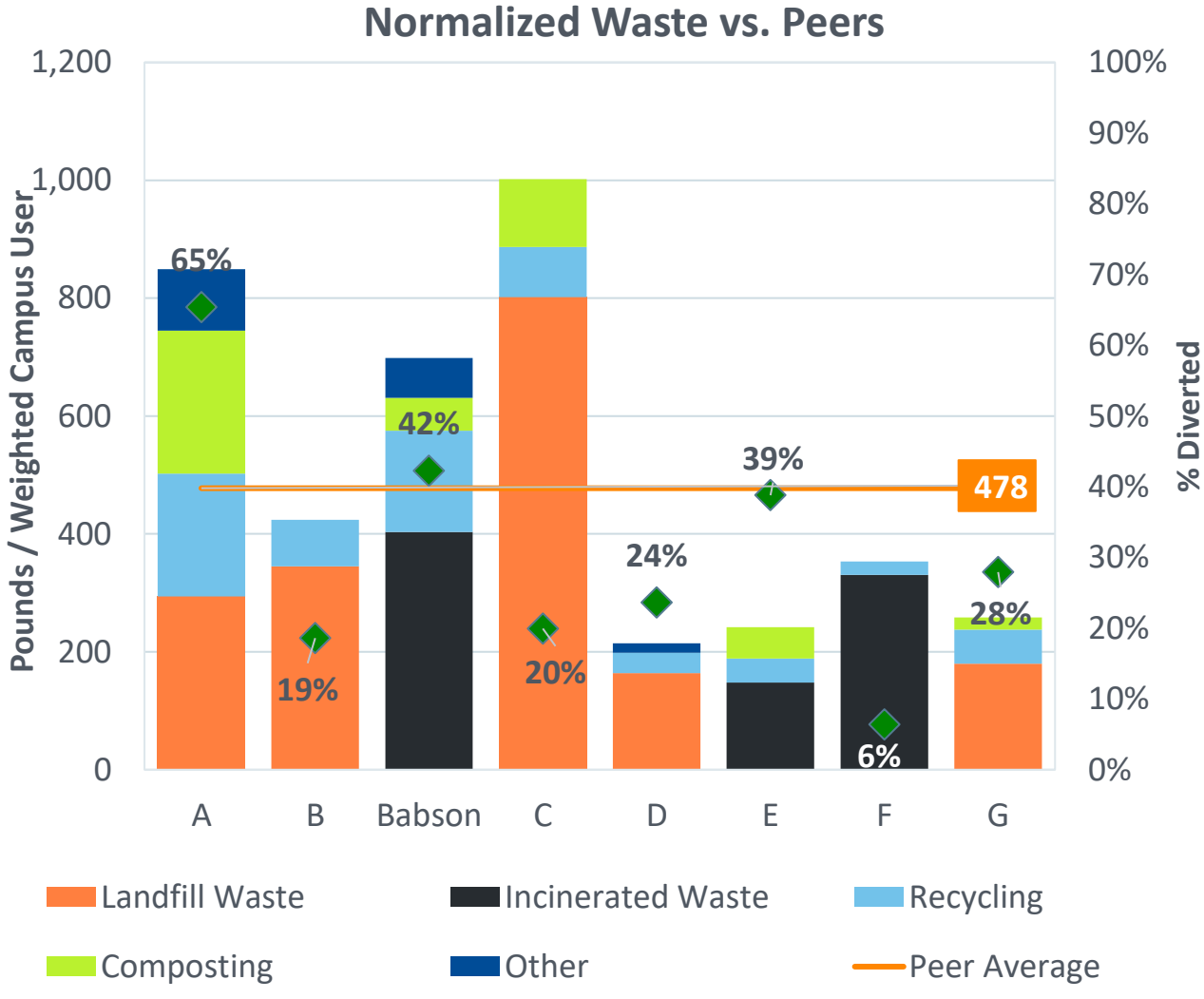
Incinerated Waste Decreases 18% Since 2017; 42% Diverted

Babson is above peer waste in pounds per weighted campus user average with the second highest diversion rate





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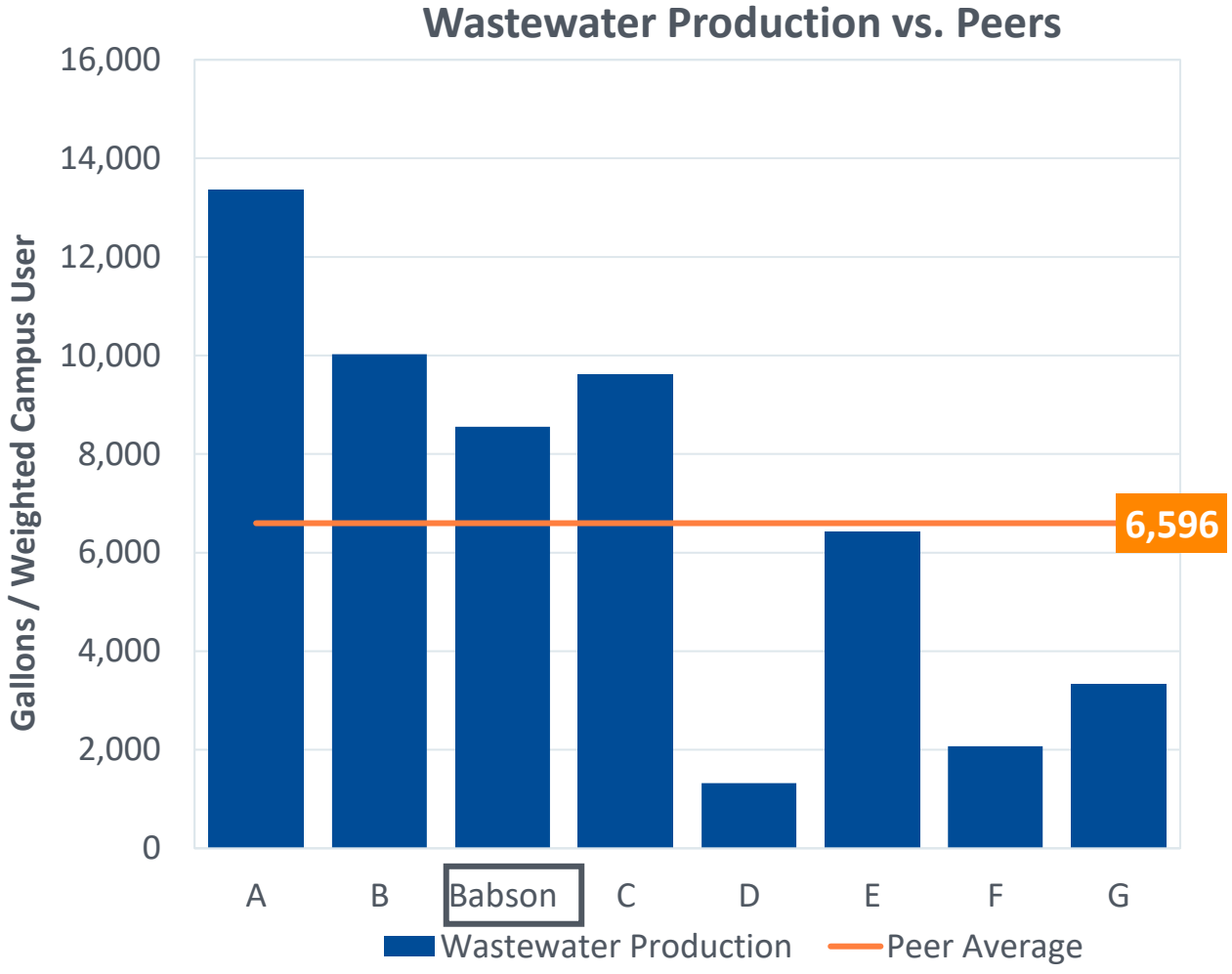
Wastewater Has Decreased 11% Since 2017

Begin prioritizing water conservation retrofits to ensure future wastewater production does not increase further



Peers listed by density factor

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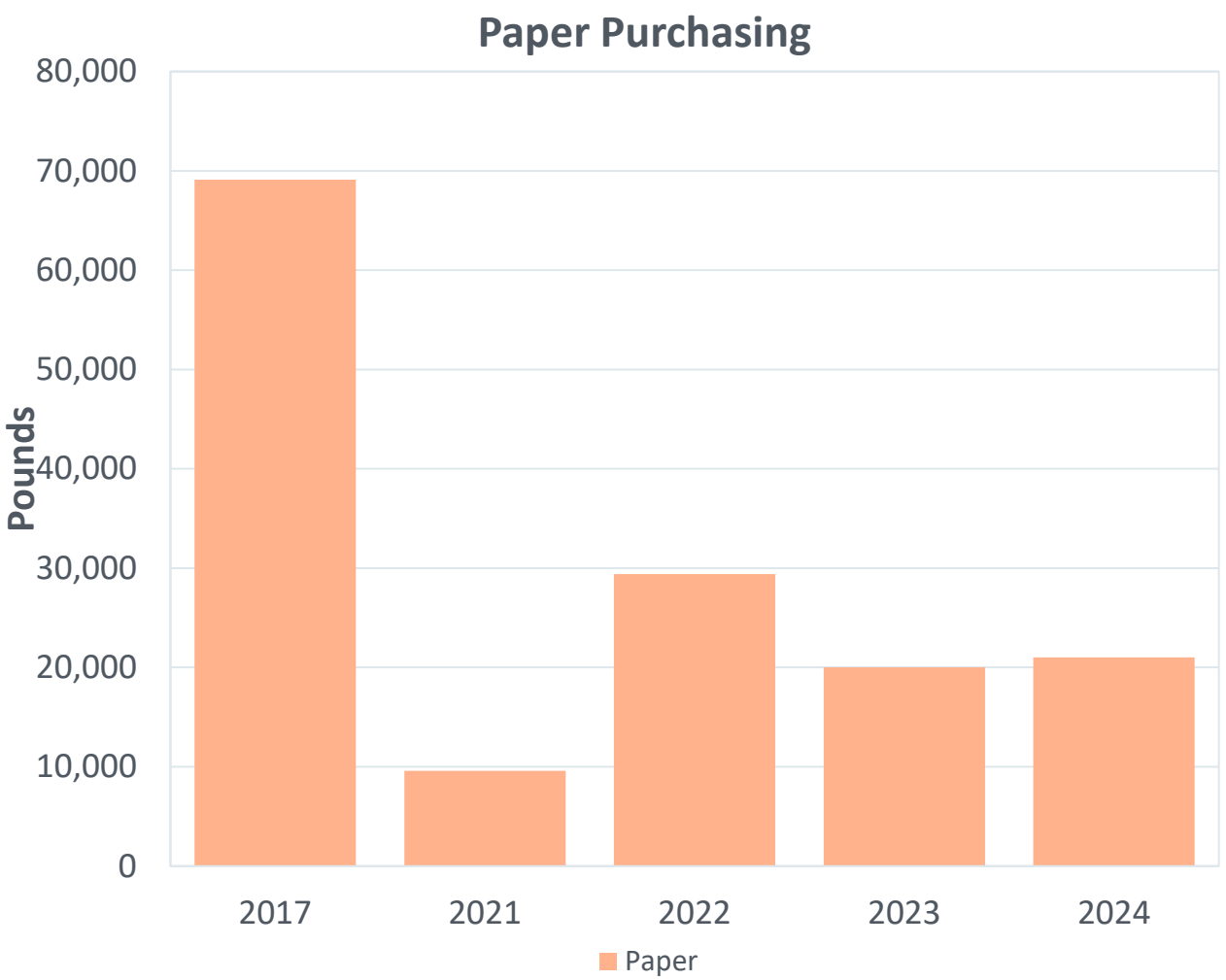
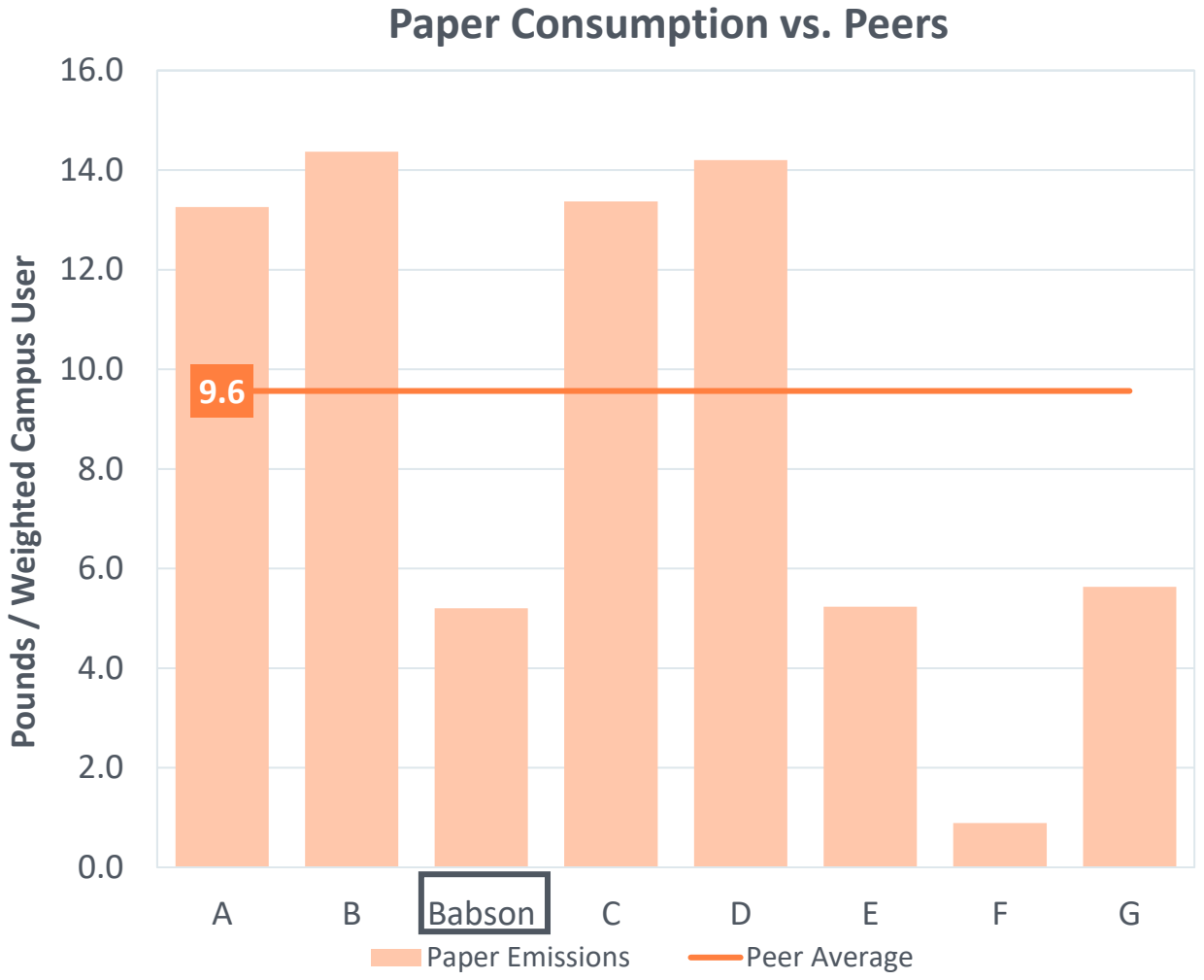
Babson is Purchasing 70% Less Paper Since 2017

Purchasing increased slightly from 2023, Babson below peer average paper consumption





Peers listed by density factor

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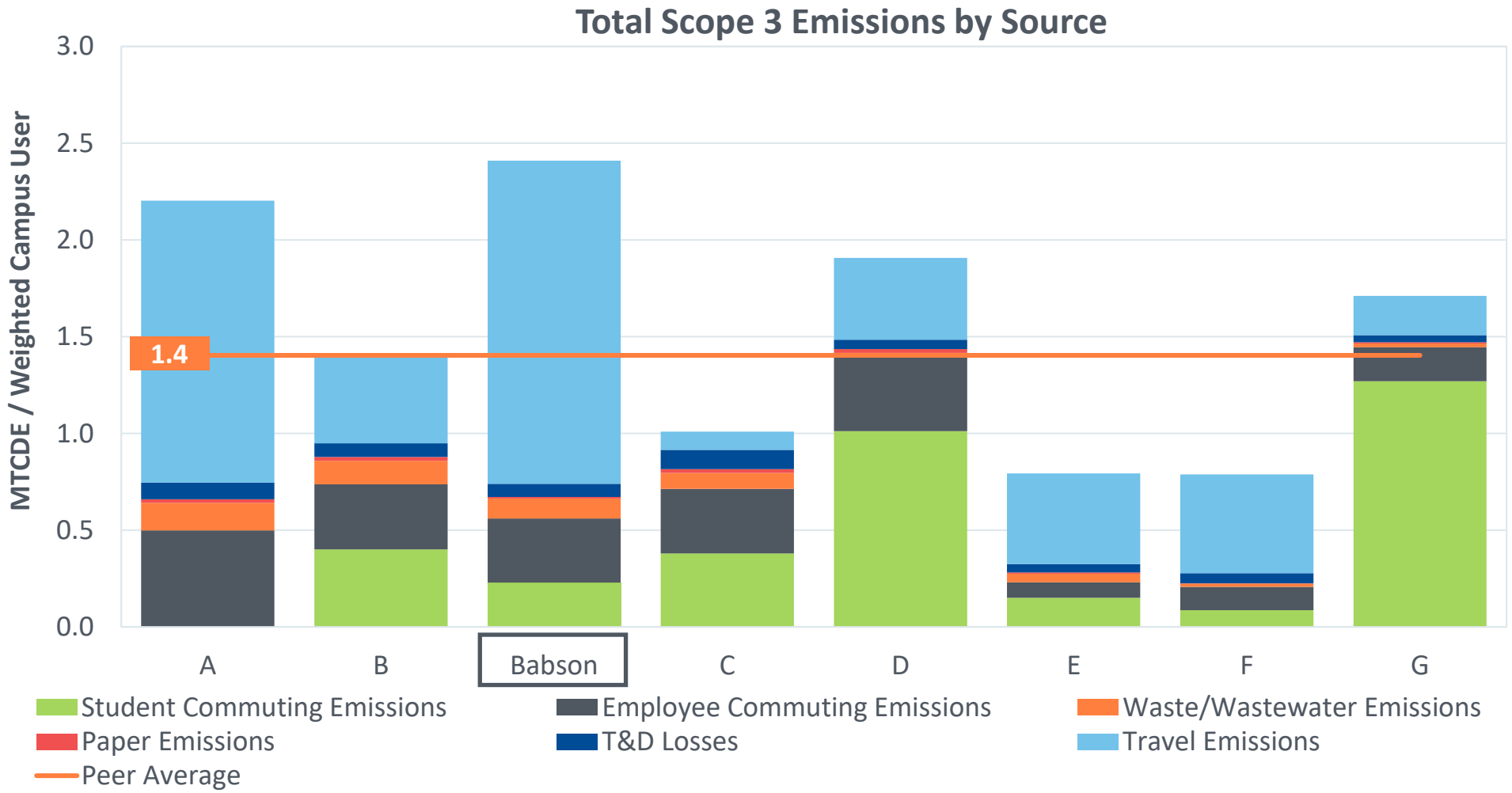
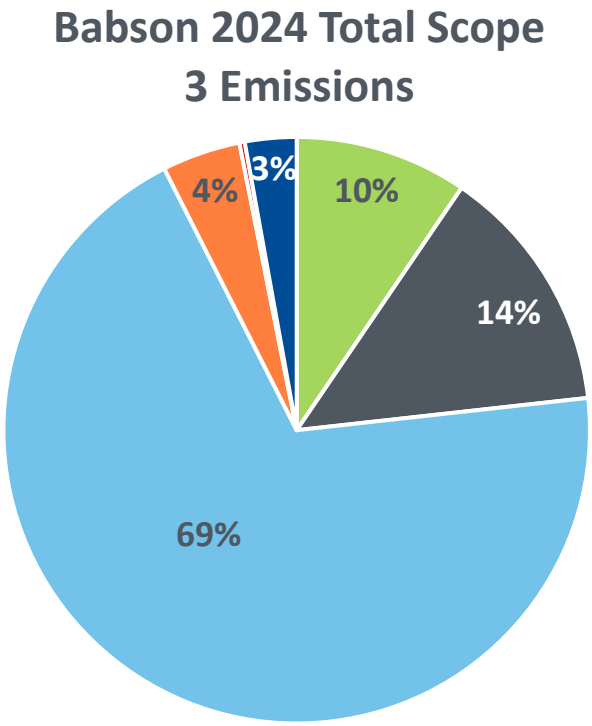
Scope 3 Summary: Total Emissions Higher at Babson Than Peers

Above average travel emissions result in higher Scope 3 emissions compared to peers when normalized per weighted campus user





Peers listed by density factor

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Concluding Comments

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Identifying Current State:

Since 2017, Babson’s campus footprint has grown 7% while population has increased 23%. Babson has managed to reduce total emissions by 3% from the baseline year. Increased directly financed air travel has led to a redistribution of Babson's emission levels leading to scope 3 accounting for just shy of 50% of the 2024 emissions profile.

Reducing Emissions – On Campus Strategies:

Heating and cooling campus buildings comprise 49% of Babson’s greenhouse gas emissions profile in 2024. Continue targeting capital investments into energy intensive building systems to buy down on deferred maintenance and overall utility consumption on campus.

Continuous Improvement of Data Collection and Tracking:

Babson’s successful implementation of a campus-wide commuting survey allows for better tracking of time spent traveling to and from campus. In 2024, we see the effects of a new survey being distributed and the resulting effects of carbon-free options on Babson’s commuting emissions.

Questions & Discussion