



IGEN Conference

Energy Efficiency Planning: Setting a Carbon Budget

April 3, 2025



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Energy Efficiency Planning

Know where you are, to set
your **DESTINATION &**
ARRIVAL TIME!



Energy Efficiency Planning

SEDAC
Net Zero Planning

FGMA
Setting a Carbon Budget

WHAT

is the issue?

WHAT IS THE CARBON BUDGET?

The carbon budget is the estimated amount of carbon dioxide the world can emit while still having a likely chance of limiting global temperature rise to 2°C above pre-industrial levels. The international scientific community estimates this budget to be 1 trillion tonnes of carbon (1,000 PgC).*



2°C

The 2°C target has been adopted by the countries within the United Nations Framework Convention on Climate Change (UNFCCC).



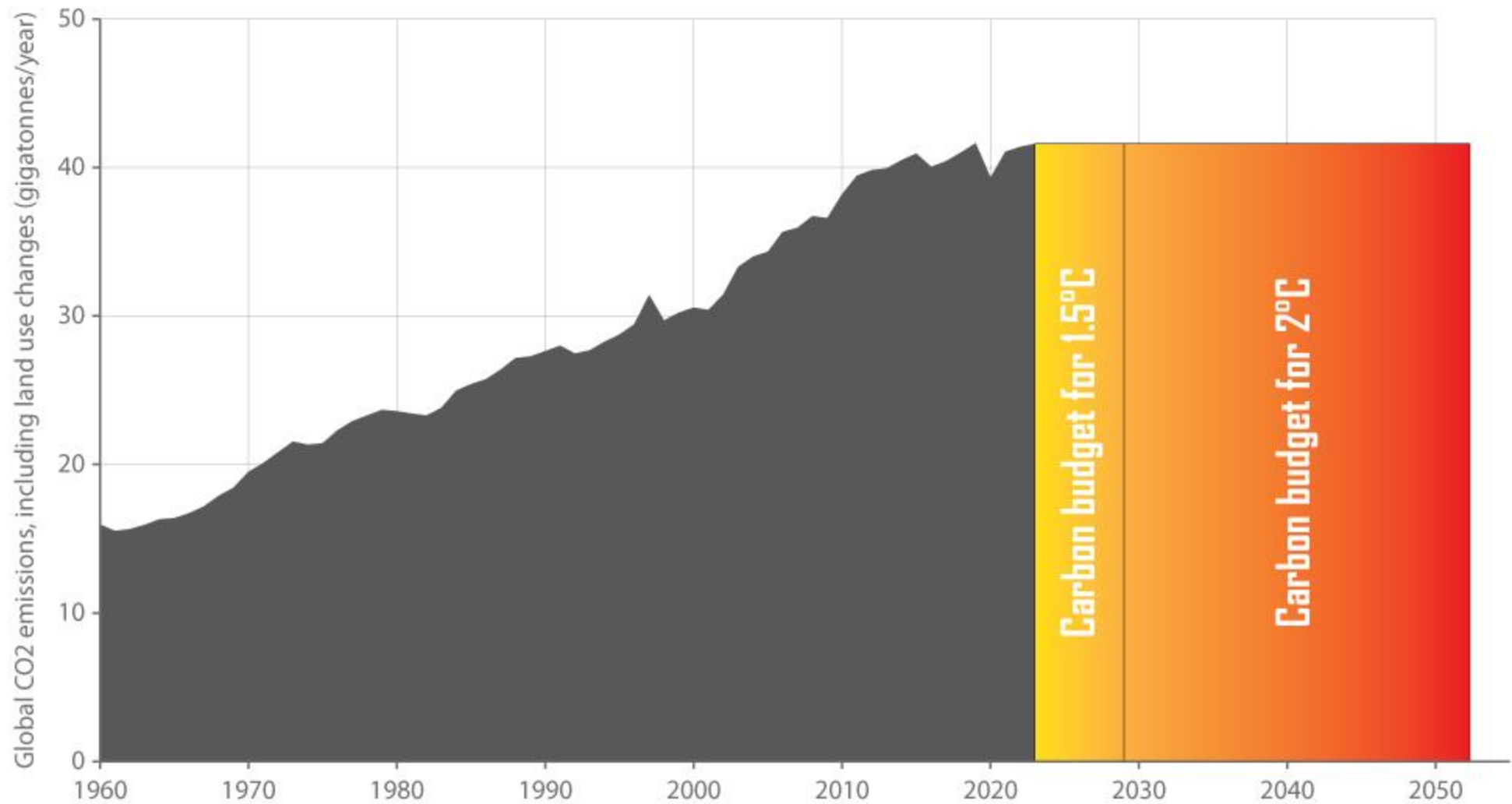
2011

We've already burned through 52 percent of the budget, emitting 515 PgC since the Industrial Revolution (1861–1880).



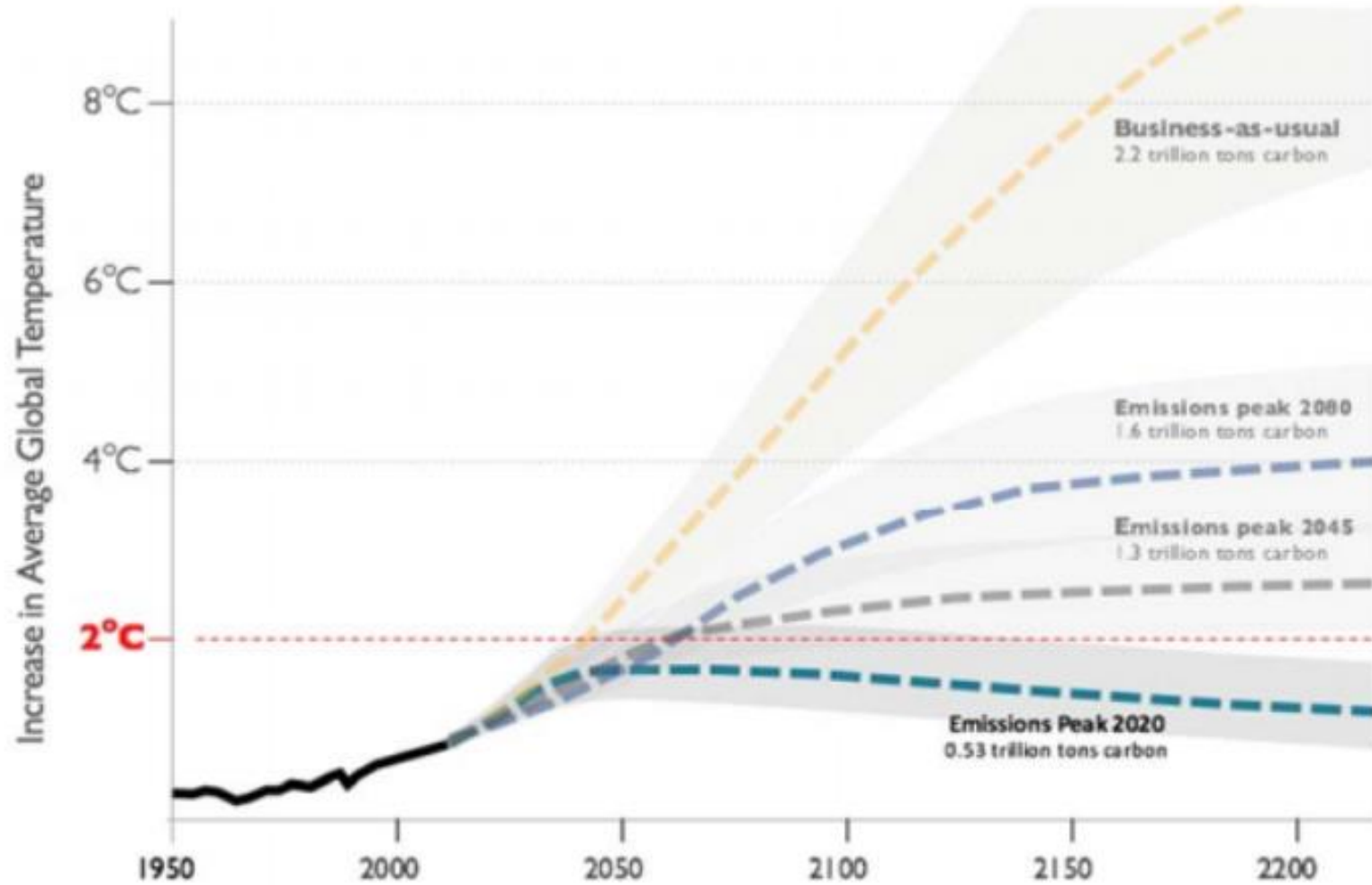
2045

The world has only 485 PgC left in the budget. We'll exceed this amount before the end of 2045 if emissions rates continue unabated.



<https://www.futuretimeline.net>

Time Value of Carbon

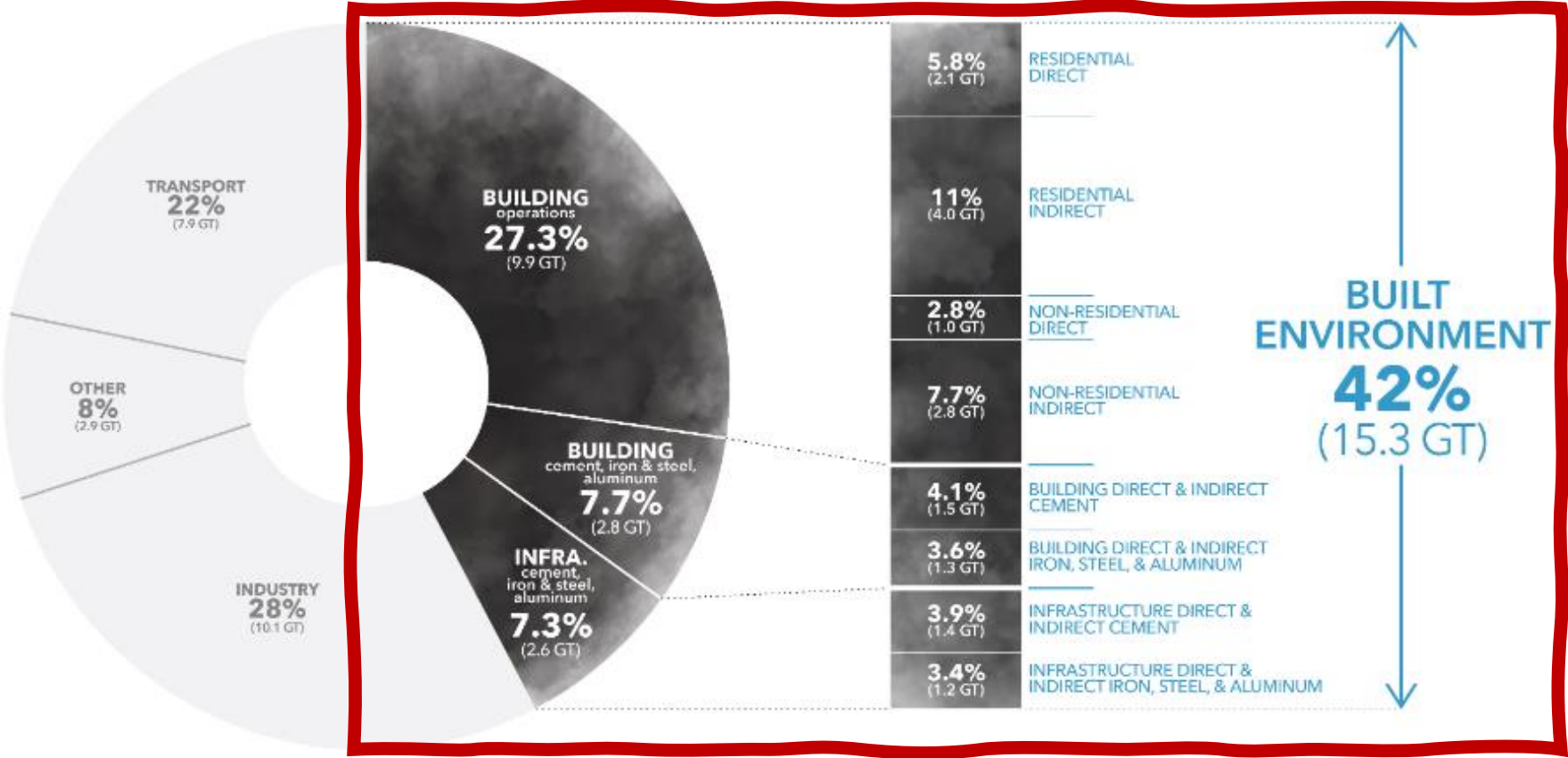


Global Temperature Projections: IPCC Emissions Scenarios

Source: Architecture 2030; Adapted from IPCC Fifth Assessment Report, 2013
Representative Concentration Pathways (RCP), temperature projections for SRES scenarios and the RCPs.

Climate Change & Buildings

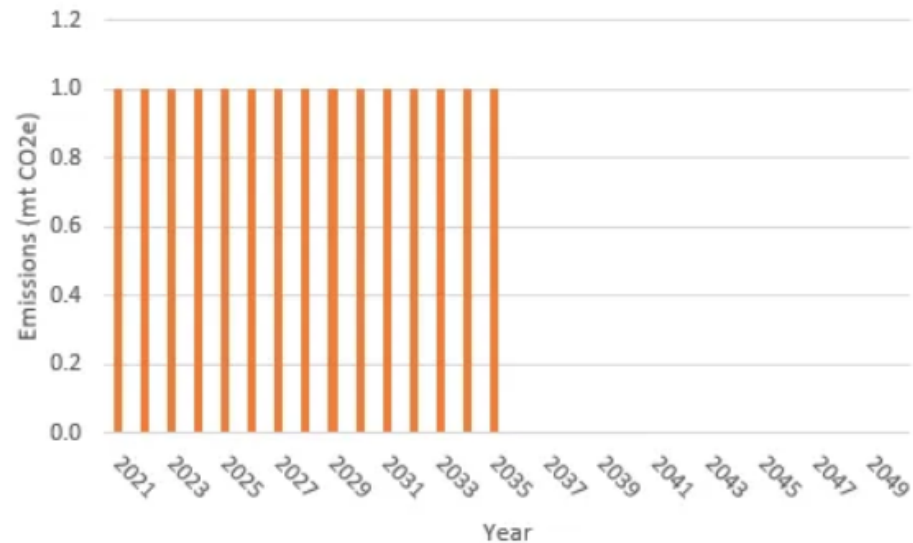
TOTAL ANNUAL GLOBAL CO₂ EMISSIONS
Direct & Indirect Energy & Process Emissions (36.3 GT)



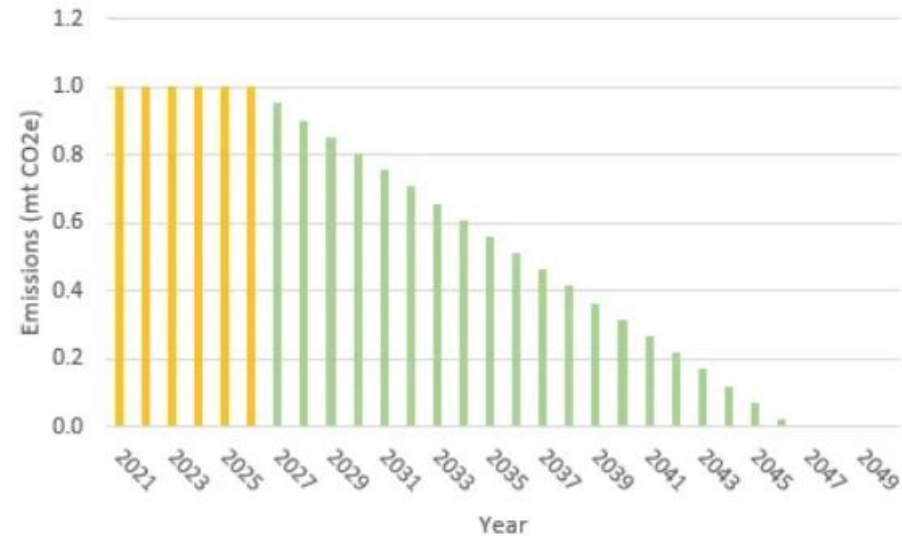
42 %

What is a Carbon Budget?

Carbon budgets measure how much CO₂ is produced by organizations to calculate how emissions must be cut in the future. The aim is to reduce reliance on fossil fuels, thus **working towards net zero**.



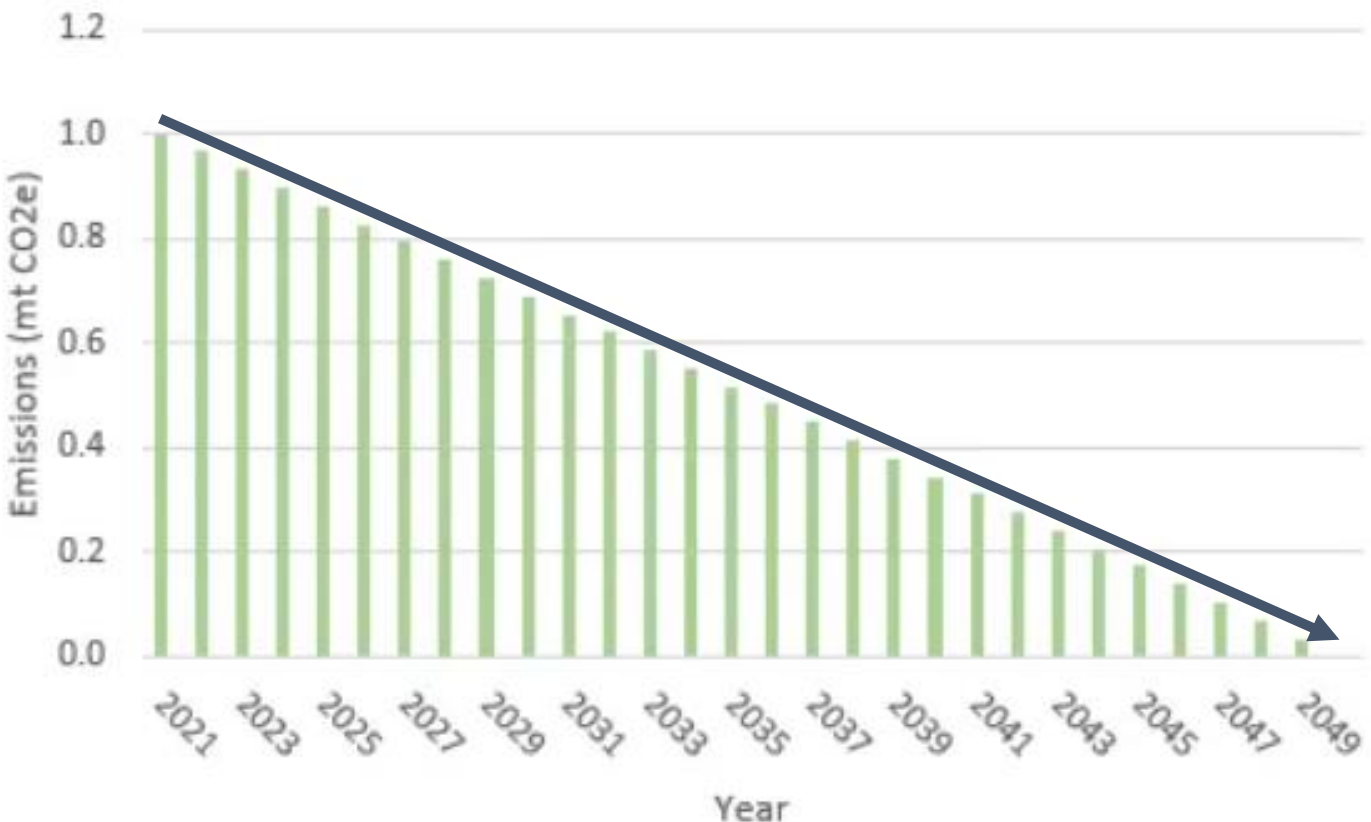
Business as Usual; Spending the Carbon Budget in 15 Years



5 Year Delay Requiring More Aggressive Action

What is a Carbon Budget?

A carbon budget sets a clear path to carbon neutrality in a step-down approach over a fixed period of time, based on current carbon footprint



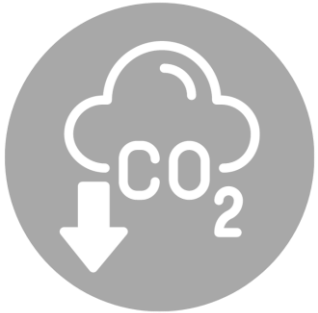
WHAT

are the challenges?

What are the Challenges?



Energy Costs



Carbon Footprint



Dependance on Fossil Fuels

- **Financial Constraints**
- **Regulatory & Policy Barriers**
- **Aging Infrastructure**
- **Engagement**
- **Lack of Dedicated Funding & Incentives**
- **Competing Priorities**
- **Limited Expertise & Staffing**

Students Have Choices





COLLEGE PULSE

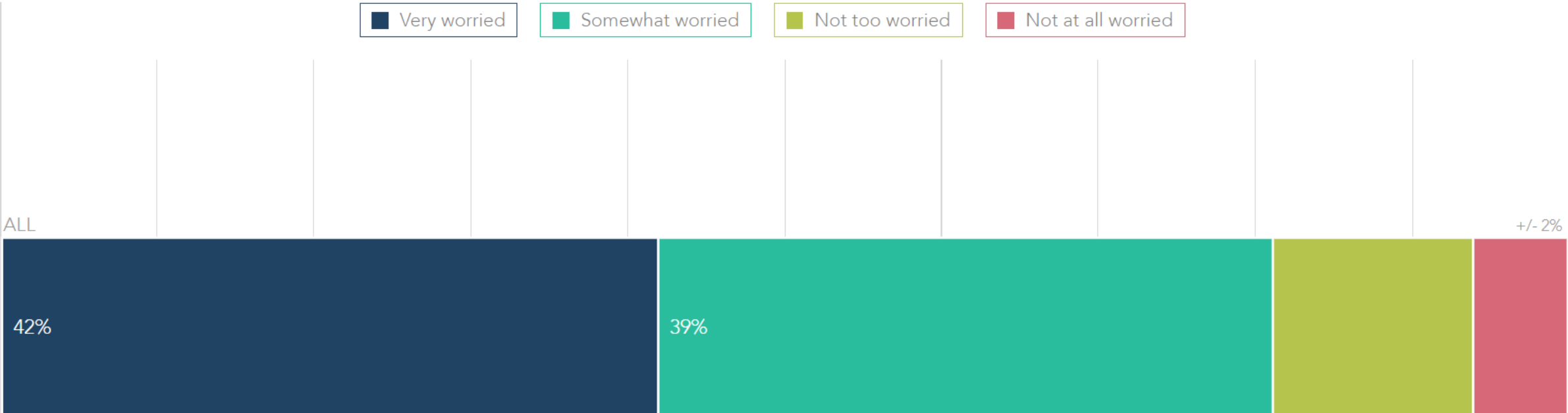
EXPLORE THE DATA

Sustainability Beliefs and Behaviors

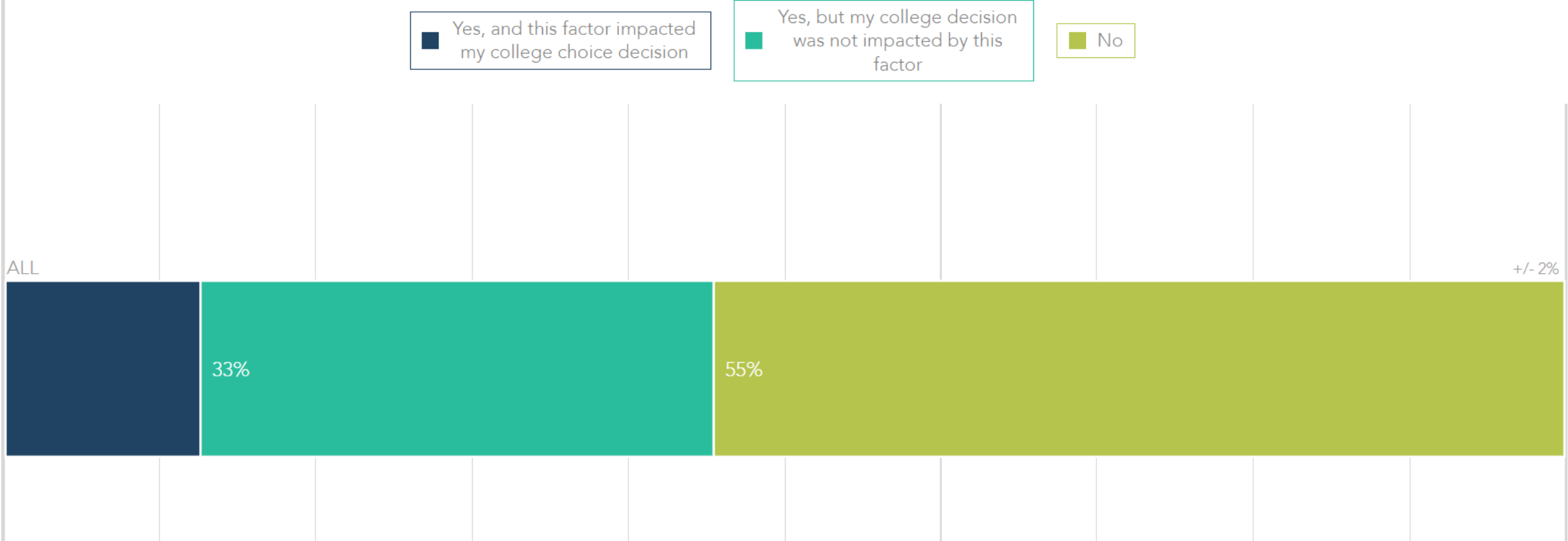
Presented by:

KAPLAN

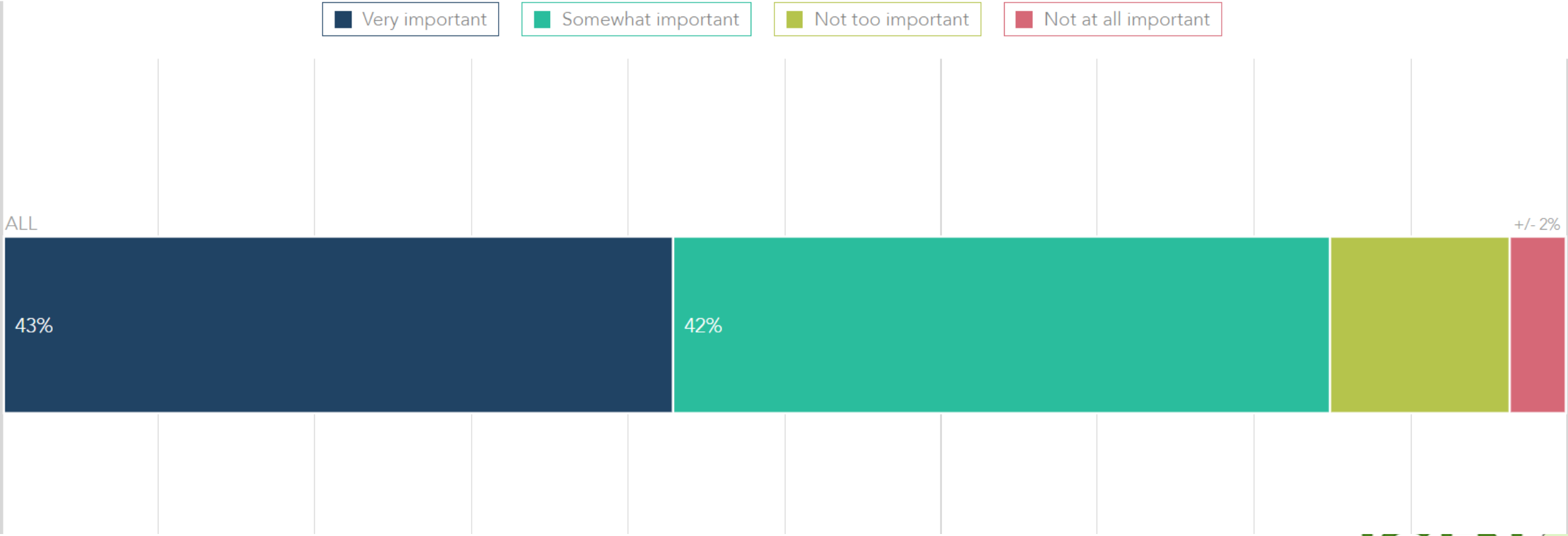
81% are worried about climate change



45% considered environmental sustainability in their college enrollment decision

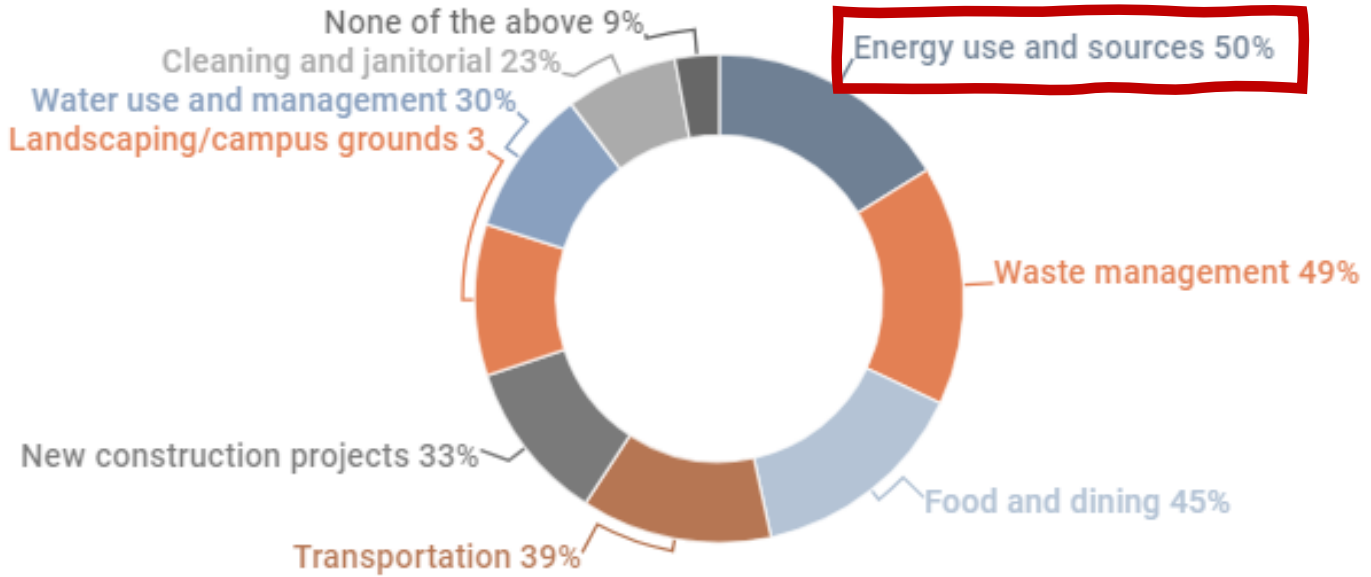


85% indicated it is important to them that their college prioritize sustainability



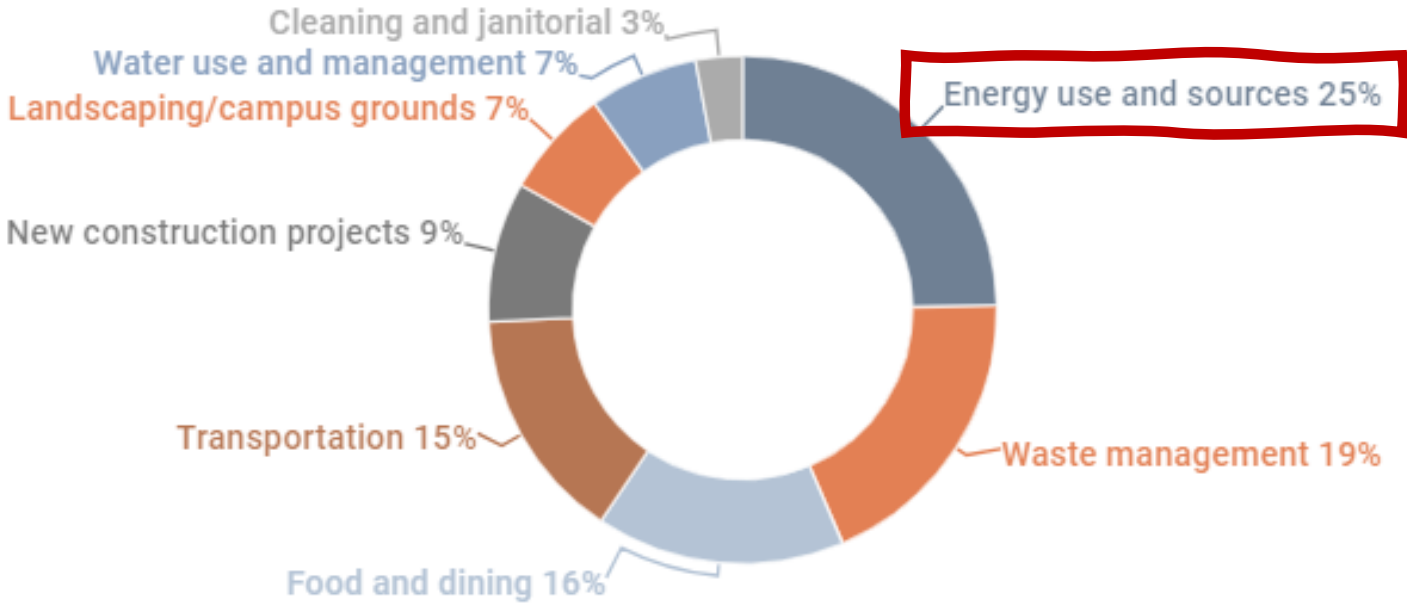
50% want their college to prioritize sustainable energy sources

Areas in which students call for greater sustainability at their institutions (multiple responses allowed)



25% said the focus should be energy use & sources

Single most important area students say their institution must focus on making more sustainable



70%

- I would definitely get involved.
- I would consider getting involved.
- I have already been involved.
- I don't need to be involved because my college has already made that commitment.
- I would not get involved.
- I'm not sure.



Students have choices

& they want their school to be part of the solution



WHY

set a budget?

Why Set a Carbon Budget?



It's good for the planet.

Community Colleges oversee significant resources in financial capital, and how they deploy those can have a real impact on achieving net-zero emissions and a sustainable future.

Why Set a Carbon Budget?

2

It's good business.

Prospective and current students want to attend community colleges that are driving the environmental agenda forward.

Why Set a Carbon Budget?

3

It's fiscally responsible.

Not addressing climate change is more costly than reaching net zero.

It takes thoughtful, intentional, multi-year planning with future capital improvement, operational and maintenance projects and costs in sight to **step-down in a manageable and pragmatic direction** to carbon neutrality.



Setting a Carbon Budget

- Overview of which experts to engage throughout process
- Budgeting to engage experts for routine maintenance and capital improvements
- **UPFRONT COSTS YIELD FUTURE SAVINGS**, decreases fossil fuel dependence



Planning the Journey



Step 1: Baseline

- Determine where you are right now with a campus energy and carbon audits and assessments.



Step 2: Setting Goals, Targets & Timeline

- What do you do with the benchmark information?

1. Set goals

2. Prioritize

3. Monitor progress

Step 2: Setting Goals, Targets & Timeline

How do you determine what goals require **PRIORITY**?

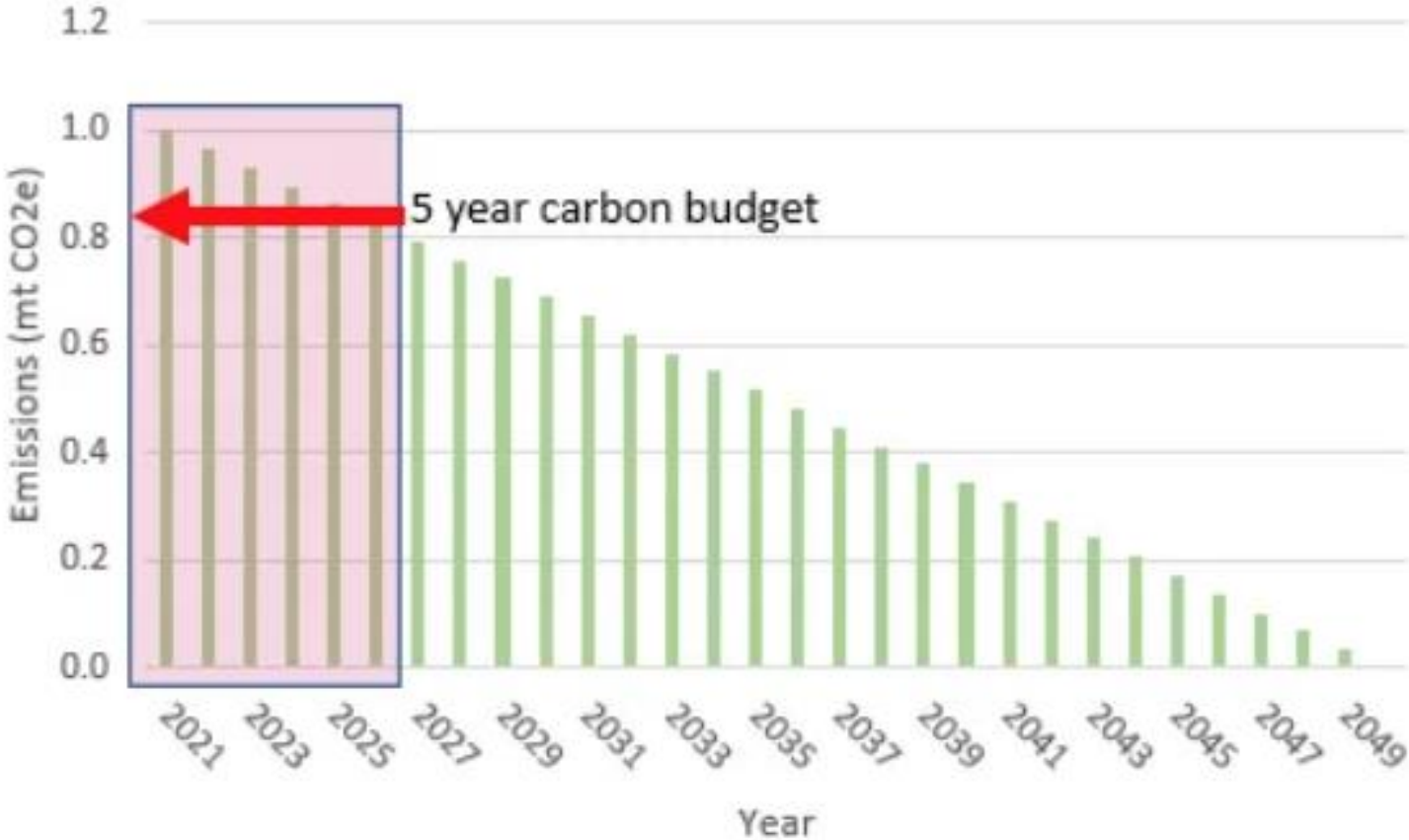
- Align with the facilities master plan and college strategic plan.
- This is **NOT** a Five-Year Project. Common approaches step-down to 2040 or 2050.

Step 2: Setting Goals, Targets & Timeline

- **Build a roadmap: plan and strategize improvements and projects in a way that supports the vision.**
- **Plan improvements into your annual budget process.**
- **Develop and revisit a sustainable action plan.**

Interim Targets

Split the budget into more manageable timelines to align with strategic initiatives and fiscal planning

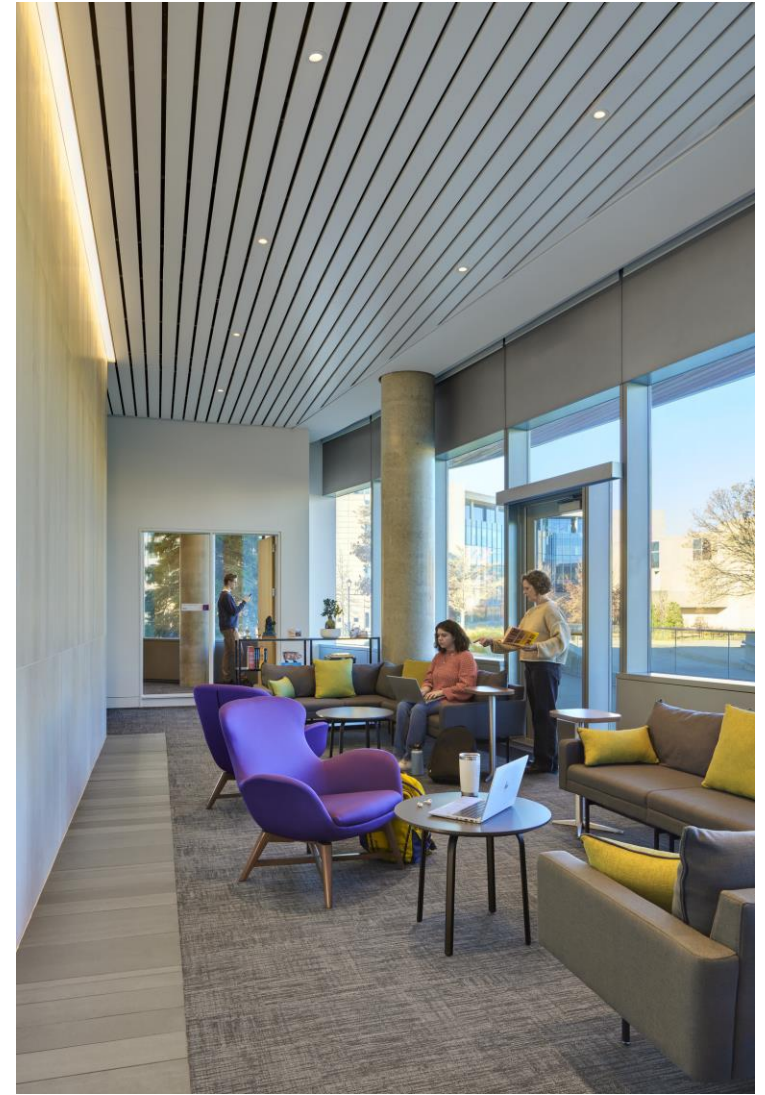


Step 3: Take Action

- Budget to engage experts for routine maintenance projects as well as capital improvement expenditures.
- Hire the right team members *for the right scope of work.*
- Retro-commission existing facilities.

Step 3: Take Action

- Make sure the goals are well documented, understood, and achievable.
- Communicated to all organizations in the campus community.
- Amend your requests for A&E services to require your design teams to provide net-zero ready designs.



How can A/E professionals support you?



We understand this is a long-term commitment.

Summary



Audience Poll

Has your college conducted a GHG or emissions or energy inventory?

**Does your college have a plan for
working towards carbon neutrality?**

**Has your college begun their path to
carbon neutrality?**

**Is this something your college is thinking
about or beginning to do?**



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