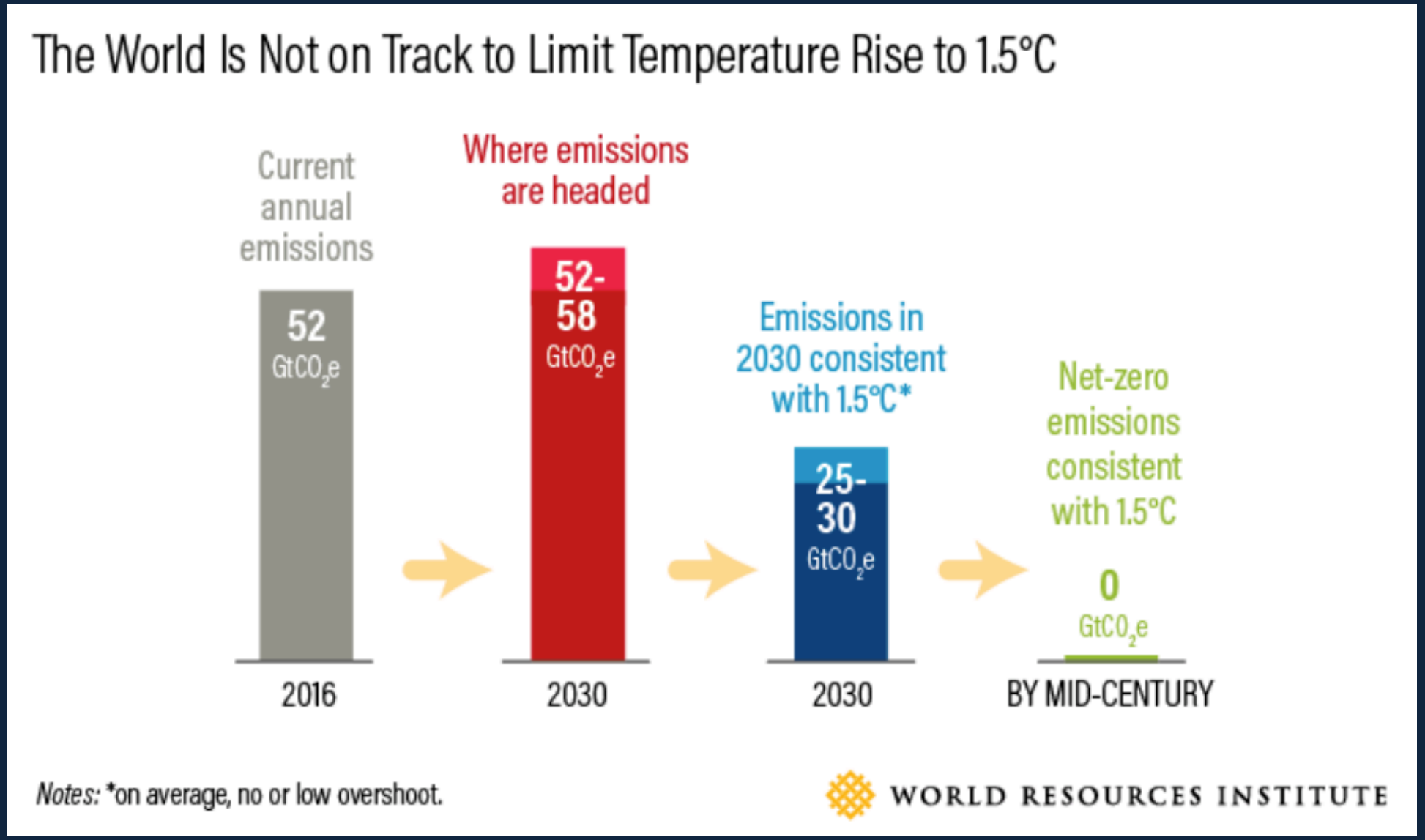
PRESIDENT'S COMMISSION ON CARBON NEUTRALITY
UNIVERSITY OF MICHIGAN

Summary of Draft Report and Recommendations

Presentation to the University Community

January 21, 2021

Global Climate Imperative



Global Climate Imperative

Climate impacts are already happening. Intense storms. Droughts. Record-breaking heat. Sea level rise.

Each year in the lives of our undergraduates has been well above the 20th Century average, with nine of the ten warmest years occurring since 2005.

Even limiting warming to 2 ^{o}C instead of 1.5 ^{o}C has starkly worse effects, e.g.:

- Loss of habitat for animals, plants and insects 2x-3x greater
- 37% of population exposed to severe heat waves - 2.6x worse
- Arctic permafrost thawing – 38% worse, releasing more methane

U-M (Ann Arbor) History on Climate Action

1963: Converted Central Power Plant (CPP) from coal to natural gas

2006: Launched Energy Management program in general fund buildings, which has decreased energy use by 17% while building space has increased by 2 million square feet (6%)

2011: Established a goal to reduce scope 1 and 2 GHGs by 25% by 2025 below a 2006 baseline

2018: Approved an expansion of the CPP that will get U-M halfway toward its 2025 goal

2019: Signed agreement for 50% of purchased electricity to come from renewable resources in Michigan, which when combined with CPP expansion will achieve U-M's 2025 goal, likely in 2021

2019: President Schlissel launched the President's Commission on Carbon Neutrality (PCCN) to develop recommendations for achieving carbon neutrality.

President's Commission on Carbon Neutrality

MISSION

To contribute to a more ***sustainable and just world*** by creating approaches and solutions regarding U-M carbon emissions that are environmentally sustainable, involve the regional community, and create scalable and transferable models

Defining Carbon Neutrality

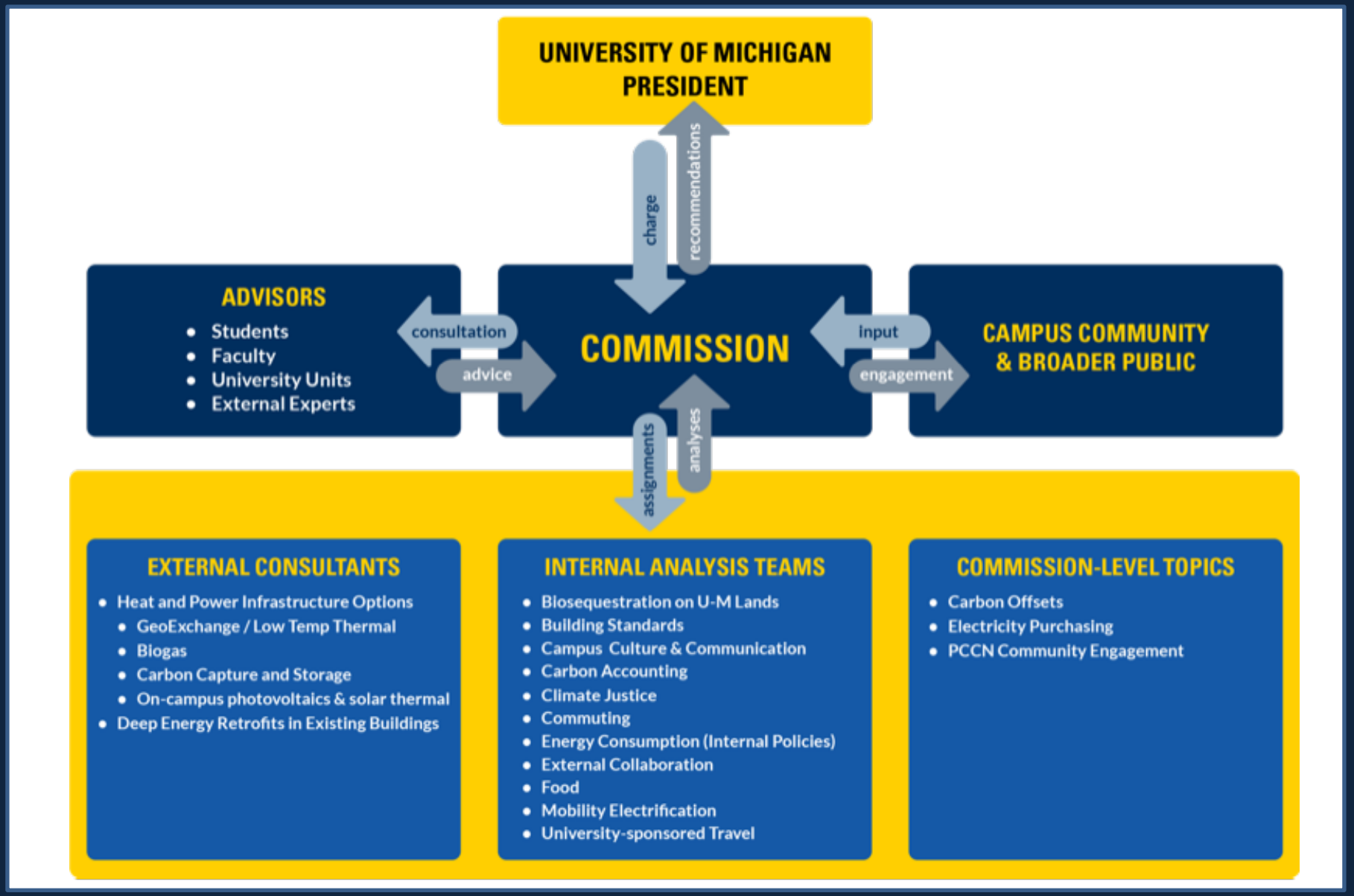
At a global level, carbon neutrality means having a balance between emitting carbon and absorbing carbon from the atmosphere in carbon sinks. At the level of an institution such as U-M, it means that all quantifiable greenhouse gas emissions (GHGs) attributable to that institution's activities are eliminated or offset by investments in carbon credits or sequestration projects.

PCCN Purpose and Objectives

Recommend to President Schlissel a plan that:

- Defines a goal for and clarify parameters of U-M carbon neutrality
- Outlines a timeline, pathway, and approaches for achieving the goal that:
  - are ***environmentally sustainable***, involve the ***regional community***, and create ***scalable and transferable*** models
  - include the participation and ***accountability*** of all members of the U-M community
  - are ***financially responsible*** in the context of U-M's mission of education, research & service

Commission Structure



Timeline

Phase One
(Feb '19 – Oct '19)

- Define the many dimensions of the challenge, and develop a structure and work plan to effectively address them
- Engage community members to educate them on the PCCN charge and to get their ideas for informing the work scope
- Secure the expertise needed to carry out robust analyses across multiple geographies and subject areas, and get that work underway
- Establish a shared baseline for understanding key issues among all commissioners, which will be critical when deliberations take place later in the PCCN process
- Draft and deliver interim progress report

Phase Two
(Nov '19 – June '20)

- Begin better defining terms embedded in the charge as they relate to each aspect of the challenge
- Continue establishing a shared baseline for understanding key issues among all commissioners
- Engage experts and key stakeholders in informing the various work streams
- Advise the many analysis teams and better understand the recommendations emerging from the various work streams
- Draft and deliver interim progress report

Phase Three
(July '20 – Feb '21)

- Deliberate extensively at the Commission level and develop a wide range of recommendations to be included in the final report
- Engage key stakeholders to better understand the impacts of potential recommendations emerging from the PCCN's work
- Draft final report and issue for public comment
- Make necessary revisions and deliver final report to President Schlissel in February 2021

Greenhouse Gas Emission Scopes

U-M's current 2025 GHG reduction goal is limited to scope 1 and 2 emissions on the Ann Arbor campus. The PCCN's recommendations extend to scope 3 emissions and include the Flint and Dearborn campuses. Emission scopes are defined as follows:

Scope 1: includes GHG emissions from sources that are owned or controlled by U-M (e.g., power plant, boilers, buses).

Scope 2: includes GHG emissions created through offsite energy production where the product (e.g., purchased electricity) is used by U-M.

Scope 3: includes all other external GHG emissions (upstream and downstream) associated with U-M's activities (e.g., commuting, university travel, purchased goods).

Emission Categories Included in PCCN Goals

U-M's Ability to Directly Influence Emission Levels

U-M's Ability to Confidently Estimate Emission Levels

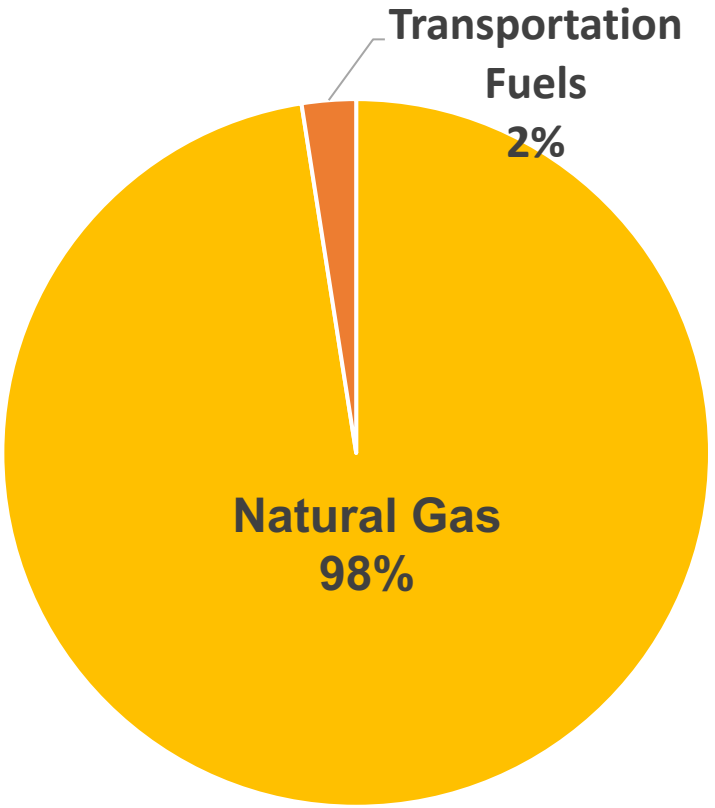
	Higher	Medium	Lower
Higher	• Central Power Plant • Boilers & Other Stationary • UM Vehicle Fleet • Maintenance Equipment	• Purchased Electricity • Waste Disposal	
Medium		• Commuting • UM-sponsored Travel • Leased Space	• Upstream (Electricity and Fuels)
Lower			• Food Purchasing • General Purchasing

Color Key: *Scope 1* *Scope 2* *Scope 3*

Guiding Principles

- Sustainable
- Equity & Justice
- Regional community involvement
- Scalable and transferable
- U-M community participation and accountability
- Financially responsible

Scope 1 Emissions (Ann Arbor only)



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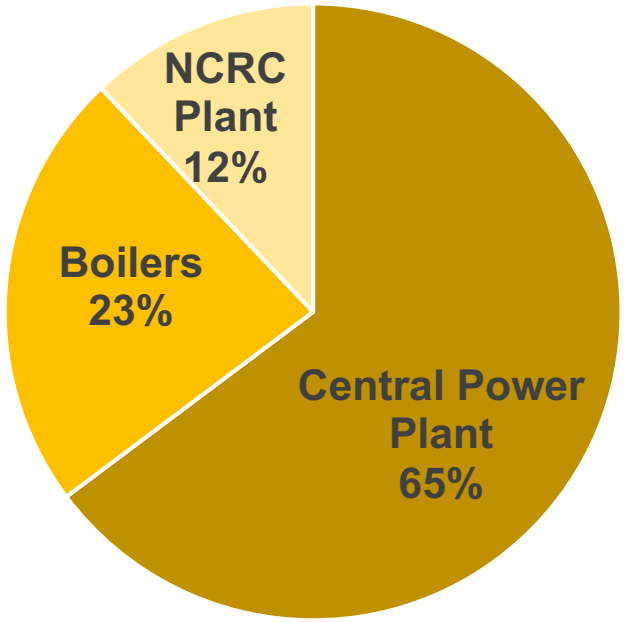
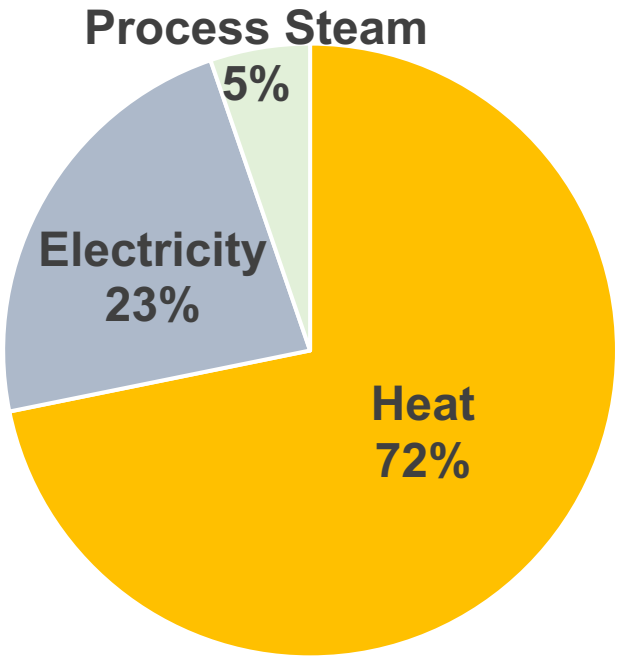
Scope 1 Natural Gas Emissions (Ann Arbor)



Source (post CPP upgrade)

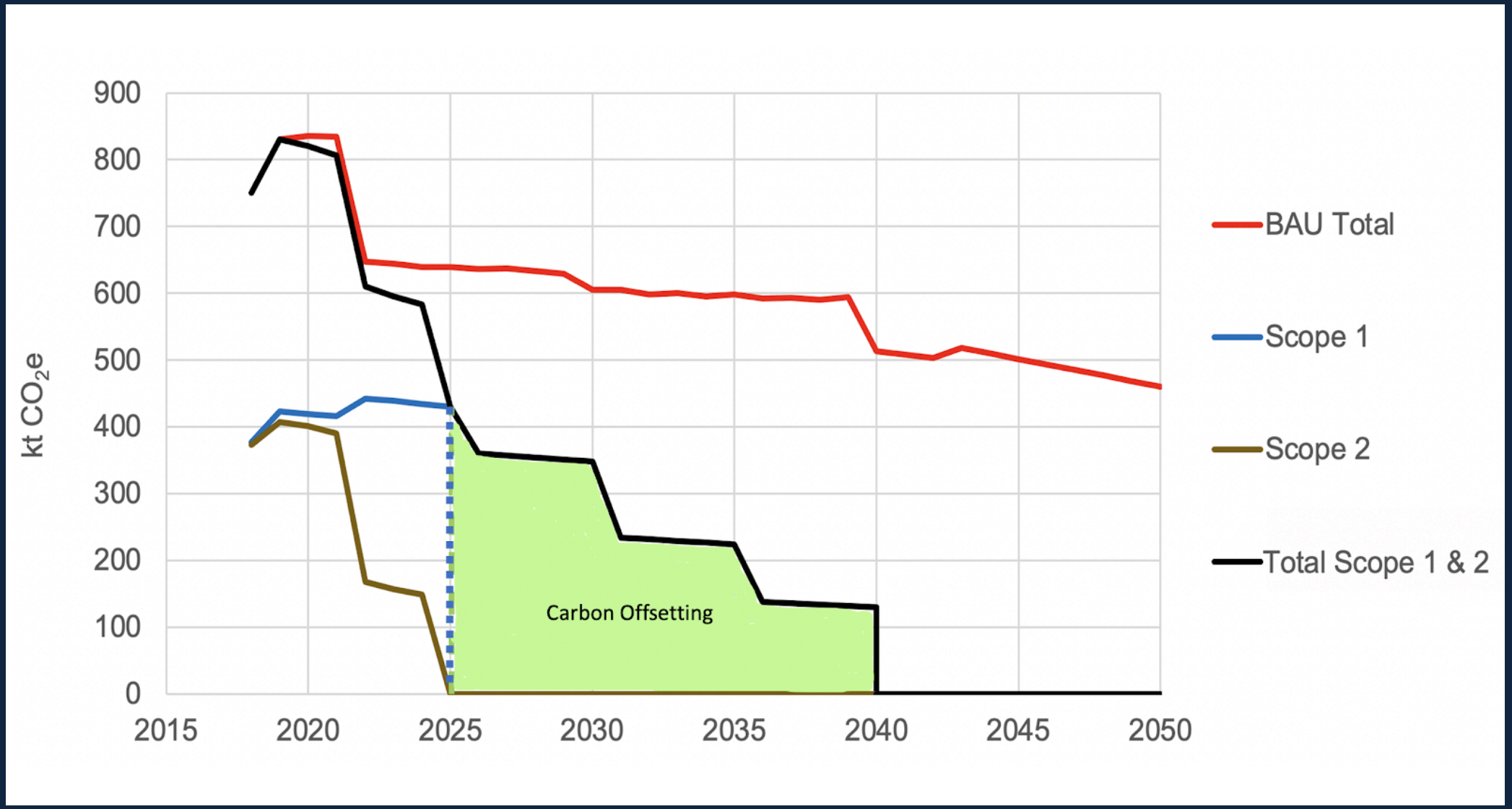


Use (post CPP upgrade)

Scope 1 and 2 Neutrality Goals – DRAFT Recommendations

Draft Recommendation
• Commit to the goal of carbon neutrality (inclusive of offsets) for Scope 1 emissions across all three campuses by 2025.
• Prioritize direct emissions reductions for Scope 1 by setting a goal of eliminating them across all three campuses by 2040, and exceeding science-based targets via direct emissions reductions (i.e., without offsets) along the way.
• Commit to carbon neutrality for Scope 2 emissions across all three campuses (i.e., Ann Arbor, Dearborn, and Flint) by 2025 or earlier.

Scope 1 and 2 Neutrality Goal Trajectory



Major Scope 1 and 2 Strategies – DRAFT Recommendations

Draft Recommendation	Financial Investment	Direct CO_2 Impact	Culture Shift
• Embark upon a phased, district-level approach to converting U-M's heating and cooling infrastructure to an electrified system centered primarily on geo-exchange with heat recovery chiller technology.	$$$$$	↓↓↓↓↓	Low
• Convert U-M's entire vehicle fleet – automobiles, trucks and buses – and all maintenance equipment to be electric-powered.	$$	↓↓	Low
• All purchased electricity for U-M's three campuses must be tied to renewable sources, which generate Renewable Energy Certificates (RECs) that are retired on U-M's behalf and are not double-counted.	$$$	↓↓↓↓	Low
• Establish best-in-class CO_2 emissions targets across 9 building types for all new construction and major renovations.	$$$	↓↓↓	Med
• Create a Revolving Energy Fund on each of U-M's three campuses.	$	↓↓↓	Med
• Establish a carbon pricing system at the unit level across U-M where the revenue funds new energy conservation measures.	$	↓	High

Scope 3 Neutrality Goals – DRAFT Recommendations

Draft Recommendation
• By no later than 2025, set carbon neutrality goal dates for each of the Scope 3 categories recommended for inclusion by the Commission, recognizing that goal dates may vary by category based on U-M's ability to measure and influence the associated emissions categories. The Commission also recommends that, in 2025 and at regular subsequent intervals, U-M actively consider including additional Scope 3 categories in its goals, if the University can accurately measure and reasonably influence emissions in that category.
• In setting carbon neutrality goal dates for Scope 3 emission categories, establish targets (inclusive of offsets as needed) that are more aggressive than science-based targets and reach neutrality no later than 2040.

Major Scope 3 Strategies – DRAFT Recommendations

Draft Recommendation	Financial Investment	Direct CO_2 Impact	Culture Shift
• Reform parking policy on each of U-M's three campuses and reduce or eliminate incentives for personal vehicle commuting.	$	↓↓	High
• Embrace flexible telecommuting options for employees and promote video conferencing as an alternative to in-person meetings/travel.	$	↓↓	High
• Strive to meet additional space needs through better utilization of permanent space and leased spaces that are intentionally designed as flexible co-working facilities for staff across multiple units who, for example, telecommute three or more days per week.	$	↓↓	High
• Implement an internal carbon price for faculty, staff and students who travel on University business, with the revenue being used to support the reduction or offsetting of U-M emissions.	$	↓	High
• Pursue plant-forward food procurement and consumer diets across all three U-M campuses.	$	↓↓	High

Organizational & Cultural DRAFT Recommendations

Draft Recommendation	Financial Investment	Direct CO_2 Impact	Culture Shift
• Institutionalize U-M's commitment to carbon neutrality by providing the necessary leadership and organizational support to achieve its goals. This includes implementing mechanisms to integrate responsibility and accountability at the unit level throughout the university and creating a position that reports to the President and that assists and advises in managing U-M's drive to carbon neutrality.	$$	n/a	High
• Invest significantly in and promote carbon neutrality research at U-M.	$$	n/a	Med
• Expand and prioritize carbon neutrality curriculum, training and literacy programs to all UM community members across all three campuses.	$	n/a	High
• Expand living-learning lab initiatives focused on carbon neutrality across all three U-M campuses.	$$	n/a	High
• Conduct targeted stakeholder mapping around carbon neutrality, pursue intentional external engagement, and expand opportunities for input.	$	n/a	Med

What is a Carbon Offset?

Carbon offsetting occurs when an organization counter-balances its direct emissions by investing in, or purchasing credits associated with, verifiable emissions reduction or sequestration efforts somewhere on the planet.

Carbon Offsetting – DRAFT Recommendations

Draft Recommendation
• As a minimum threshold of consideration, all carbon offset investments made by U-M should be real, measurable, additional, permanent, leakage avoidant, verified, enforceable, and compliant with social and environmental safeguards.
• Clearly define and prioritize desired co-benefits criteria associated with carbon offsetting, and prioritize offset investment opportunities accordingly.
• Identify opportunities for biosequestration projects on U-M lands that have significant carbon sequestration potential, and meaningful achievements across prioritized co-benefit categories.
• Establish a standing expert committee to review the offset guidance recommended by the Commission; routinely solicit input and validation from reputable external experts and stakeholders to establish minimum requirements for offsetting Scope 1 and Scope 3 emissions; develop clear guidance on desired co-benefits criteria; and periodically issue broad calls for proposals that meet all threshold requirements and address desired co-benefits criteria. This committee will advise U-M leadership annually on our ability to use offsets to meet or surpass existing carbon neutrality goals. It will also monitor developments in this rapidly-evolving field and advise of emerging opportunities for U-M to lead regionally and nationally in this area.

U-M PCCN Draft Recommendations & Public Comment Portal

The PCCN's Draft Recommendations

The draft recommendations are available at:
http://sustainability.umich.edu/media/files/pccn/pccn_draft_final_report.pdf

PCCN Public Comment Portal

The public comment portal is open through January 26, 2021. Submit a comment at:
http://sustainability.umich.edu/carbonneutrality/comments

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