



UNIVERSITY *of*
DENVER

Accelerating our Campus Climate Commitment

Reaching Carbon Neutrality by 2030

Chad King, PhD, Executive Director of Sustainability

Why Carbon Neutrality?

- Define a bold sustainable future
- Provide a holistic student experience, build future leaders
- Address justice and equity
- Engaged research
- Build on academic strengths
- Highlight distinctive programs centering DU as a regional leader, innovator, knowledge hub
- Attract the best faculty, staff and students



Climate change
widespread, rapid, and
intensifying – IPCC

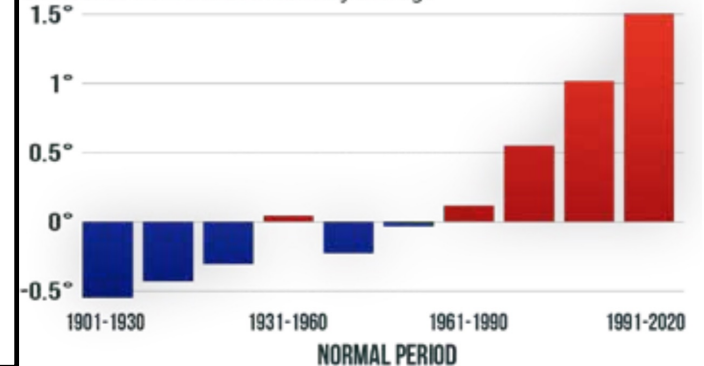


“Stabilizing the climate will
require strong, rapid, and
sustained reductions in
greenhouse gas emissions,
and reaching net zero
CO2 emissions.”

[IPCC co-chair, Panmao Xhai](#)

DENVER WARMING IS THE NEW NORMAL

Difference from the 20th century average



Difference in each 30-year NOAA/NCDC climate normal from the 20th-century average
Source: NOAA's nClimGrid Monthly dataset.

CLIMATE CENTRAL



(credit: CBS)



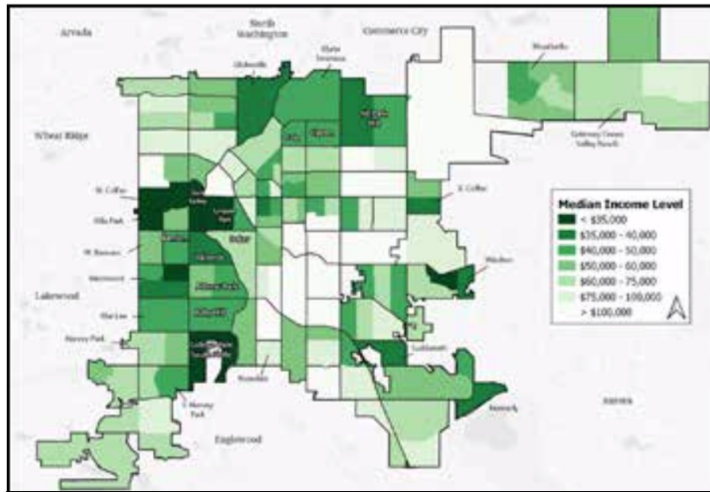
Denver records worst air quality in the world as western
wildfires continue to blaze

Residents warned to wear a mask outdoors, avoid exercise, close windows and turn on air purifiers

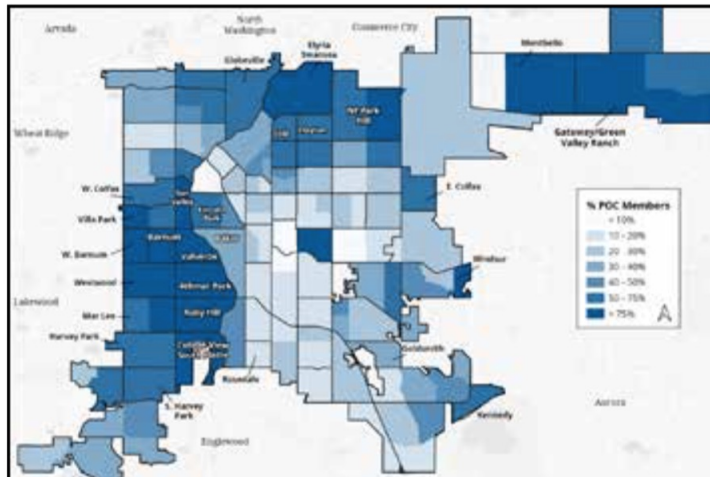


Building Electrification is “not just a
technological solution to climate... [it] works at
the intersection of environmental, economic,
and social justice.”

—Emerald Cities Collaborative and NAACP, as part of the
Building Electrification Equity Project



Median income level in Denver

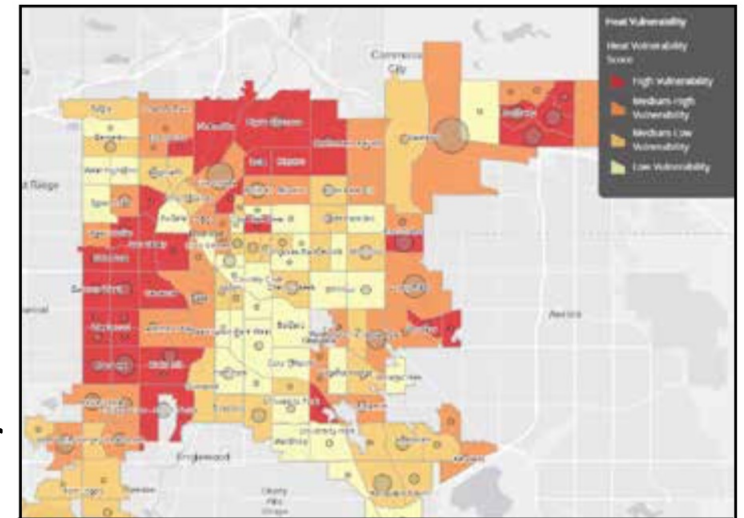


Percent POC population in Denver

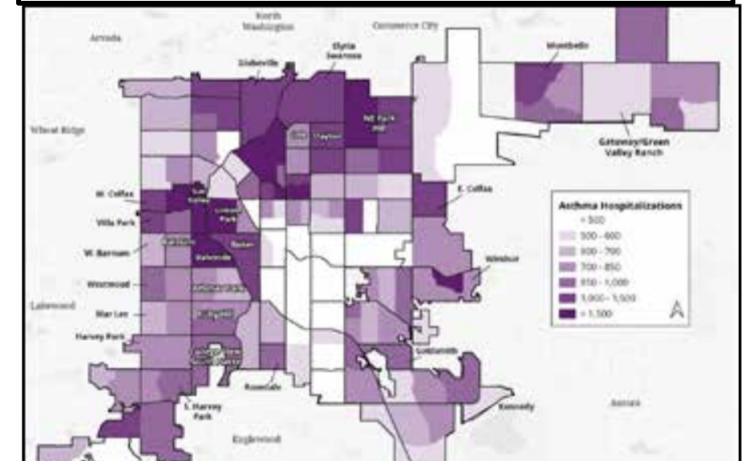
Global and Local Equity:

Climate and air quality is an equity and justice issue in Denver

From the Energize Denver
Renewable Heating and Cooling
Plan



Heat vulnerability in Denver



Asthma hospitalizations in Denver

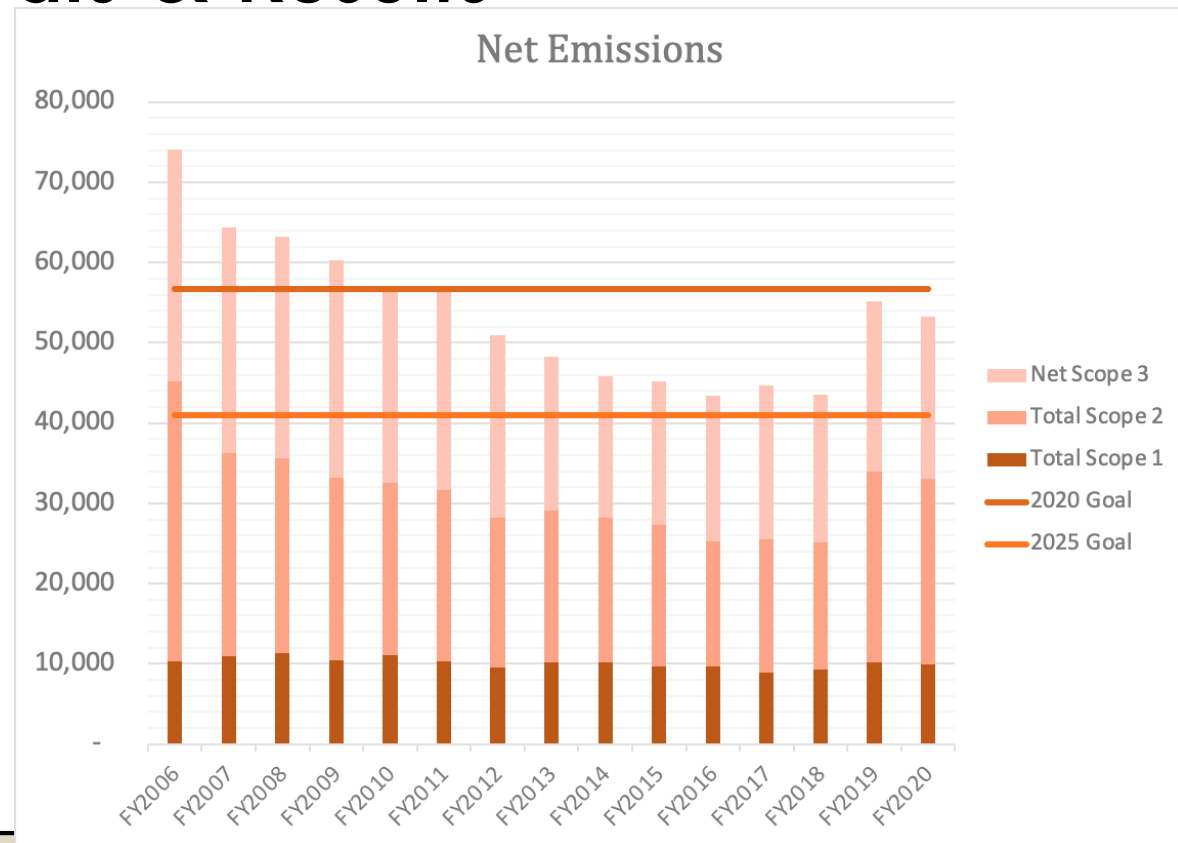
DU Sustainability Goals & Results

- Carbon Neutrality by 2050

- ✓ 24% reduction by 2020
 - 45% reduction by 2025
 - *Baseline year 2006*

- ✓ 5% on-site renewable by 2025

- Energy conservation projects with 5-yr payback
- Reduction of 500,000kWh annually



Campus carbon footprint has been reduced by 28%, over 2006 baseline. This results in exceeding the 2020 goal by 4%, and needing an additional reduction by 17% to meet the 2045 goal. No offsets or RECs were purchased in FY2019 and FY2020, illustrated by an increase in scope 2 emissions.

Carbon Neutrality by 2030

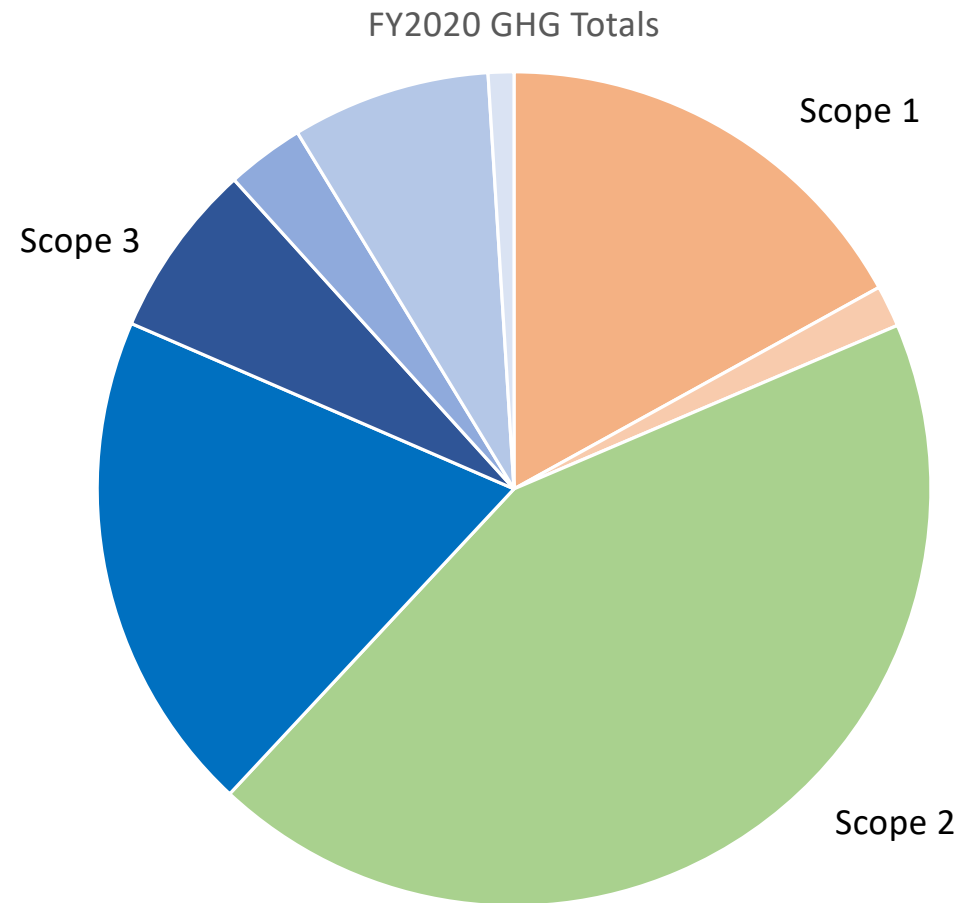
How do we get there?



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What are DU's carbon emissions?

- Scope 1: Direct emissions that occur on campus
 - Fertilizer
 - Natural gas heating
 - Fleet fuel
- Scope 2: Emissions as a result of directly purchased energy
 - Purchased electricity
- Scope 3: Emissions attributed to doing business, that aren't necessarily directly controlled by the University
 - Wastewater, paper purchases, landfill, commuting, travel, study abroad



■ Natural gas	■ Other scope 1	■ Purchased Electricity
■ Directly Financed Air Travel	■ Study Abroad	■ Other scope 3
■ Faculty Staff Commuting	■ Student Commuting	

How do we reach carbon neutrality?

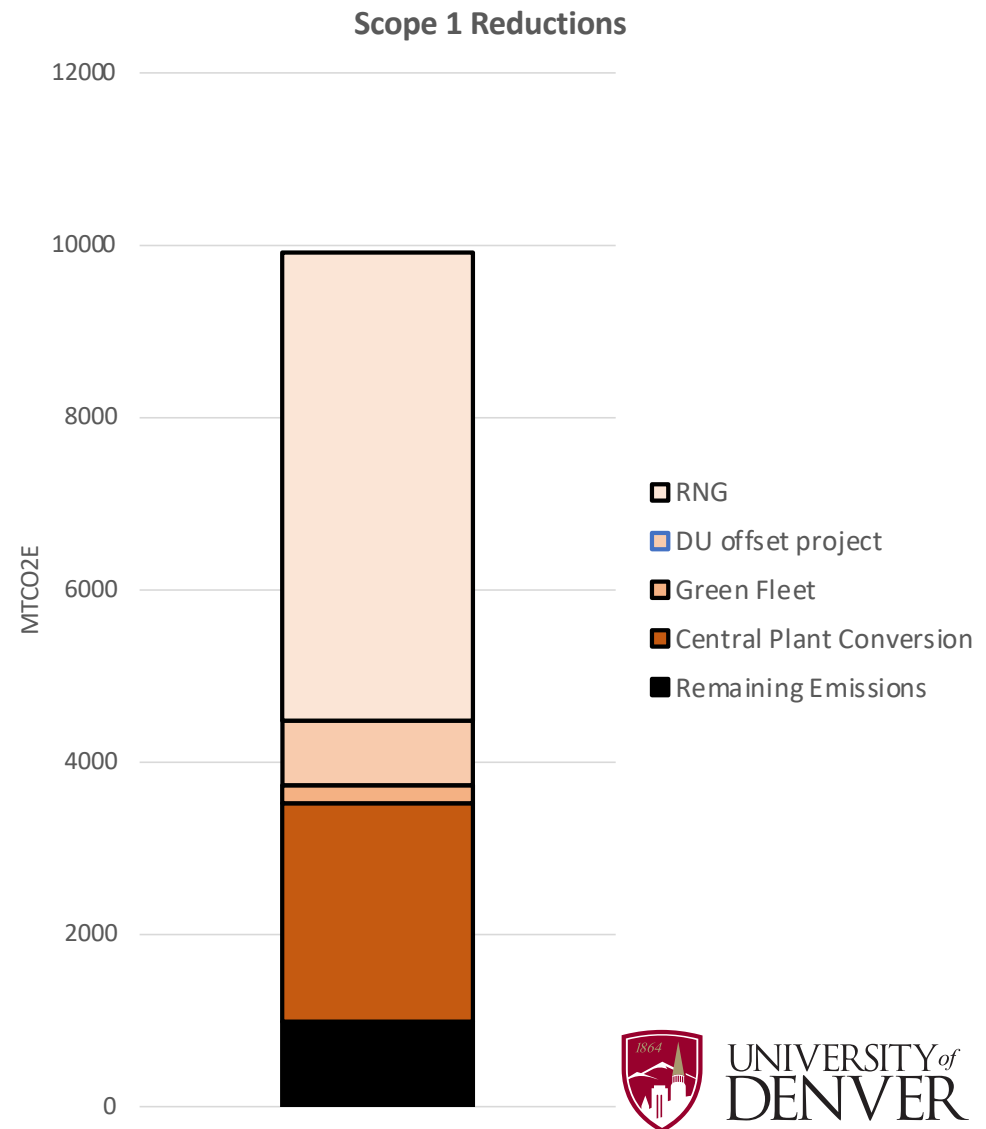
How does this impact all of us?

How do we link to our academic mission?

Reducing direct emissions that happen on our campus

Scope 1 Actions

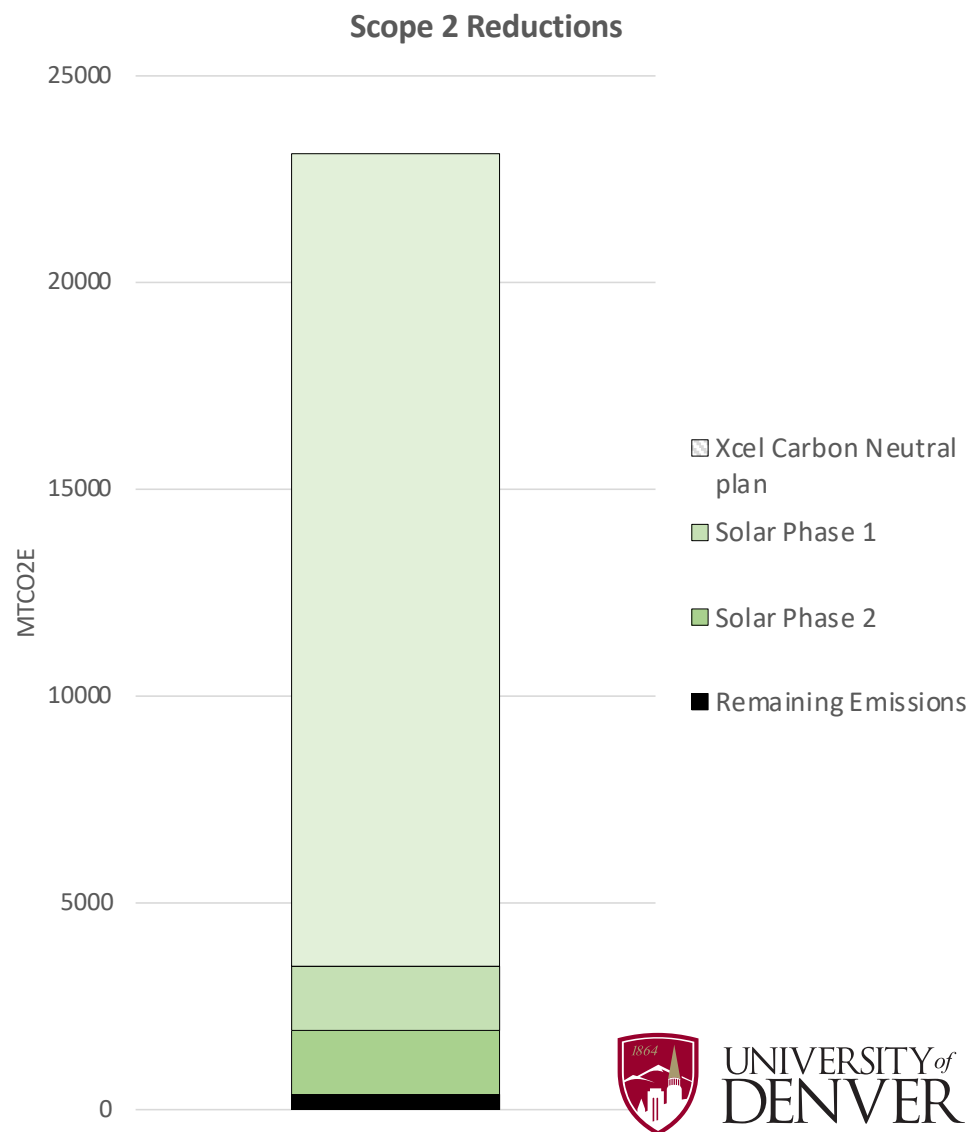
- Natural Gas to Electric Heating Shift
 - Central plant conversion
 - Remaining Building Conversions
- Renewable Natural Gas
- Electrifying our fleet
- Development of carbon offset program



Reducing emissions from purchased electricity

Scope 2 Actions

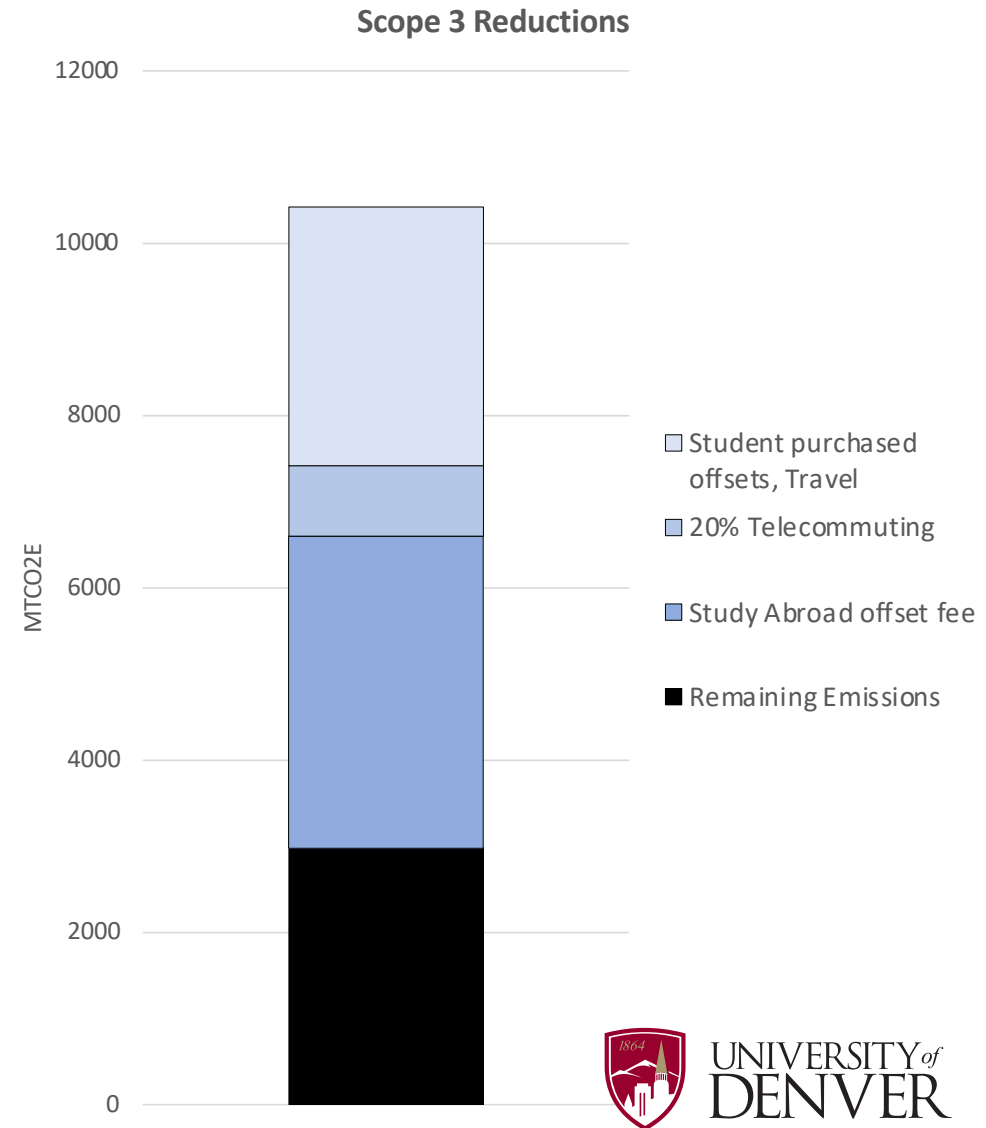
- Xcel electricity to be 85% renewably sourced by 2030
- Solar Phase 1 operational 1/1/21
- Solar Phase 2, sloped roofs, surface and garage parking
- Efficiency reductions



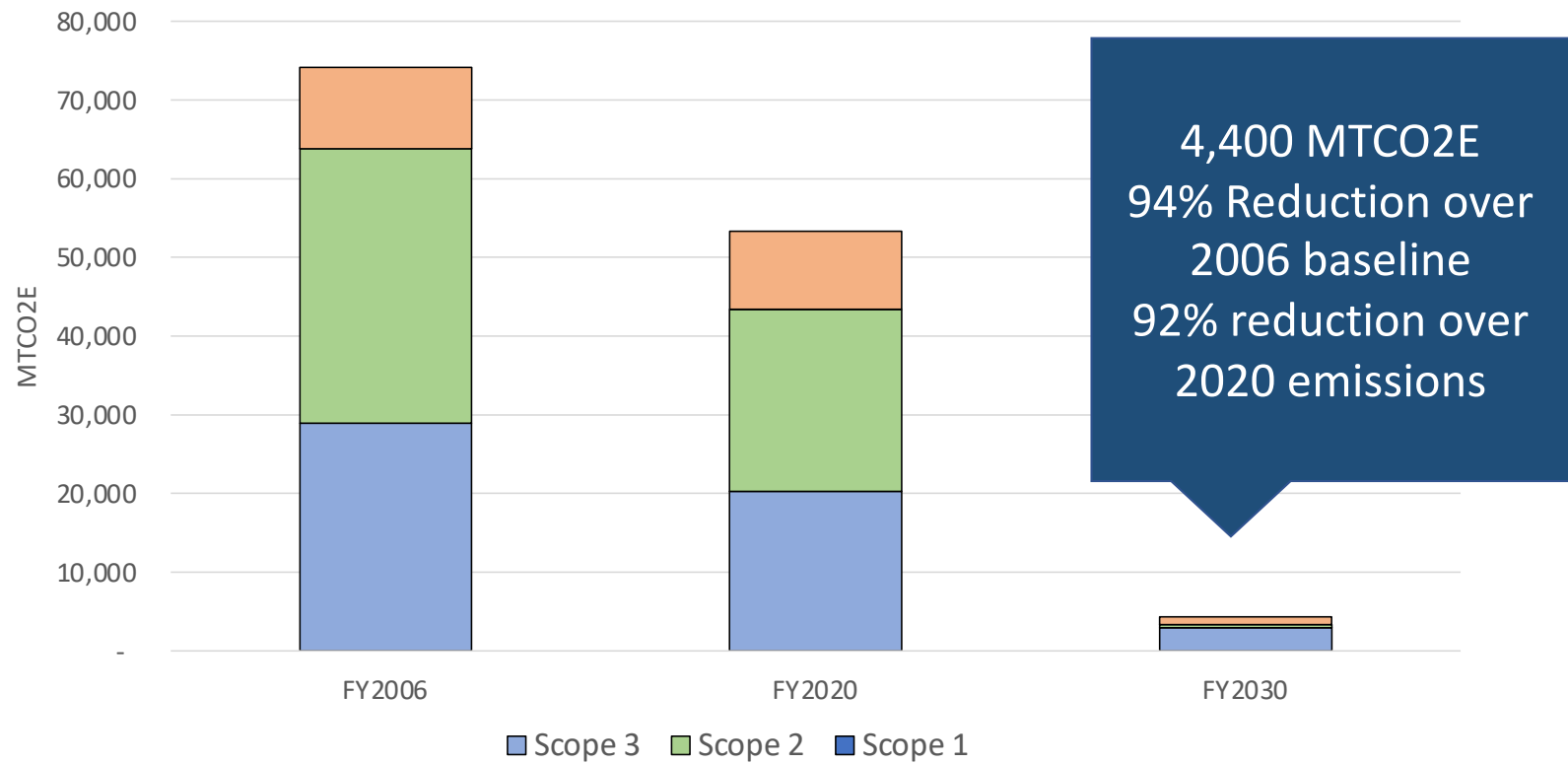
Reducing emissions from standard business practices

Scope 3 Actions

- Add a study abroad offset fee
- Allow telecommuting 1-2 days per week where appropriate
- Student purchased offsets for travel



Potential emission reductions by FY2030



Carbon Offsets: Offsetting the unavoidable

- Market-based purchases of credits from new or additional renewable energy, carbon capture or emission avoidance projects
- Self-developed options: home energy efficiency, urban forestry, conservation easement, agriculture methane capture
- Third-party certified
- Current price: \$5/MT-\$15/MT

Northern Great Plains Regenerative Grazing Project^{HB}



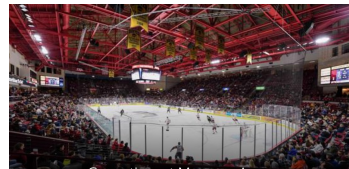
Totten Solar Project^{HB}



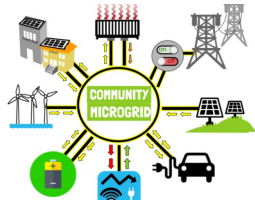
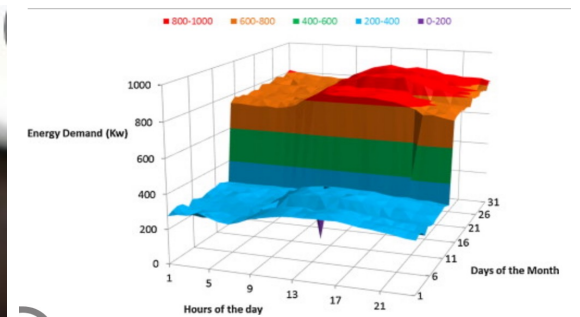
Rainier Farm Biogas Project^{HB}



Meeting the challenge will take all of us:



Research, Creative works, and Curriculum: Solving problems while developing leaders



Fight the climate crisis using GIS

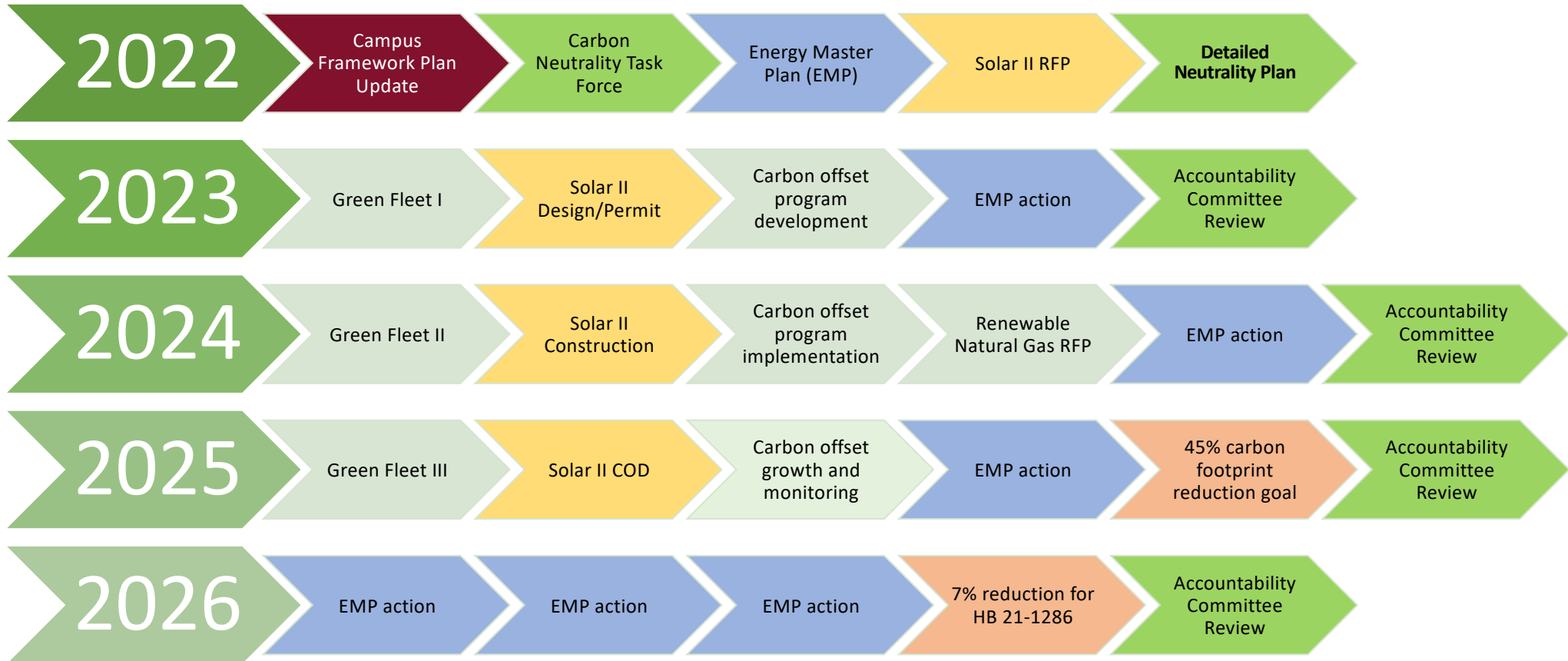
Start your climate action plan →

New legislation, plans, building code changes:

Act now or be forced to act soon

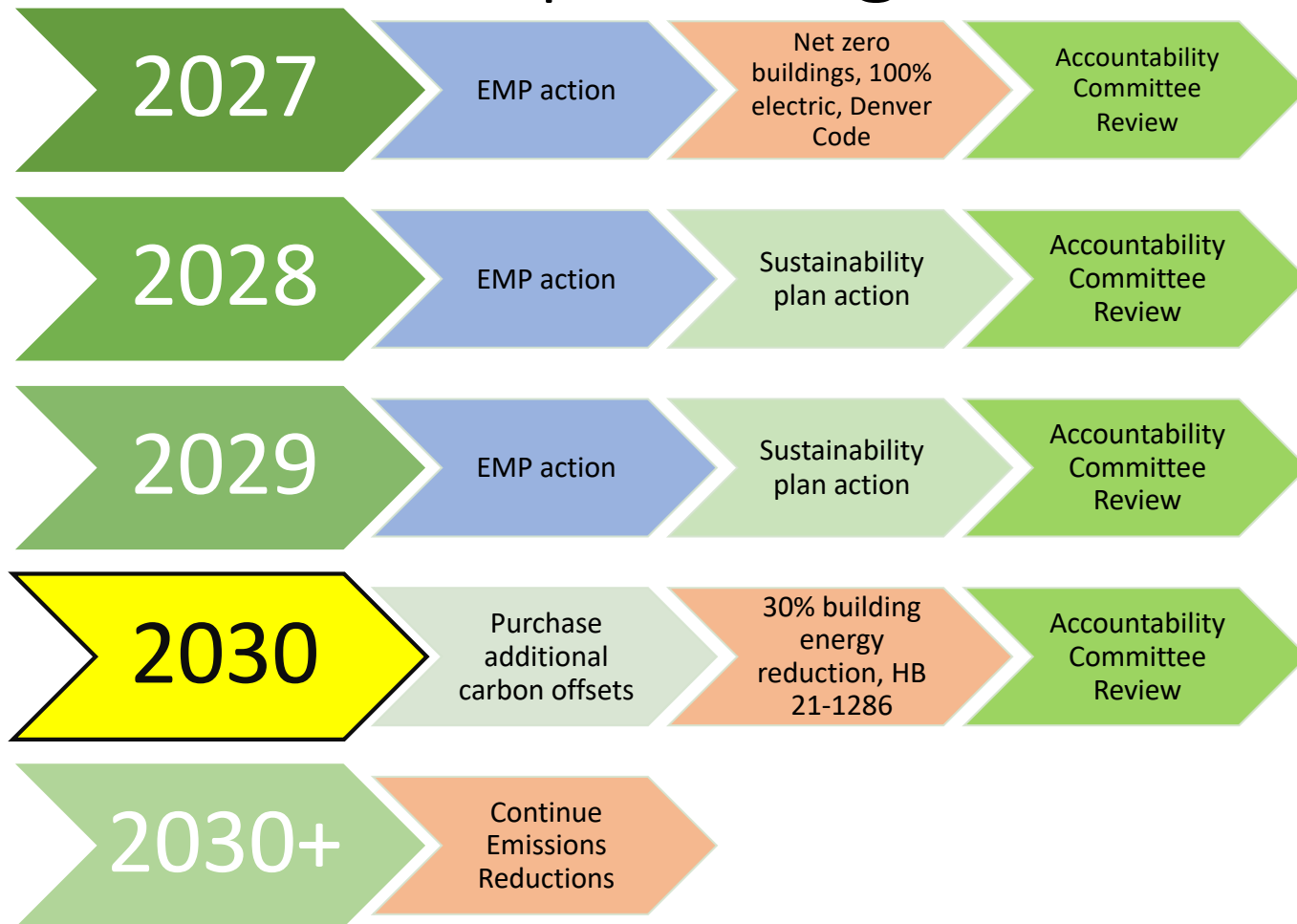
- [Xcel's Colorado Carbon reduction plan](#)
 - 80% renewably sourced electricity by 2030, 100% by 2050
- [Denver net zero energy \(NZE\) new buildings and homes implementation plan](#)
 - Net zero all electric buildings in 2027 building code
- [The Energize Denver Renewable Heating and Cooling Plan](#)
 - Preliminary plans to move heat and cool by electric
- [SB21-261](#) Public Utilities Commission Encourage Renewable Energy Generation
 - Allows increase in on site renewables as percentage of consumption
- [HB21-1286](#) Energy Performance For Buildings
 - Sets performance standards for buildings >50,000 ft²
 - 7% reduction by 2026, 20% reduction by 2030, 2021 baseline
 - Task Force nomination of James Rosner (Sep 1st selection)

Timeline, planning, benchmarks



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Timeline, planning, benchmarks



Sticky Challenges

- Internal Carbon Tax: How do we value carbon in decision making, ROI analysis, travel planning?
- Energy as a Service: Do we outsource this whole effort? Or do we build the internal expertise to support it?
- How do we prioritize funding for these efforts?
- Justice and Equity are critical frameworks for sustainability, how to we thread that through a carbon neutrality plan?

Carbon Neutrality Task Force, Timeline

- *Welcome, Introduction and Charge*, November
- *Strategies*, December
Outcome: Identify strategies that may be appropriate for DU.
- *Technology*, January
Outcome: Identify several feasible technological approaches and recommended timeline for implementation.
- *Legislation and Policy Approaches*, February
Outcome: Identify policy approaches to advance neutrality goals.
- *Neutrality in the DU context*, March
Outcome: Clear description of changes to our campus, our electrical supply, and our offset potential.
- Shared Governance Conversation: Interim discussion with Faculty Senate
- *Finalizing Recommendations*, April
Outcome: Final recommendations and timeline to achieve carbon neutrality.
- Shared Governance Conversation: Interim discussion with Faculty Senate
- Proposal to BOT Budget and Finance Committee by May

Carbon Neutrality Task Force, Expectations

- *6 meetings*
- *90 minutes each*
- *1-2 readings prior to each meeting*
- *Sub committee will draft plan/road map*
- *Review and edits to final document*
- *Coordinate two sessions with Faculty Senate*

Questions?

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