George Mason University

Climate Action Plan Town Hall

November 18th, 2021

ARUP

Agenda

Mason Climate Action History

Climate Action Plan Process

Climate Action Plan Context

Peer Benchmarking

Next Steps & Idea Gathering

Objectives

- Celebrate Mason’s climate progress
- Share the CAP process
- Understand CAP purpose
- Outline points of engagement

Panelists

Greg Farley

Director of University Sustainability

Dr. Dann Sklarew

Professor, Environmental Science and Policy

Cameron Thomson

Associate Principal, Arup

Linda Toth

Associate, Arup

Gregory Janks

Co-founder, Dumont Janks

Mason Climate Action History

Mason's Climate Commitments

2007: Pres. Merten signs Second Nature Climate Commitment (ACUPCC)
→ carbon neutrality by 2050

2007: Board of Visitors pledges LEED Silver+ standard for new buildings.

2010: 1st Climate Action Plan (CAP) → -50% energy intensity & -20% net GHG by 2020

2014: Natural resource stewardship as core value in 2024 Strategic Plan

2015: Pres. Cabrera signs White House's American Campuses Act on Climate initiative.

2019: Pres. Holton re-commits to carbon neutrality by 2050 + new CAP w/benchmarks. at student-led 'Fridays for Future' climate change rally.

2020: Pres. Washington signs "America Is Still In," >1,500 orgs for US net-zero by 2050.

2022: Renewable to power 30% of VA government electricity, per VA EO 43 (2019).

Mason's Follow Through

2007: Office of Sustainability launched, in part, to pursue ACUPCC.

2008: 1st annual Greenhouse Gas (GHG) Inventory.

2009: $16.7 mil. for energy & water efficiency saves $2.5 mil./yr.

2009: Capital projects drop yearly GHGs by 20,505 metric tons.

2010: 1st Climate Action Plan

2011: Transportation Master Plan w/alternative transport focus

2013: Environmental Standards added to Design Info. Manual

2014: New facility energy management system saves $$$$.

2020: ~90,000 square feet converted to LEDs.

2021: Climate Neutrality Task Force launch for Phase 1 CAP in 2022

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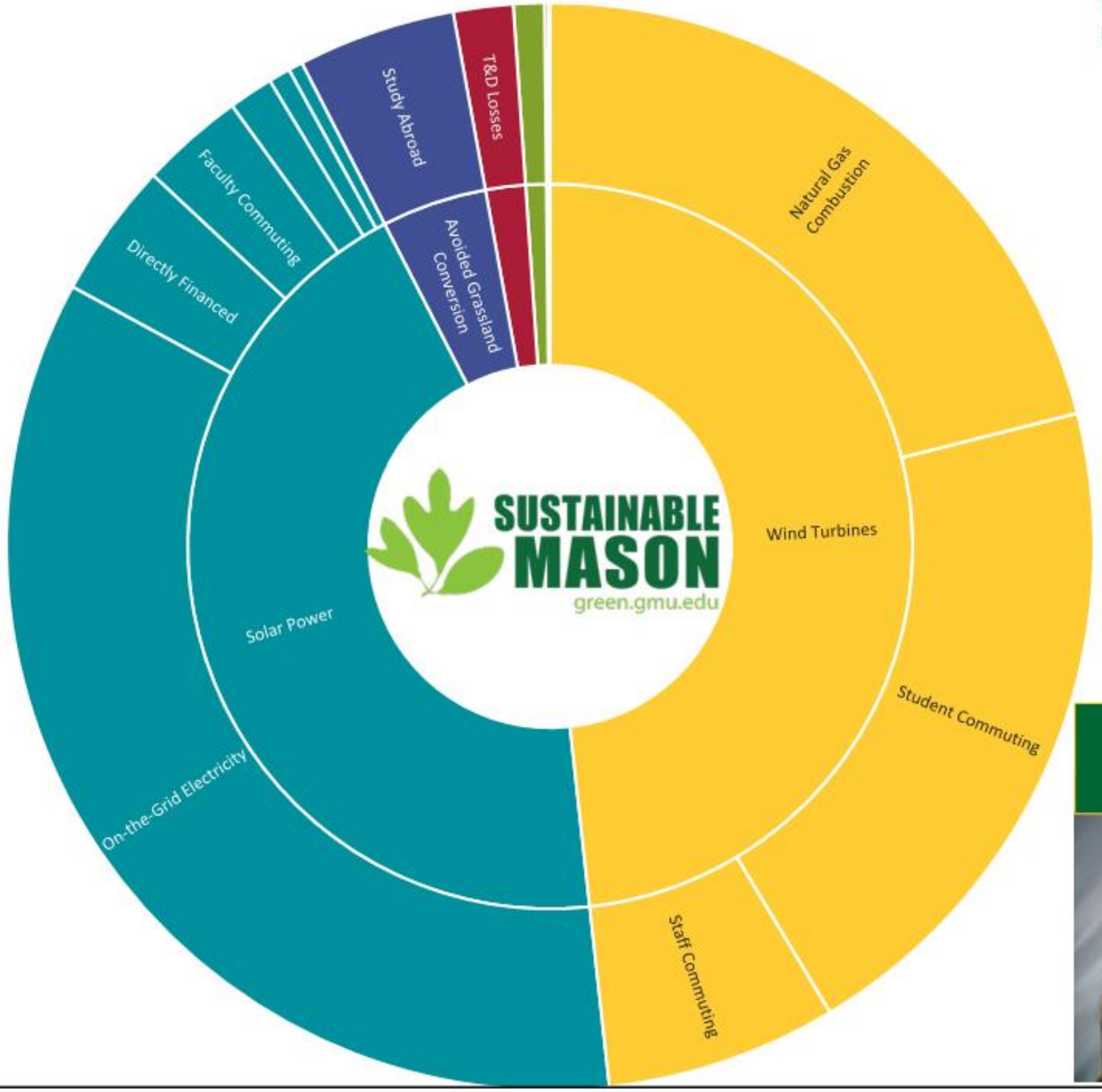
Mason Students' Climate Rally (2019)

Students' Top Strategy to Reach Carbon Neutrality by 2030



- Wind Turbines
- Solar Power
- Avoided Grassland Conversion
- Conversion of Cropfields to Grassland
- On-Campus Afforestation
- Renewable Natural Gas
- Forest Preservation

Climate Champion

Suzanne Grand Pré, lead author, students' **Climate Action Plan 2021** (> 500 pages!)

1. **Carbon Neutrality by 2030**
   (est. $ < 1% of Mason budget/y x 10 y)
2. **Net Zero GHG Emissions by 2040**
3. **Carbon Sink for GHGs by 2050**

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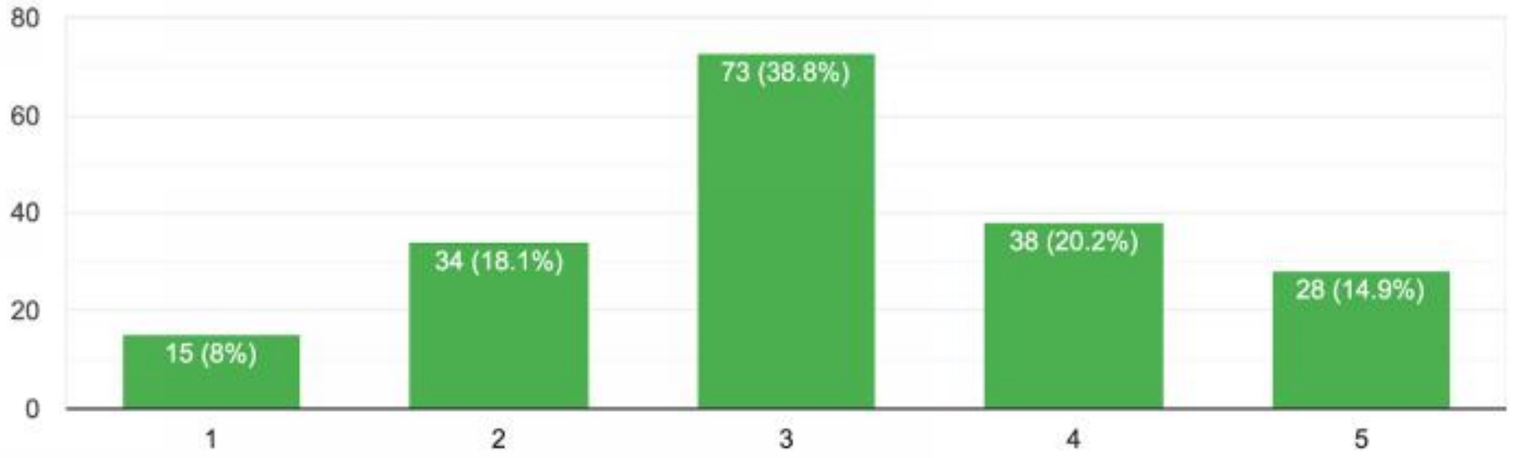
Undergrads Survey 188 Peers

(Nov. 13, 2021)

How likely are you to get involved with the university's climate plan?

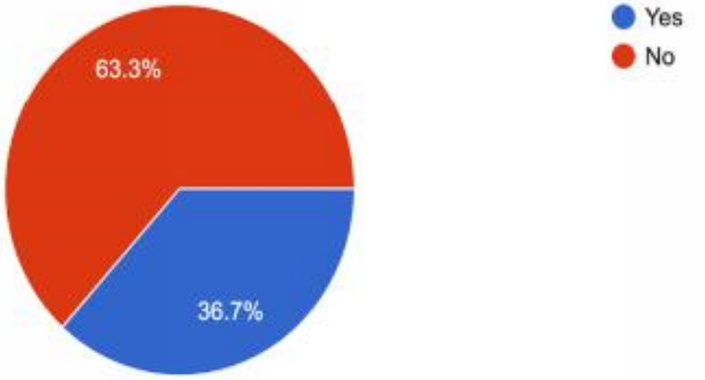
188 responses



66+ Climate Champions!

Are you aware of any actions on Mason's campus which could be better done to promote climate action?

188 responses



Source: Kyle Ellingsen, Olivia Garcia & Laura Scudder (EVPP 480)

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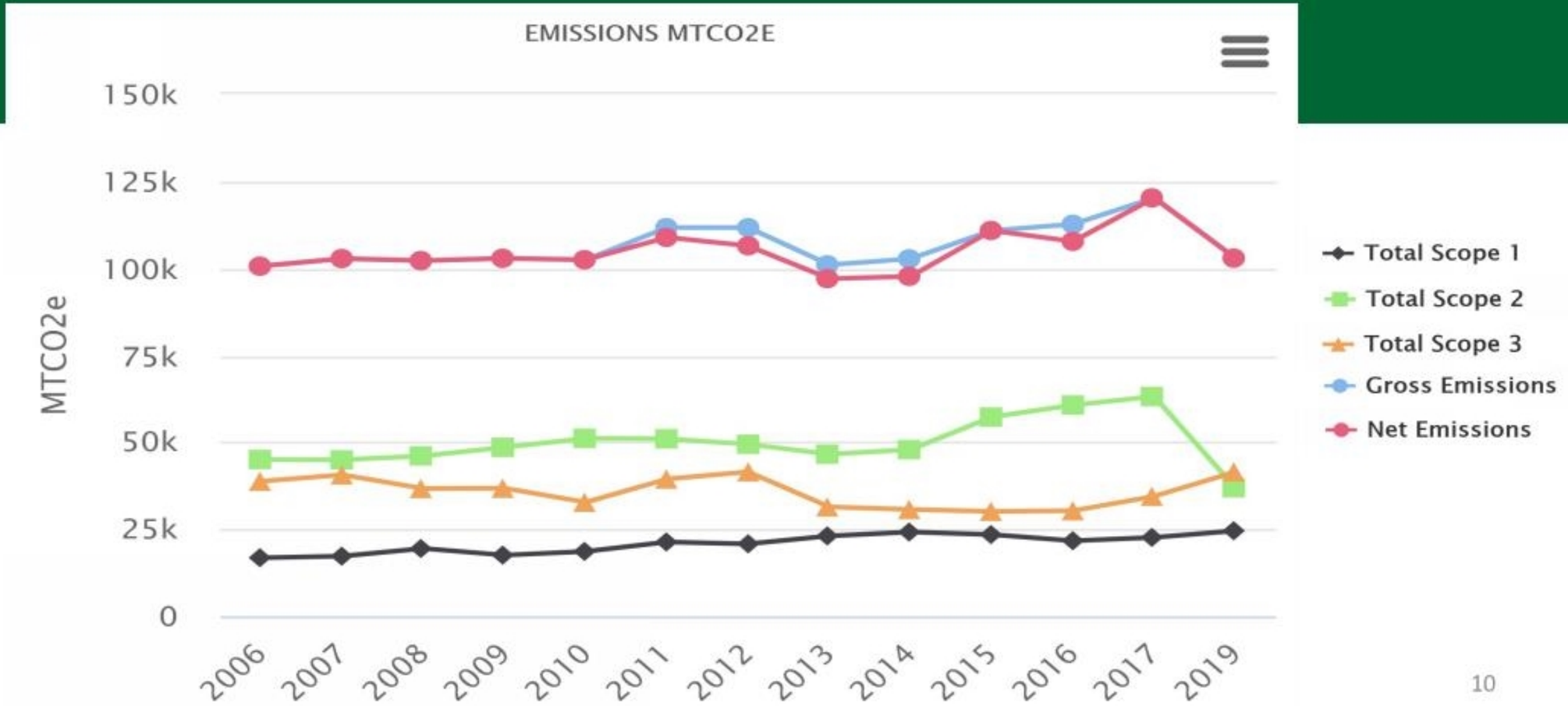
Mason's Carbon Footprint

FY2006 – FY2019 (grew w/enrollment)



CAP Process

Climate Action Planning Timeline

Phase I: September 2021 to April 2022

Phase II: April 2022 and forward

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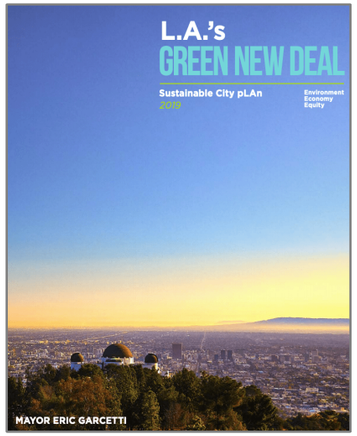
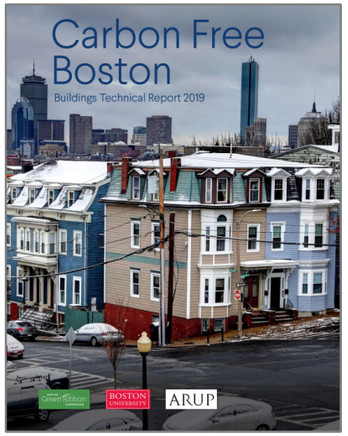
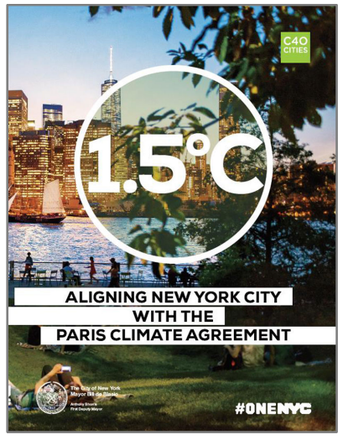
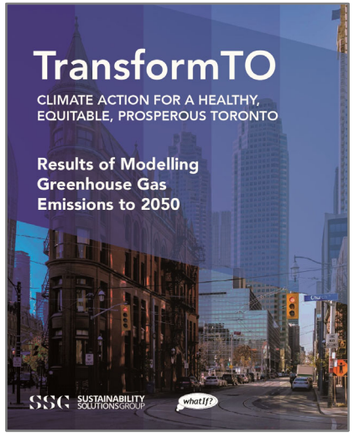
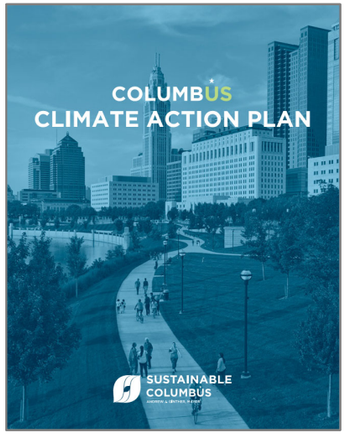
What is a Climate Action Plan?

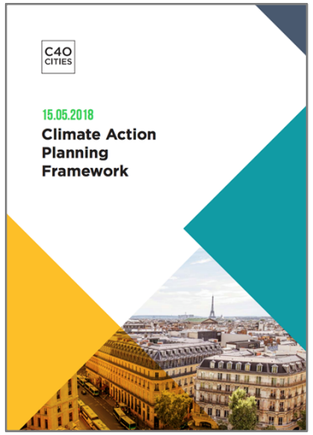






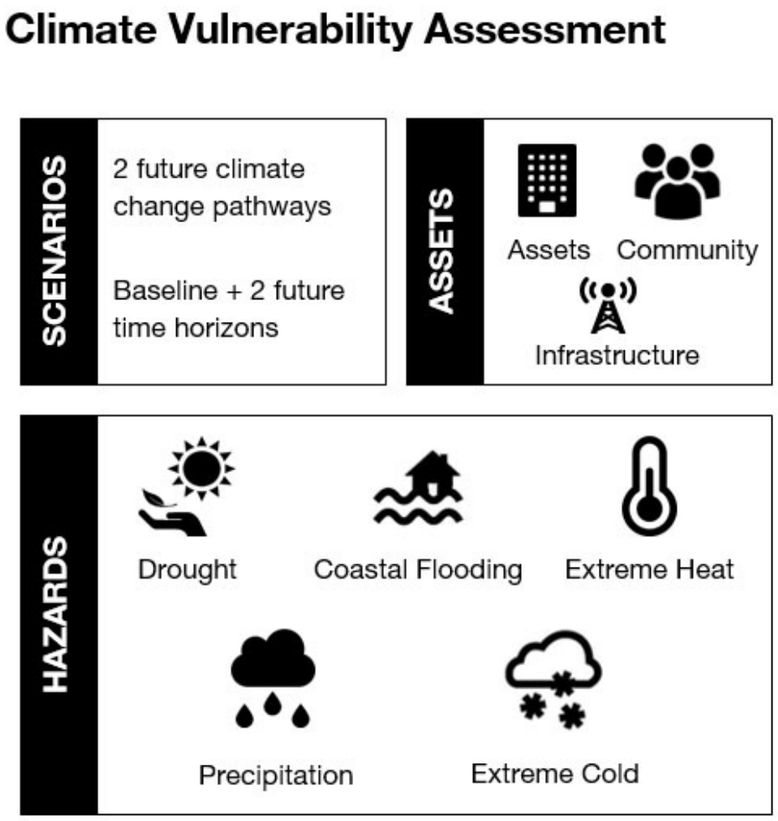






Climate Resilience

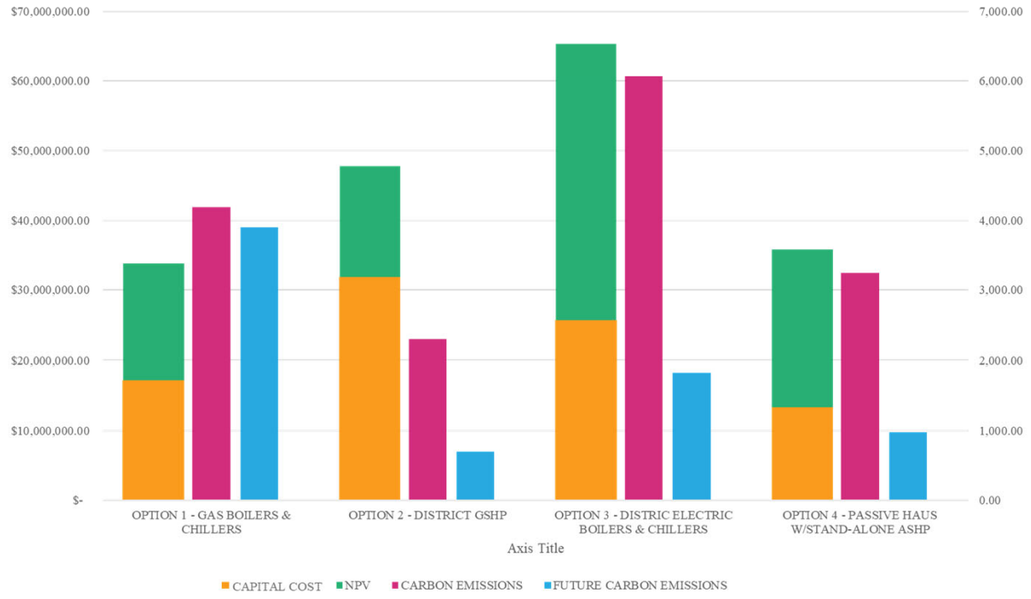
- What are the climate Risks?
- What are Mason's vulnerabilities?
- Other exacerbating factors?
- Impacts?
- High level adaptation measures



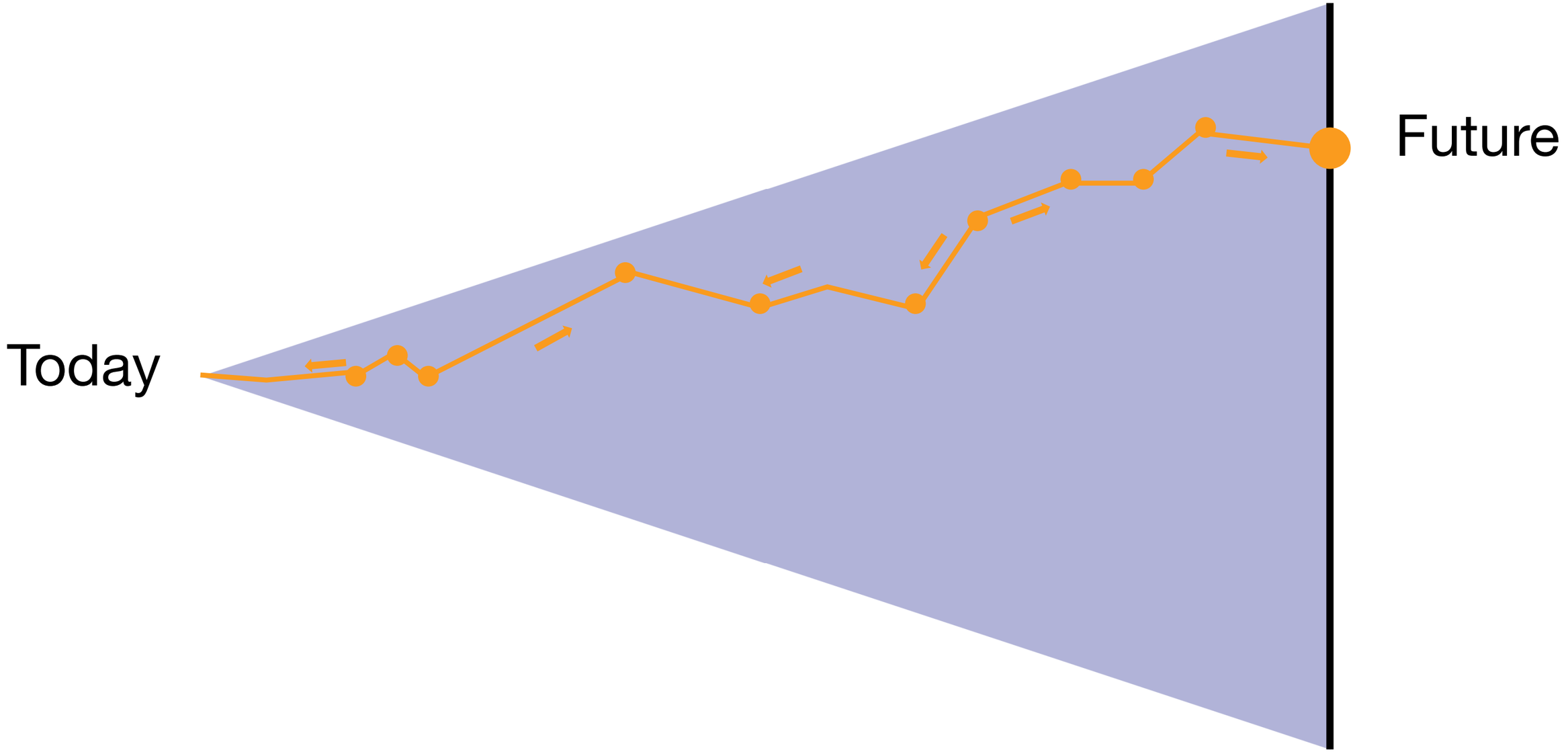
Sustainability and Climate Action

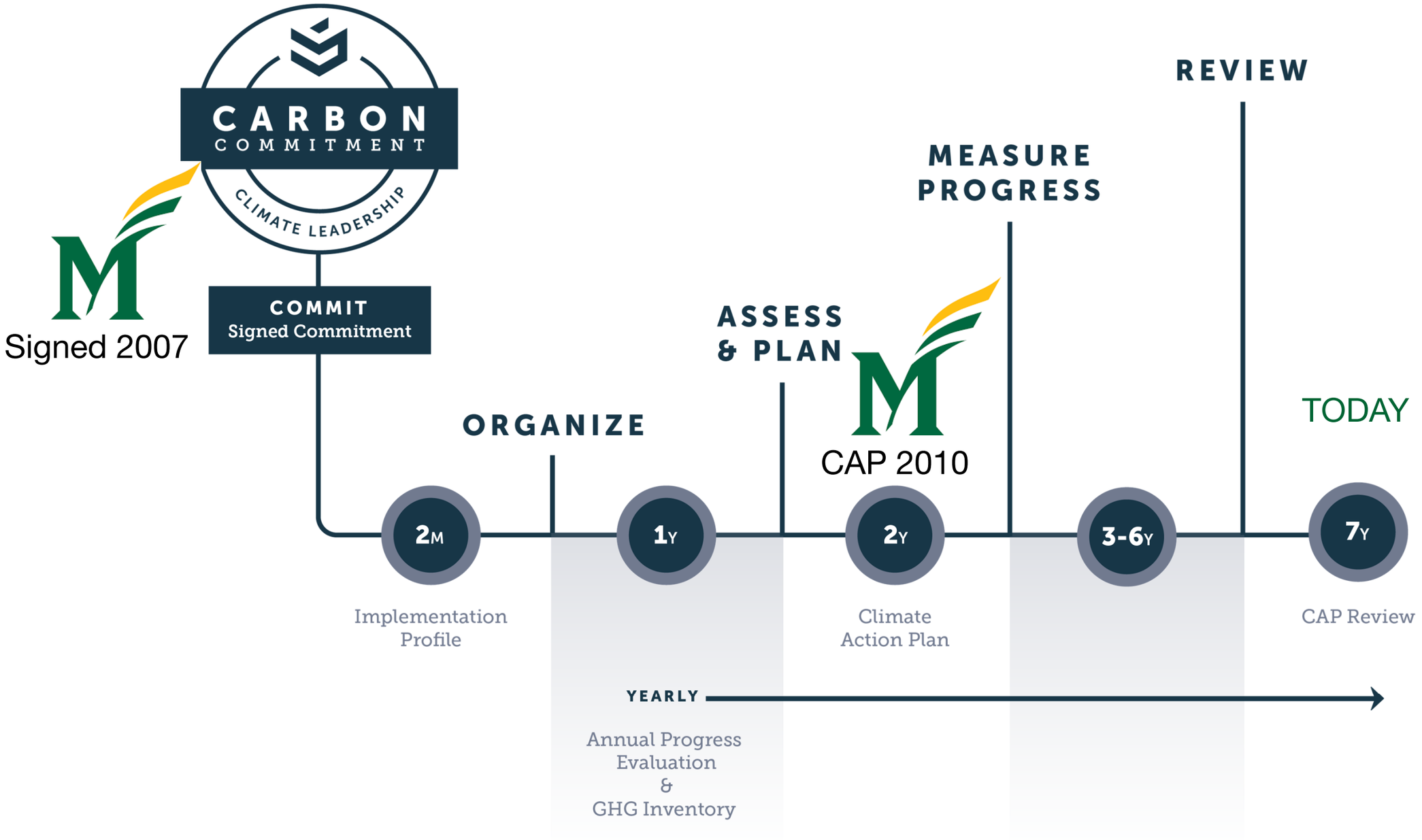
Masterplan Integration

Total NPV vs. Carbon Emissions



Creating a Roadmap



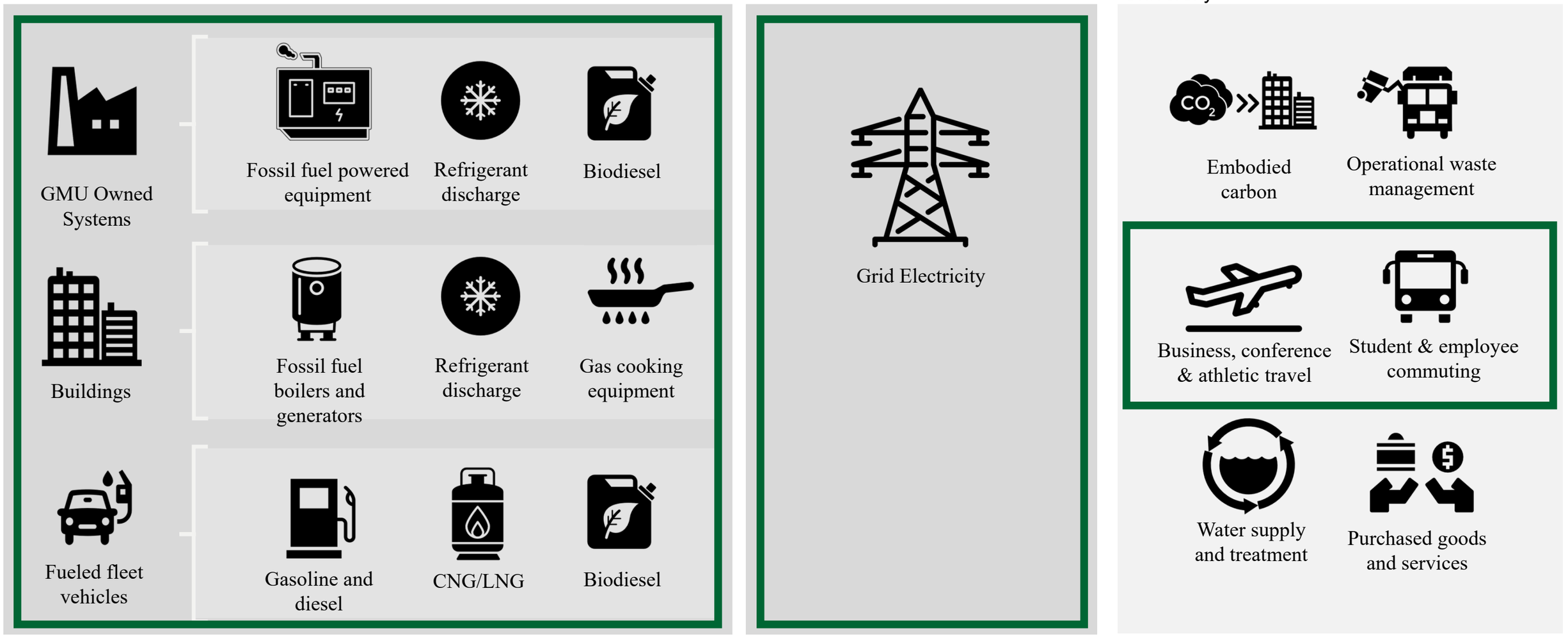

CARBON
COMMITMENT
CLIMATE LEADERSHIP
Signed 2007
COMMIT
Signed Commitment
ORGANIZE
ASSESS
& PLAN
CAP 2010
MEASURE
PROGRESS
REVIEW
TODAY
2M
1Y
2Y
3-6Y
7Y
Implementation
Profile
Climate
Action Plan
CAP Review
YEARLY
Annual Progress
Evaluation
&
GHG Inventory
Carbon
Neutrality

Emission Scopes

Scope 1
Emissions from sources owned / controlled by the University

Scope 2
Indirect emissions from utilities purchased by the University

Scope 3
University emissions from activities which sources are not owned / controlled by the University



Included in Second Nature Carbon Commitment

GHG Emissions Definitions

Carbon Neutrality

Carbon neutrality is defined as having no net greenhouse gas (GHG) emissions, to be achieved by either;

a. eliminating net GHG emissions, or
b. by minimizing GHG emissions as much as possible and using carbon offsets or other measures to mitigate the remaining emissions.

Second Nature – The Presidents' Climate Leadership Commitments
https://secondnature.org/signatory-handbook/frequently-asked-questions/

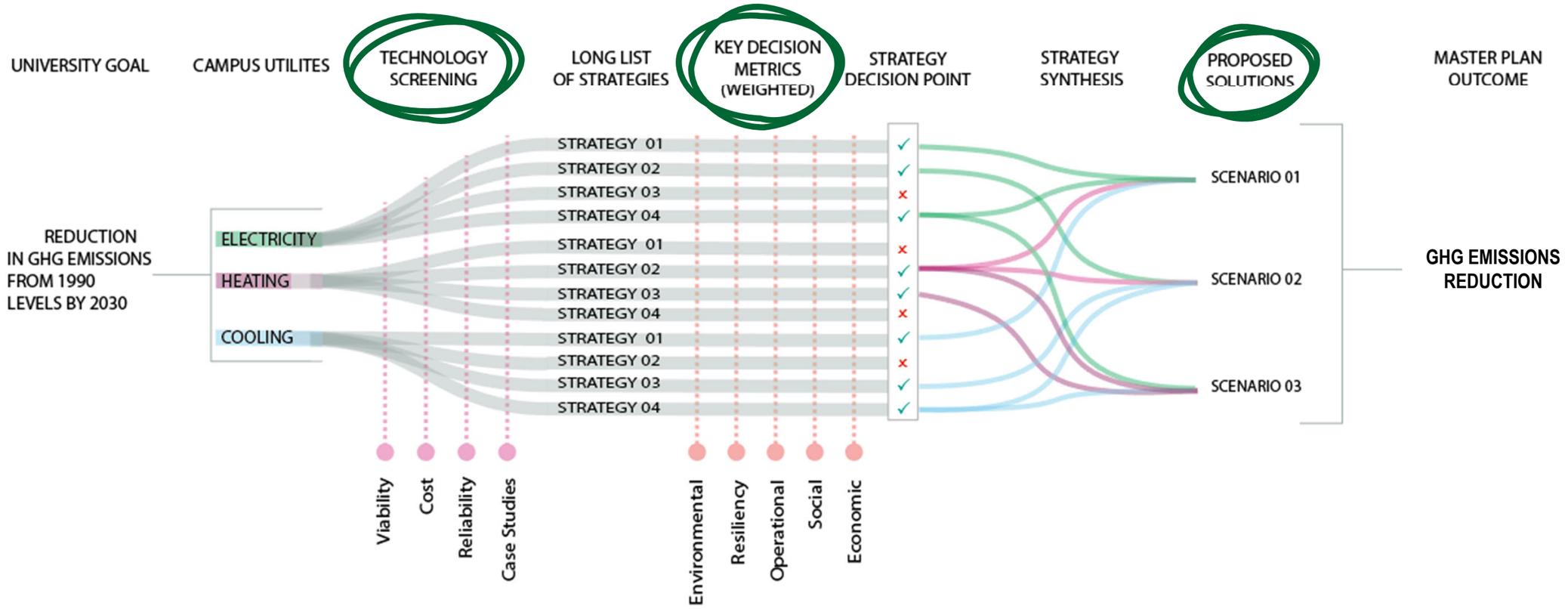
Zero Emissions / Fossil Fuel-Free / Zero Operational Carbon

No burning fossil fuels on-site (scope 1) and no use of utilities generated using fossil fuels (scope 2) to result in zero emissions associated with campus energy consumption.

Net-Positive / Carbon Negative

Reduce the overall emission of CO2e by removing more CO2e from the atmosphere than campus requires for its own energy consumption.

CAP strategy and evaluation criteria



Climate Action Planning Context

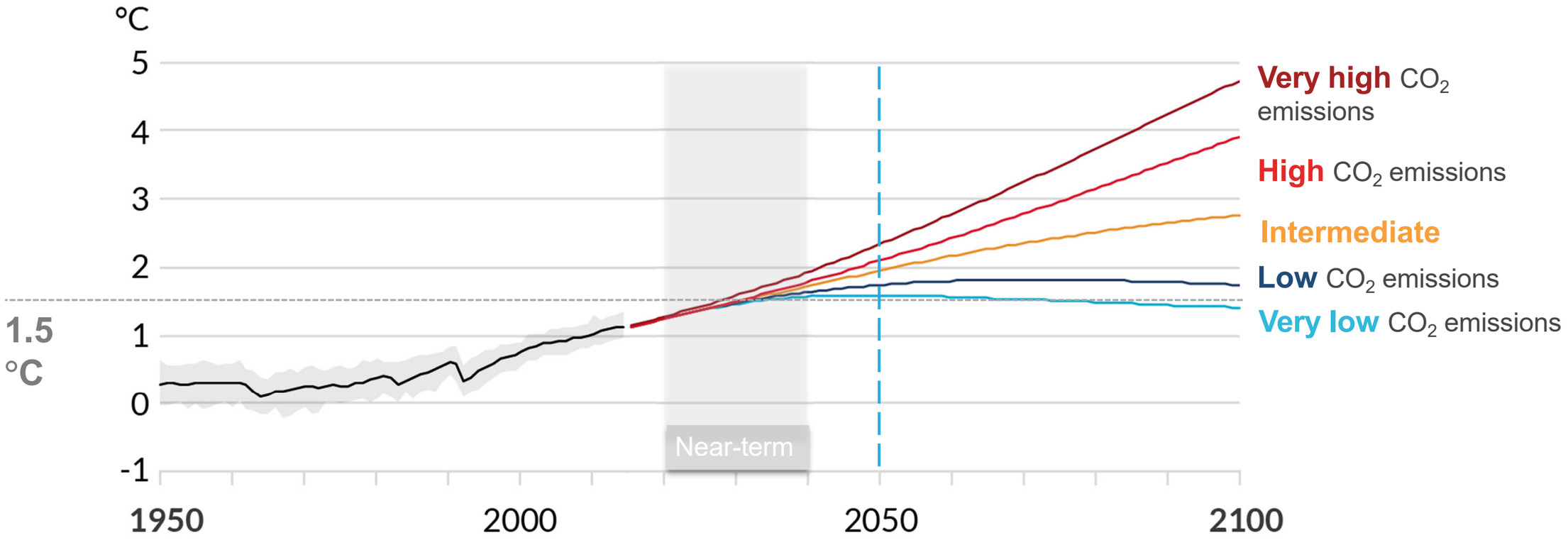
The Climate Emergency

IPCC Sixth Assessment Report

Same goal from Paris agreement, but now outlined as best case scenario

But we are on a 2-3 deg trajectory

Future emissions cause future additional warming



Not a lot of new info,

- but is said with more urgency
- but the effects are more visible
- but the emissions have grown

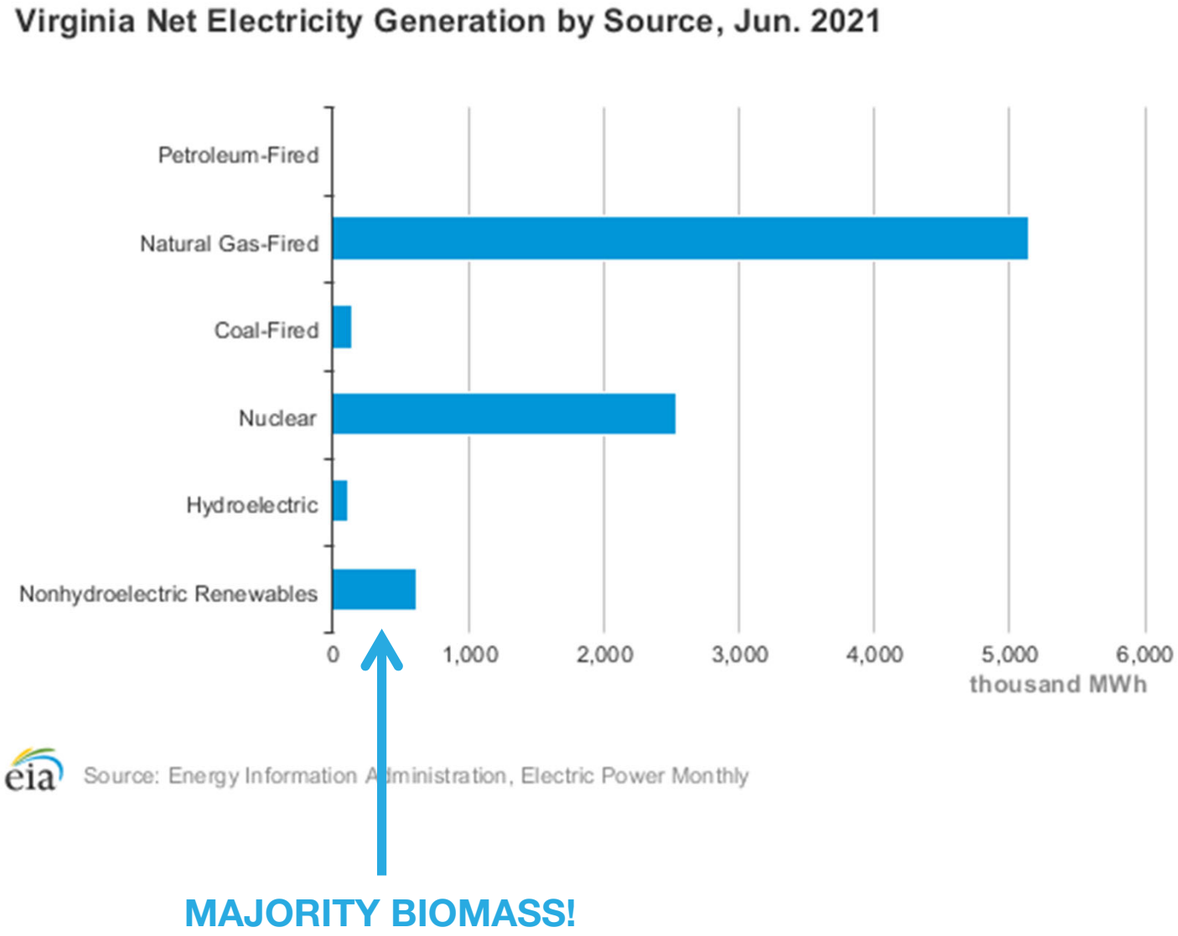
Virginia Energy and Carbon context

VA Clean Economy Act, 2020

- 30% renewable energy generation x 2030
- 100% carbon free energy generation x 2045
- Joined Regional Greenhouse Gas Initiative (RGGI) placing price on carbon

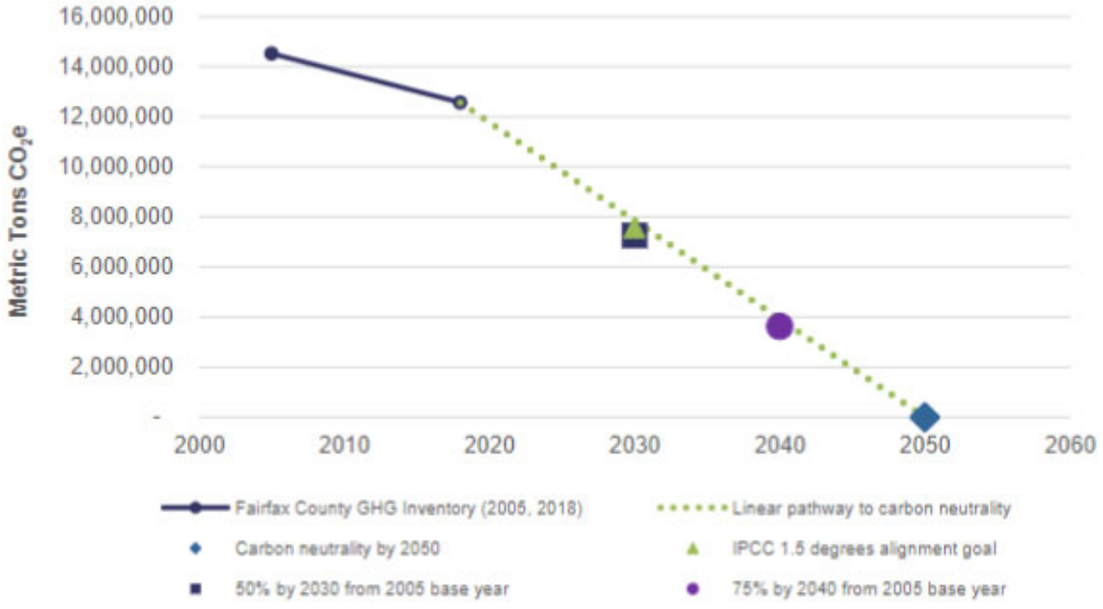
VA Clean Energy & Community Flood Preparedness, 2020

- Address recurrent flooding areas
- Supports low-income energy efficiency
- Enables CO2 cap and trade

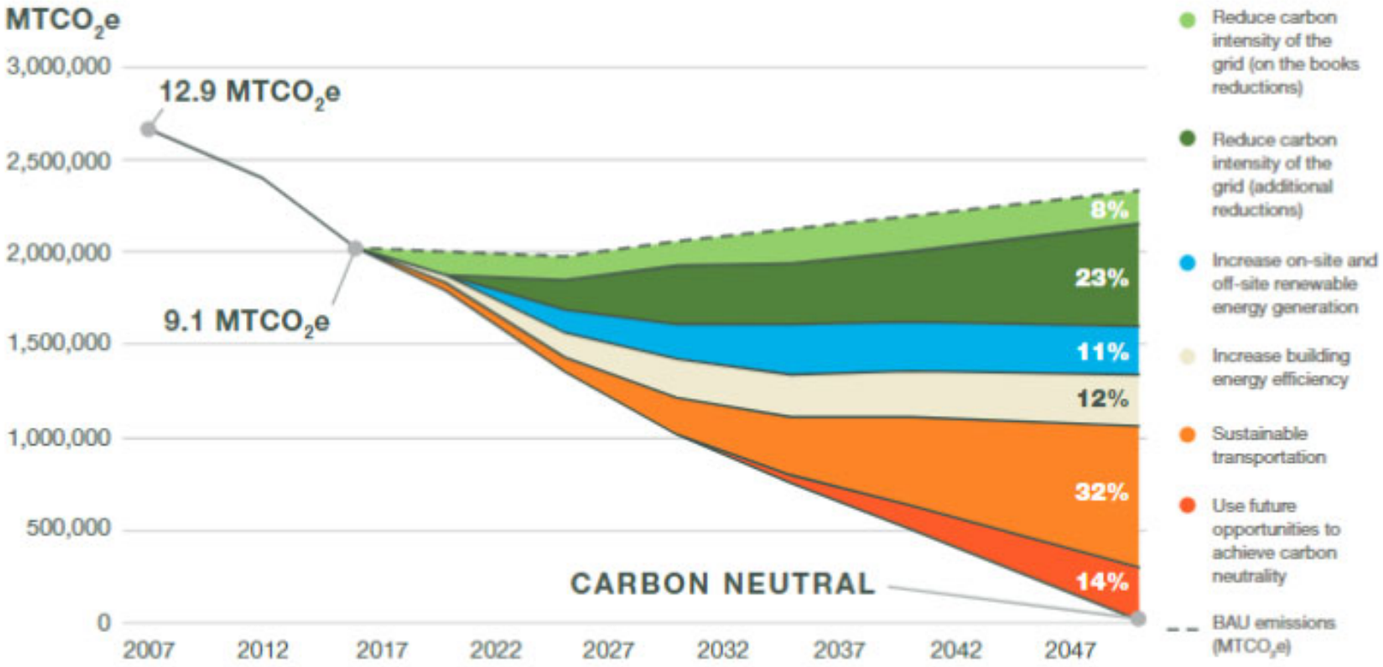


County Commitments

Fairfax County Climate Action Plan



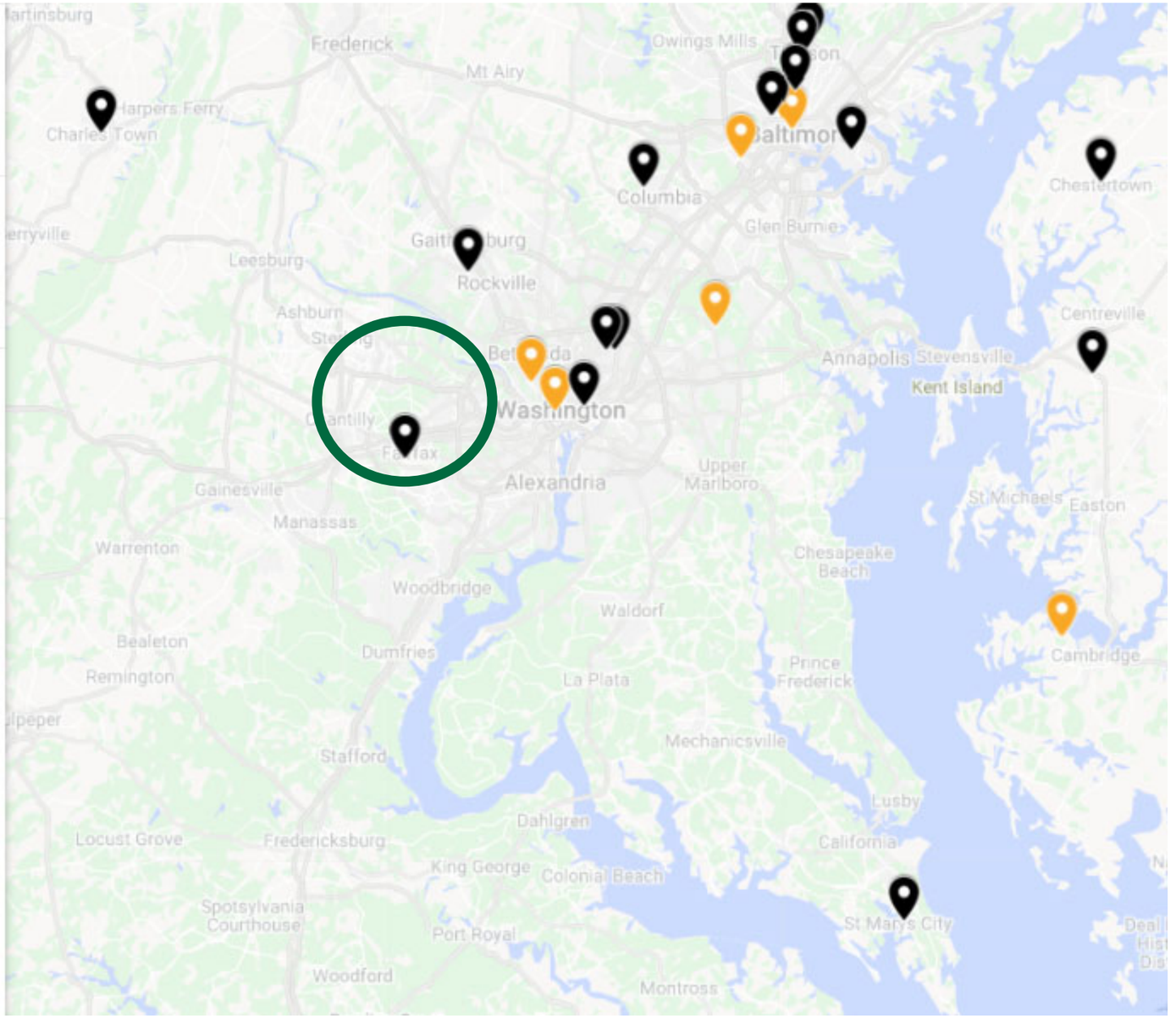
Arlington County Climate Action Plan



Peer Benchmarking

Second Nature Climate Leaders

- [x] Climate Commitment Signatories
  - All items
- [x] Carbon Commitment Signatories
  - All items
- [x] Resilience Commitment Signatories
  - All items



American University

American University is the largest post-secondary educational institute in the U.S. **to achieve carbon neutrality** - *"net-zero GHG emissions"* - in 2018, 2 years ahead of their goal

Carbon Neutrality Strategies

1. **Reduction:** Reduced overall energy use per square foot by **21% since** 2005; **6** LEED certified buildings
2. **Renewables:** 100% of AU's electricity comes from a renewable source (on-site solar, solar farm in North Carolina, RECs)
3. **Carbon Offsets:** Efficient wood-burning cookstoves in Kenya, wind power from India to match commuting emissions, capturing landfill gas, planting local trees in DC, and investing in efficient trucking

2021-2026 Climate Action Plan Goals

1. **Engagement** Sustainability Courses Student Wellness Integration of Environmental Justice
2. **Environment** Achieve 35% above ASHRAE standards Establish construction standards for renewable energy
3. **Administration** The Sustainability Advisory Committee will continue to review sustainability progress

Arizona State University

Through its ***Global Institute of Sustainability and Innovation***, ASU commits to carbon neutrality by 2035 with 20% GHG emission reduction left.

Climate Action Strategies

Renewable Energy

Campus Solarization Program with over 50 MW_{dc} equivalent solar generating capacity development from both on-site and off-site components.

Green Building Design

ASU is committed **to LEED Silver certification** for all new construction of university-owned and operated buildings. As of May 2021, ASU has seven Platinum, 33 Gold, 24 Silver, and one certified LEED Building Certifications.

Transportation

ASU provides rental bikes to students at no cost and access to fuel efficient rental vehicles in partnership with Zipcar.

Carbon Offsets

Local tree planting in collaboration with Phoenix, Scottsdale and Tempe.

George Washington University

Commitment

- Carbon neutral by 2040 through a limited use of carbon offsets
- GW also aspires to remove all the historical greenhouse gas emissions the university has produced since its founding in 1821

Progress

- Capital Partners Solar Project - North Carolina renewable energy project that provides 53.5 MW of solar power for GW, American University and the George Washington University Hospital (GWUH). Provides ~50% electric demand.
- Eco Building Program - installing more modern and efficient equipment in selected buildings on-campus to reduce energy and water use, operating costs, and greenhouse gas emissions

Goals in the *GW Progress Report 2018*

Targets & Commitments: Benchmarking

	1	2	3	4	5	7	8	9	10	11
Organization	ASU	GW	American U	UVA	Harvard	Fairfax County	Arlington County	Google	Amazon	Microsoft
End Target	Carbon neutral x 2035	Carbon neutral x 2040	Carbon neutral x 2020	Fossil fuel free x 2050	Fossil fuel free X 2050	Carbon neutral x 2050	Carbon neutral x 2050	Carbon free x 2040	Net zero carbon x 2040	Carbon negative x 2030
Interim Target	-	40% reduction x 2025	-	Carbon neutral x 2030	Fossil fuel neutral x 2026	1.5 deg aligned by 2030	-	-	-	-
Emissions Reduction Target (scope 1 & 2)	80%	80%	ND	ND	100%	ND	ND	100%	ND	100%
Includes Scope 3 Emissions		○	●						○	●
Utilizes Purchased Offsets	●	●	●	ND	Interim only		●	●	●	●
Fossil Fuel-Free Operation				●	●			●	●	●

- ● Yes
- ○ Partial

ND Not defined

Next Steps

CAP Progress

Review ongoing

Next action

Carbon Neutral by…

2030?

2040?

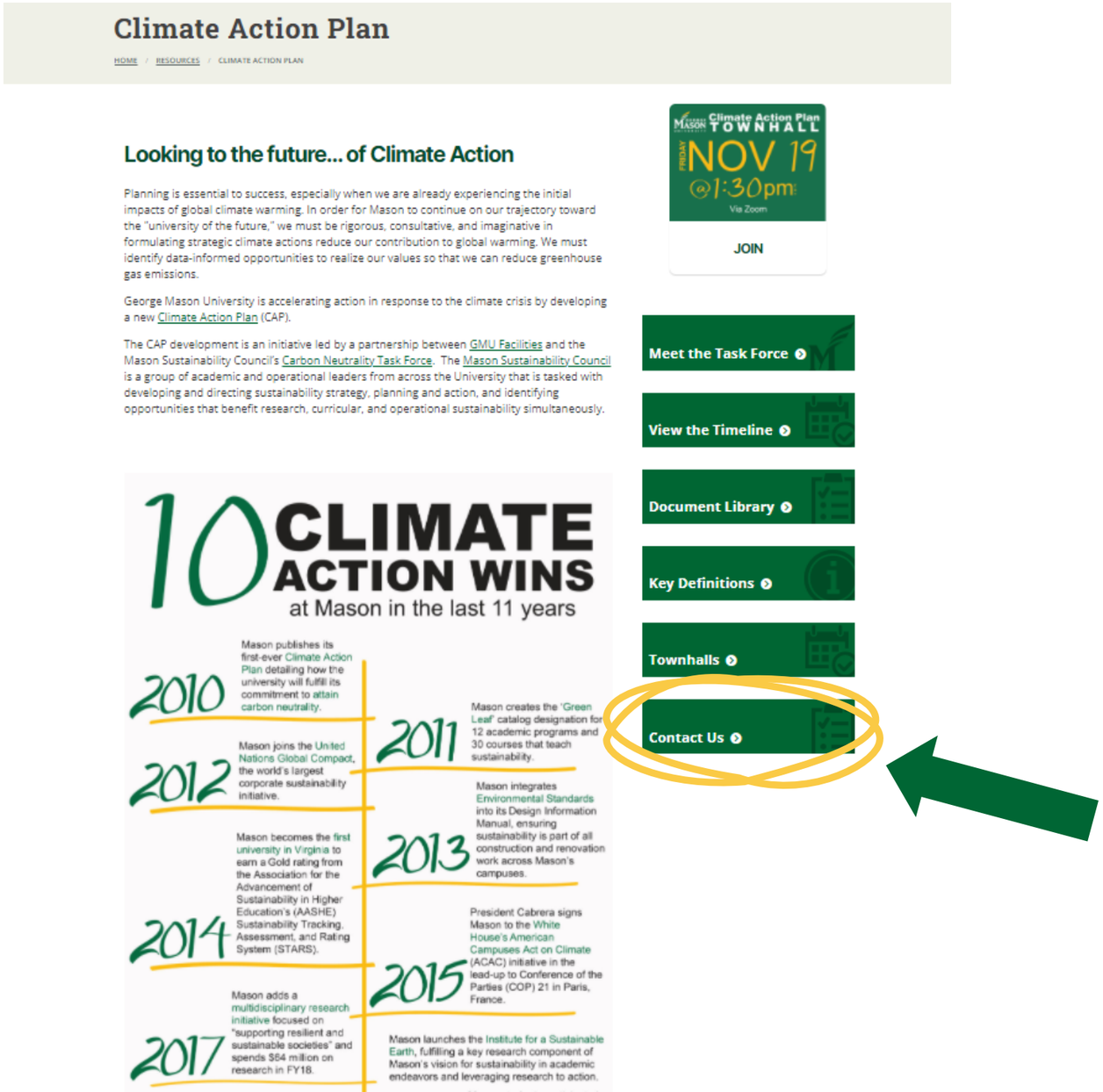
2050?

Gathering Your Input

- Share climate action strategies and ideas today via Zoom

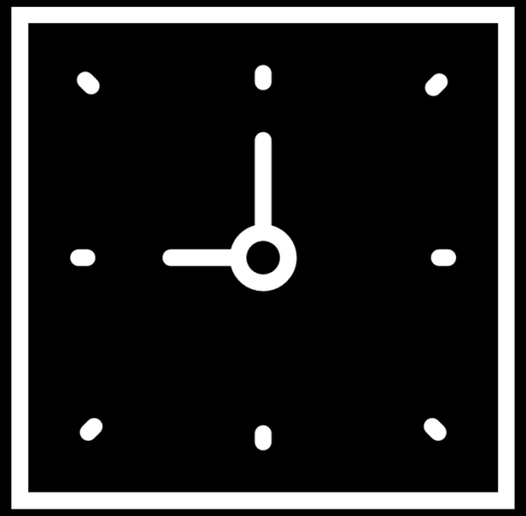
- Use the CAP website Contact Us form

https://facilities.gmu.edu/resources/climate-action-plan/



Upcoming Town Hall Schedule

- Wednesday, December 15th
- Thursday, January 27th
- Friday, February 18th
- Wednesday, March 9th



Thank you!