

Carbon Neutrality Plan Draft

March 9, 2021



Discussion

1. The Path to Carbon Neutrality
2. Work since the Climate Emergency Declaration passed in June 2020
3. The Carbon Neutrality Plan Draft Review
4. Scenario Review
5. Direction from the City Council



The Path to Carbon Neutrality

- Requires **bold action** and **big shifts**
- Requires sustained and focused commitment
- Requires aligning decisions through the carbon neutrality lens
- Requires re-aligning systems and revisiting existing policies
- Requires a framework for action that is constantly evolving and responding to changing conditions and **opportunities** (The Carbon Neutrality Plan)



Since the Climate Emergency Declaration was passed in June 2020...



- Conducting analysis and impact scenarios with technical experts
 - Updating strategies and actions in the Climate Action and Adaptation Plan to align with carbon neutrality by 2030, which will be incorporated in the Carbon Neutrality Plan
- Conducting community engagement
 - Since the last update to City Council in January, staff has engaged with an additional 430+ community members
 - To date staff has engaged with more than 1,760 community members
- Simultaneously working to advance climate action in existing programs

Carbon Neutrality Plan Draft Review

Flagstaff Carbon Neutrality Plan Introduction

Vision

The Flagstaff community takes ambitious action to reduce greenhouse gas emissions and build community resilience, resulting in a higher quality of life for all residents.

This transformation involves the entire community, is supported by collaborations with regional and tribal partners, and centers vulnerable communities in an equitable transition towards carbon neutrality.



Flagstaff Carbon Neutrality Plan Introduction



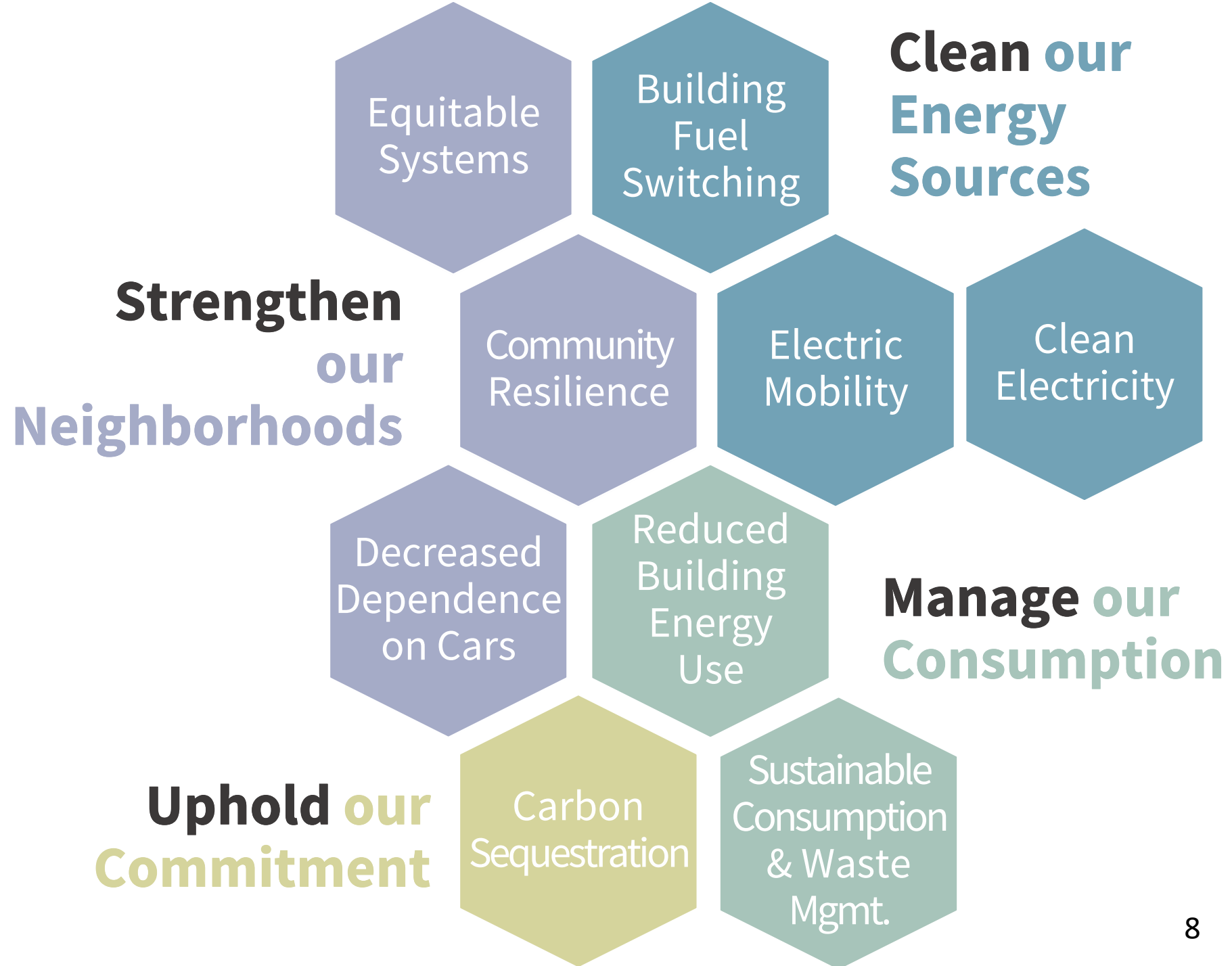
Mitigation goal:

- Achieve carbon neutrality by 2030

Adaptation and equity goals – from the 2018 Climate Action and Adaptation Plan:

- Prepare the city's communities, systems, and resources to be more resilient to climate change impacts.
- Address climate change in a manner that prioritizes those most impacted and ensures the costs and benefits of climate adaptation and mitigation are equitably distributed.

To achieve carbon neutrality, we will...



To achieve carbon neutrality, we will...



Decreased Dependence on Cars

← TARGET AREA

What this means

← FLAGSTAFF WILL...

Strategies

← BROAD STEPS FOR HOW WE'LL GET THERE.

- Identified in the Plan with a code, like *DD-2*, or *CE-3*.
- Used to provide a broad plan of action.

In the Draft Plan, each strategy is illustrated with several *opportunities for action*.

- These examples do not represent the entire spectrum of possible actions.

Decreased Dependence on Cars – continued

Strategies

- DD-3:** Create inclusive networks for walking and biking that are continuous, attractive, safe, comprehensive, and convenient for people of all ages.
- DD-4:** Encourage Flagstaff residents and visitors to walk, bike, roll and take the bus.
- DD-5:** Transform transportation policies and planning to incorporate greenhouse gas emissions analysis and reduce dependence on driving.

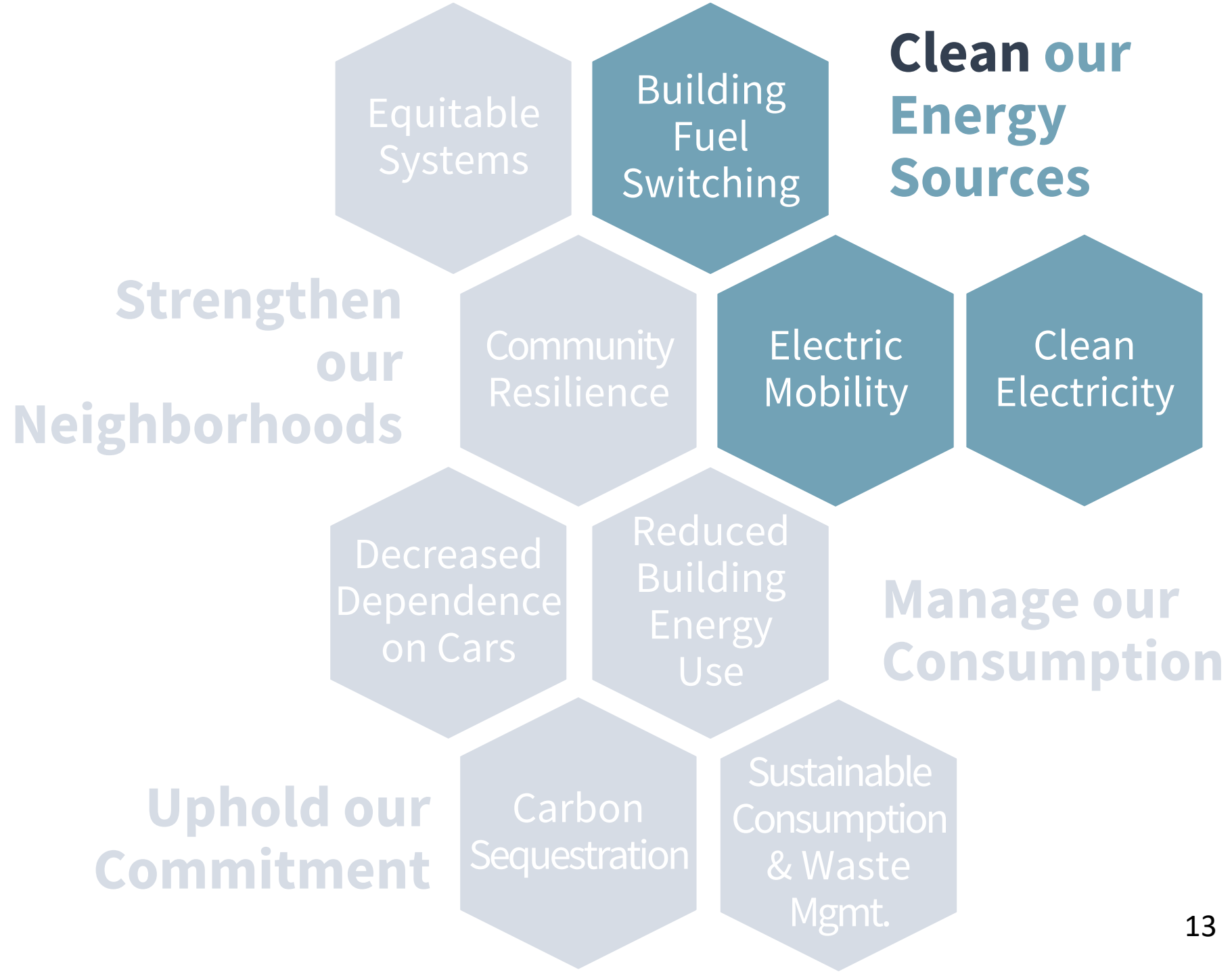
Decreased Dependence on Cars – continued

Strategies

DD-6: Support transit operations.

DD-7: Avoid Congestion Mitigation and Air Quality (CMAQ) non-attainment status.

To achieve carbon neutrality, we will...



Electric Mobility

What this means

Flagstaff will embrace the electrification of mobility options, shifting to vehicle-replacing e-bikes and bike share, electrifying our busses and taking advantage of the rapidly evolving vehicle market.

Strategies

EM-1: Electrify busses across flagstaff.

EM-2: Welcome electric micro-mobility devices as legitimate, healthy, affordable and low-carbon modes of transportation.

EM-3: Support residents, companies & institutions in the transition to electric vehicles.

Clean Electricity

What this means

Flagstaff will obtain as much of its electricity as possible from sources that do not produce greenhouse gas emissions.

Strategies

CE-1: Produce 100% renewable electricity to cover all City of Flagstaff municipal electricity needs.

CE-2: Increase renewable energy installations and usage in new buildings.

CE-3: Support solar installations on existing buildings.

Building Fuel Switching

What this means

Flagstaff will shift building fuel sources from fossil fuels to electricity enabling us to take advantage of increasingly cleaner electricity.

Strategies

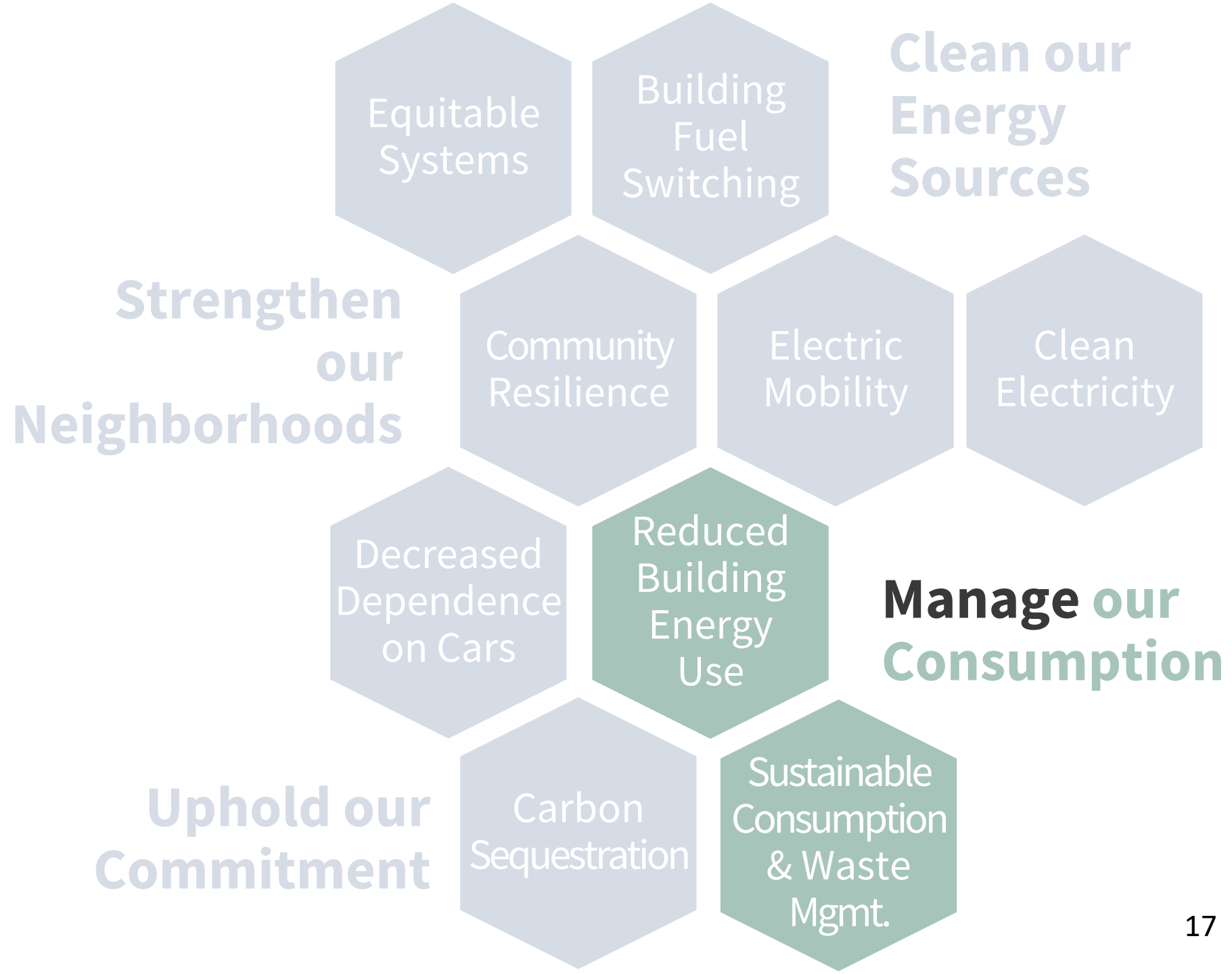
FS-1: Support fuel switching in existing buildings.

FS-2: Encourage new buildings to rely on the electric grid as their main, or only, power source.

FS-3: Reduce or remove natural gas usage in municipal buildings.

FS-4: Provide training & education on fuel switching.

To achieve carbon neutrality, we will...



Reduced Building Energy Use

What this means

Flagstaff will significantly reduce greenhouse gas emissions from heating, cooling and powering buildings.

Strategies

- BE-1:** Achieve net zero energy homes in Flagstaff.
- BE-2:** Reduce energy use in existing buildings.
- BE-3:** Achieve net zero City of Flagstaff facilities by 2030.

Sustainable Consumption and Waste Management

What this means

Flagstaff will move towards sustainable consumption, divert more materials from the landfill through reuse and recycling, and then reduce emissions from the landfill.

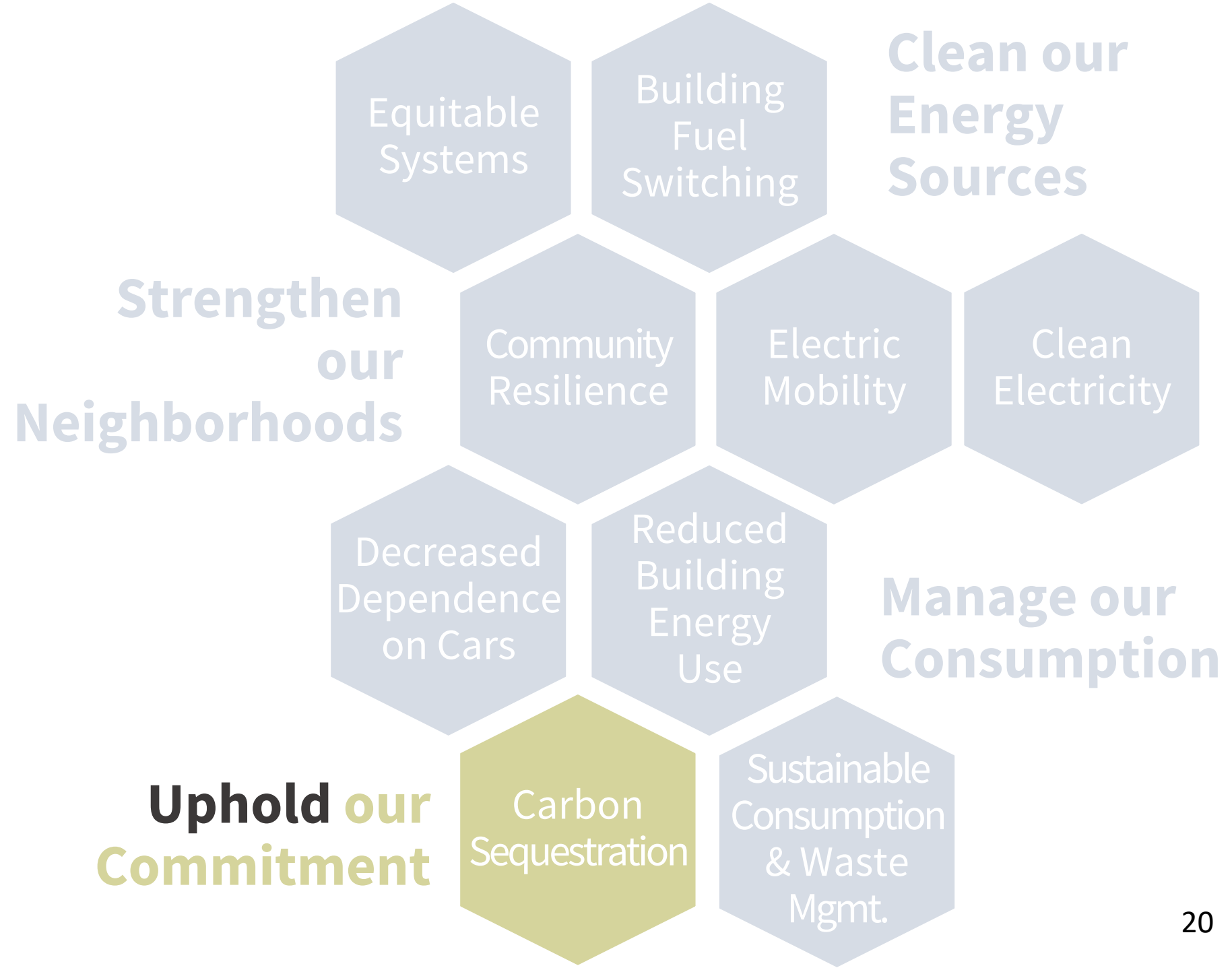
Strategies

MM-1: Manage emissions from the Cinder Lakes Landfill.

MM-2: Encourage sustainable consumption.

MM-3: Divert more waste from the landfill.

To achieve carbon neutrality, we will...



Carbon Sequestration

What this means

Flagstaff will measure the remaining community emissions not reduced through target strategies, then balancing with an equivalent amount of removal through negative emissions initiatives such as carbon sequestration.

Strategies

CS-1: Establish and support a portfolio of negative emission initiatives in Northern Arizona to handle most of Flagstaff's carbon sequestration needs.

Carbon Sequestration

Filling the gap

Carbon sequestration must be part of a carbon neutrality portfolio

- It is not realistic to achieve zero emissions by 2030 (or perhaps ever).
- Sequestration helps to 'fill the gap,' by counter-balancing our remaining emissions.

Unavoided CO2 emissions remaining

Sequestration and other negative emissions initiatives



The Path to Carbon Neutrality Scenario Review



Scenario Reduction Strategies

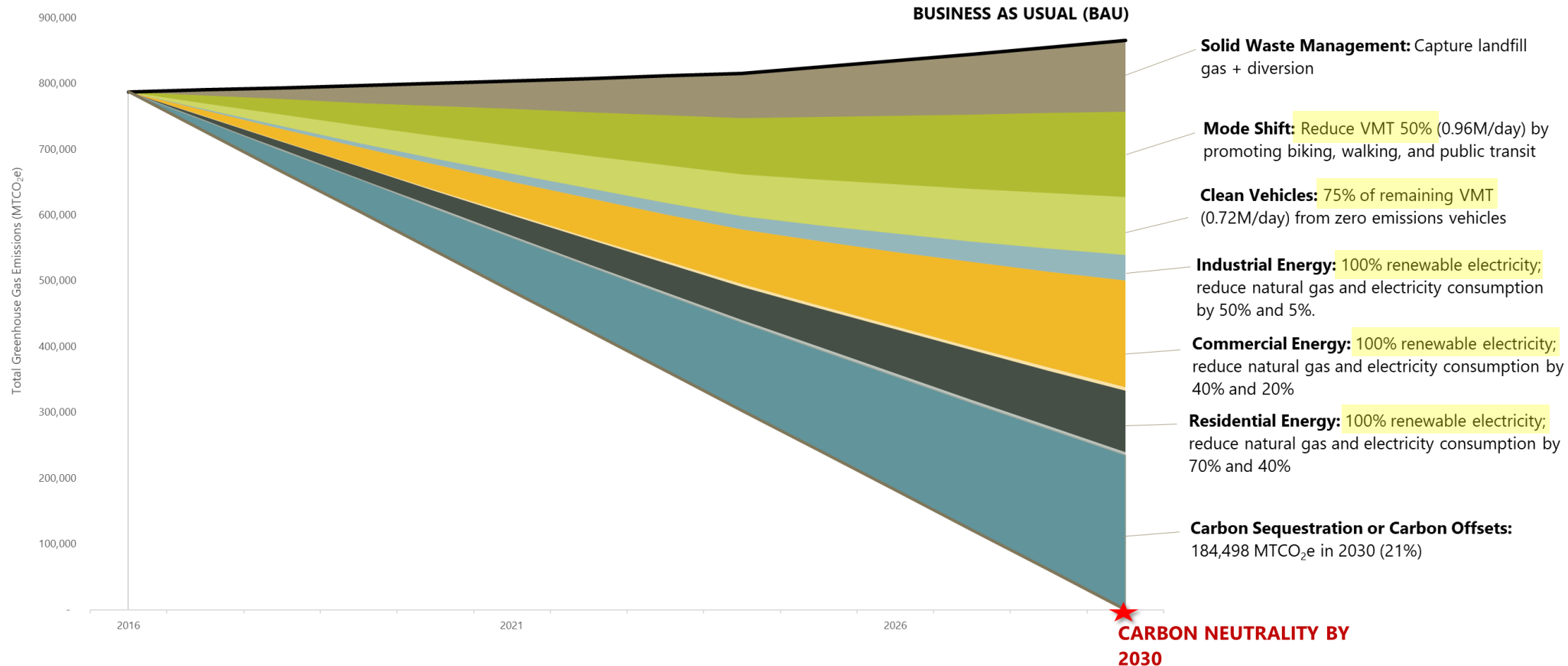


Preliminary Wedge

Building Energy 42%
 Transportation 25%
 Consumption 12%
 Sequestration 21%

Constraints

- Legislative restrictions
- APS' energy portfolio will be 65% clean by 2030
- 50% VMT reduction was not supported as being attainable

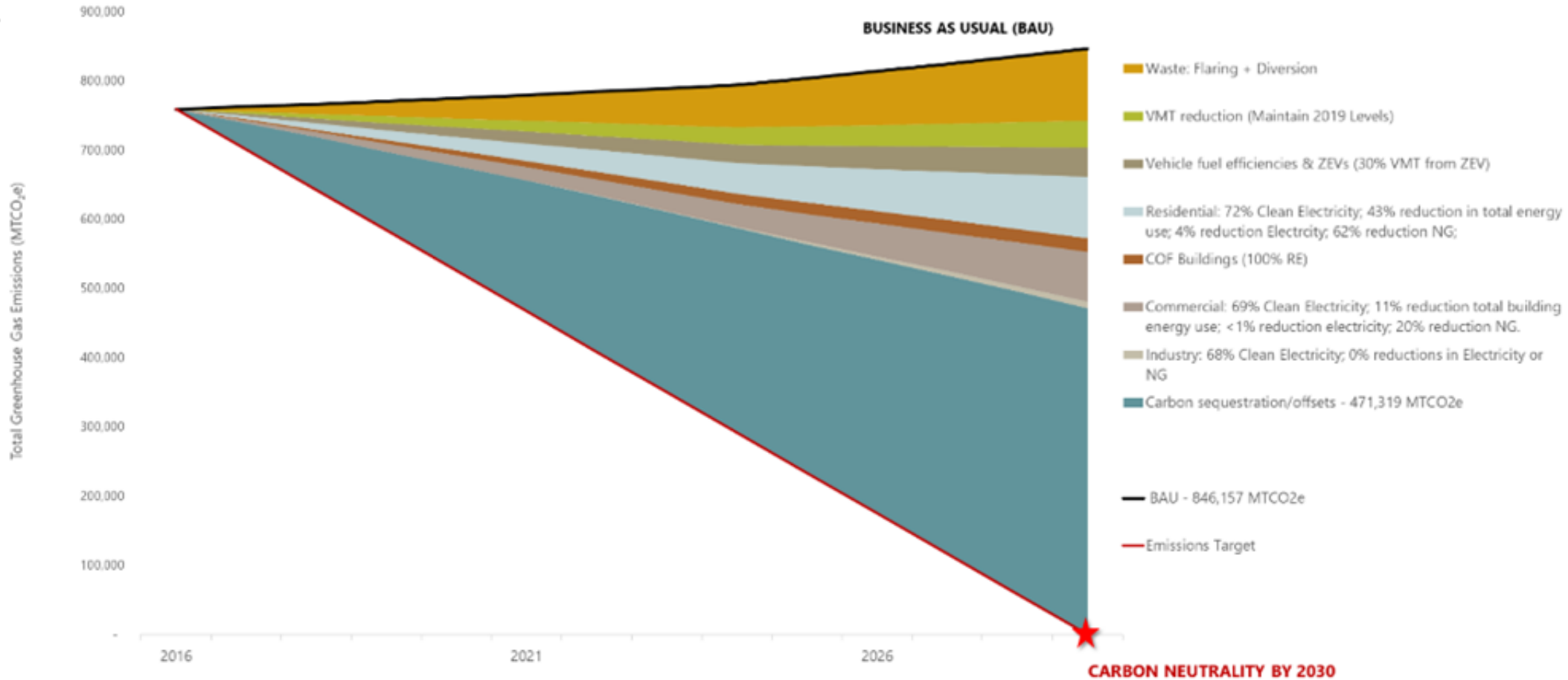




Scenario Reduction Strategies

Scenario A

Building Energy 22%
 Transportation 10%
 Consumption 12%
 Sequestration 56%



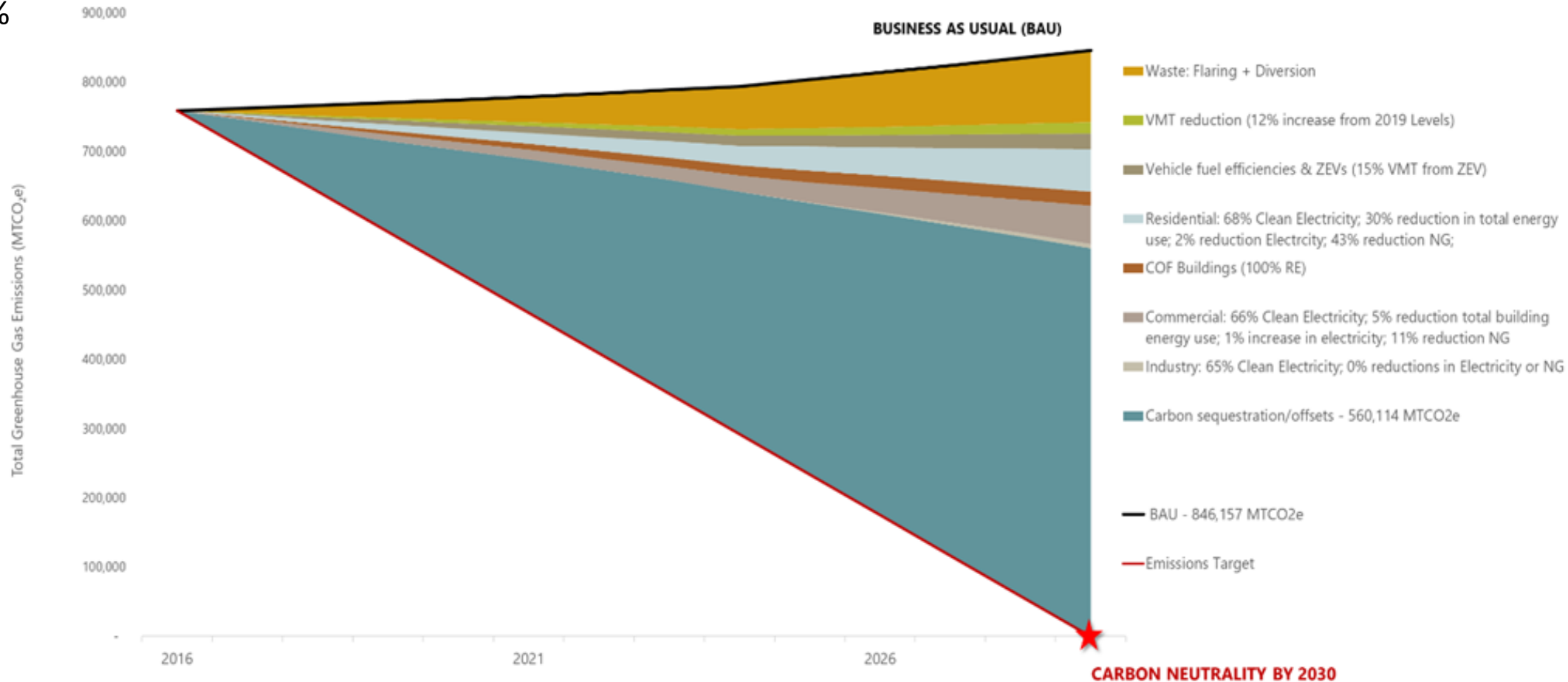


Scenario Reduction Strategies

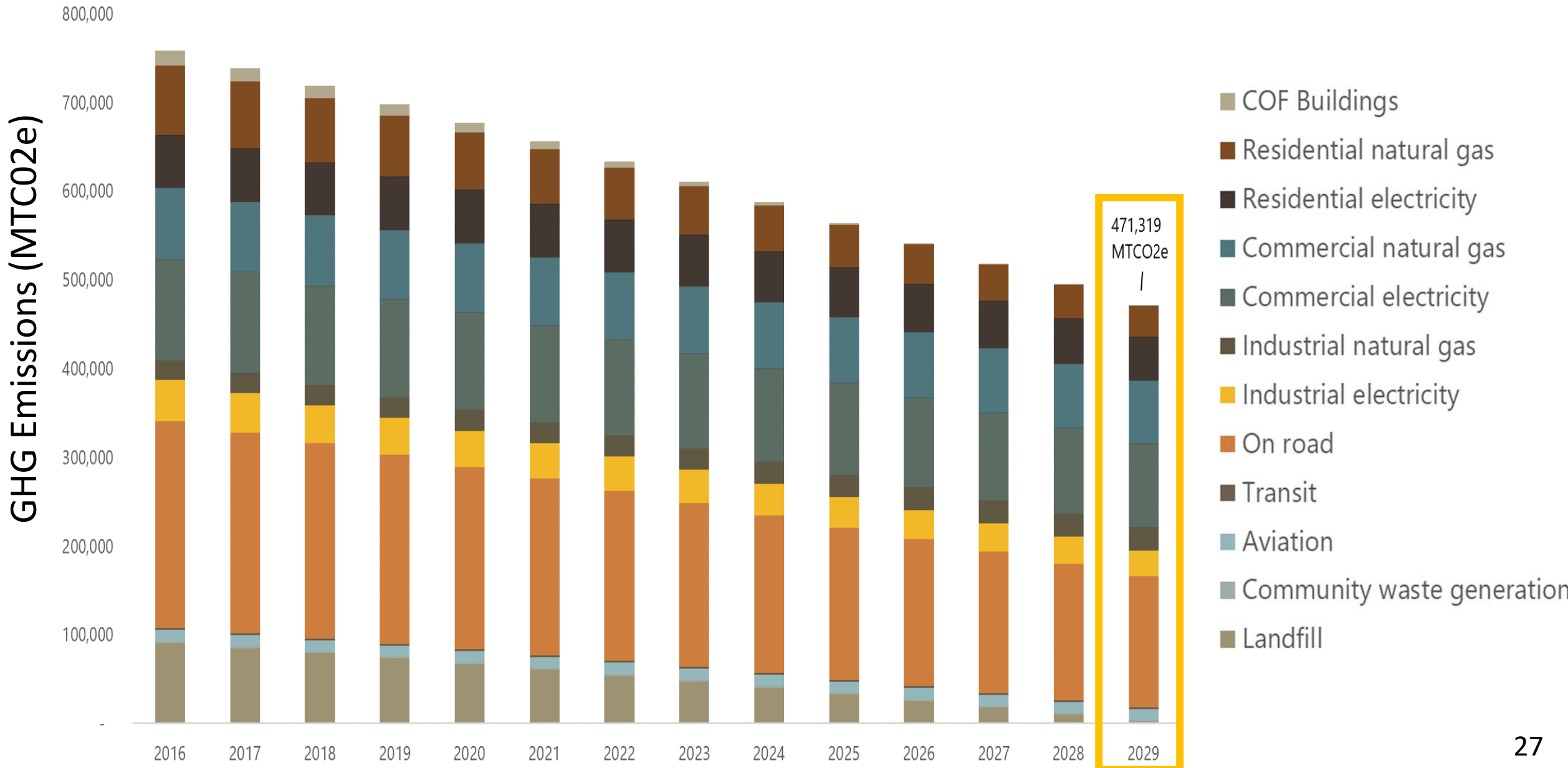


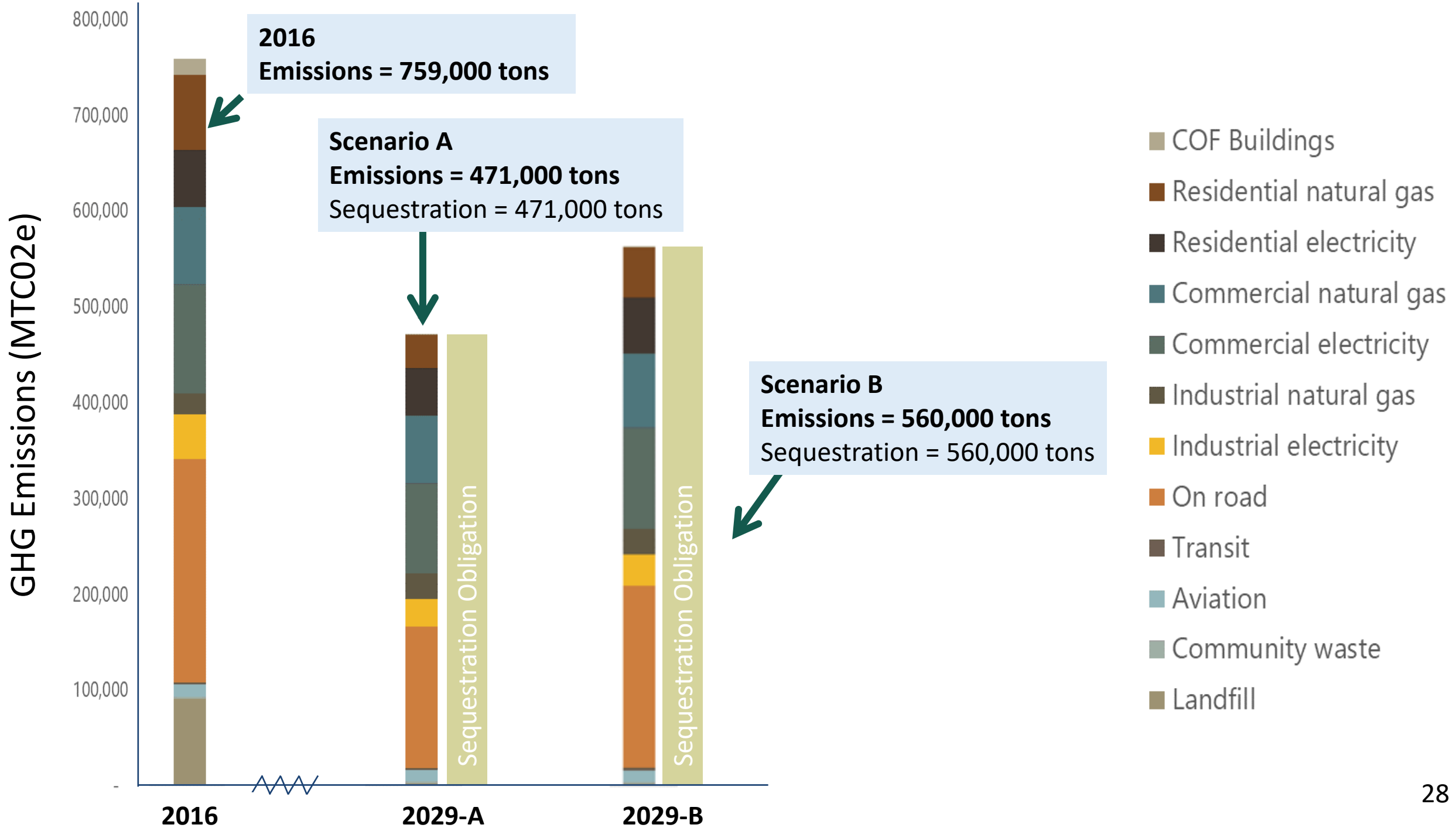
Scenario B

Building Energy 17%
 Transportation 5%
 Consumption 12%
 Sequestration 66%



GHG Emissions Trends: Modeled Scenario





Scenario example: On-road transportation

Scenario A

Scenario B

Outcome	Vehicle miles traveled (VMT) in Flagstaff	<p>1.59 million miles per day</p> <p>This would mean we held VMT at 2019 levels.</p>	<p>1.78 million miles per day</p> <p>Allow VMT to increase 12% from 2019 levels. This is a 7% reduction from expected VMT growth (business as usual).</p>
How We Get There	Residential Density	20% increase	10% increase
	Average Distance to Transit	25% decrease	12% decrease
	Status of ATMP	<ul style="list-style-type: none"> Fully funded and implemented, including portions that have yet to identify dedicated funding sources. Assumes the Primary Bikeways Network is fully in place. 	<ul style="list-style-type: none"> Adopted but not fully implemented or funded by 2030. Primary Bikeways Network still in progress.

Scenario example: Home retrofits

Scenario A

Scenario B

Outcome	Homes retrofitted by 2030	12,500 residential retrofits (~50% of existing homes)	6,250 residential retrofits (~25% of existing homes)
How We Get There	City-funded programs	4,000 retrofits will take place through a relaunched COF residential retrofit program.	2,000 retrofits will take place through a relaunched COF residential retrofit program.
	Financing assistance	Revolving loan and rebate programs.	Revolving loan and rebate programs.
	Impact gap	<p>LARGE impact gap. ~7,000 retrofits will need to happen without COF support.</p> <p>This gap will need to be filled by:</p> <ul style="list-style-type: none"> • Utility, state, Federal programs • The market • Additional support from COF • Or a combination of these options 	<p>Smaller, but still significant impact gap. ~3,000 retrofits will need to happen without COF support.</p> <p>This gap will need to be filled by:</p> <ul style="list-style-type: none"> • Utility, state, federal programs • The market • Additional support from COF • Or a combination of these options



The Path Forward

Which scenario would the Council prefer?

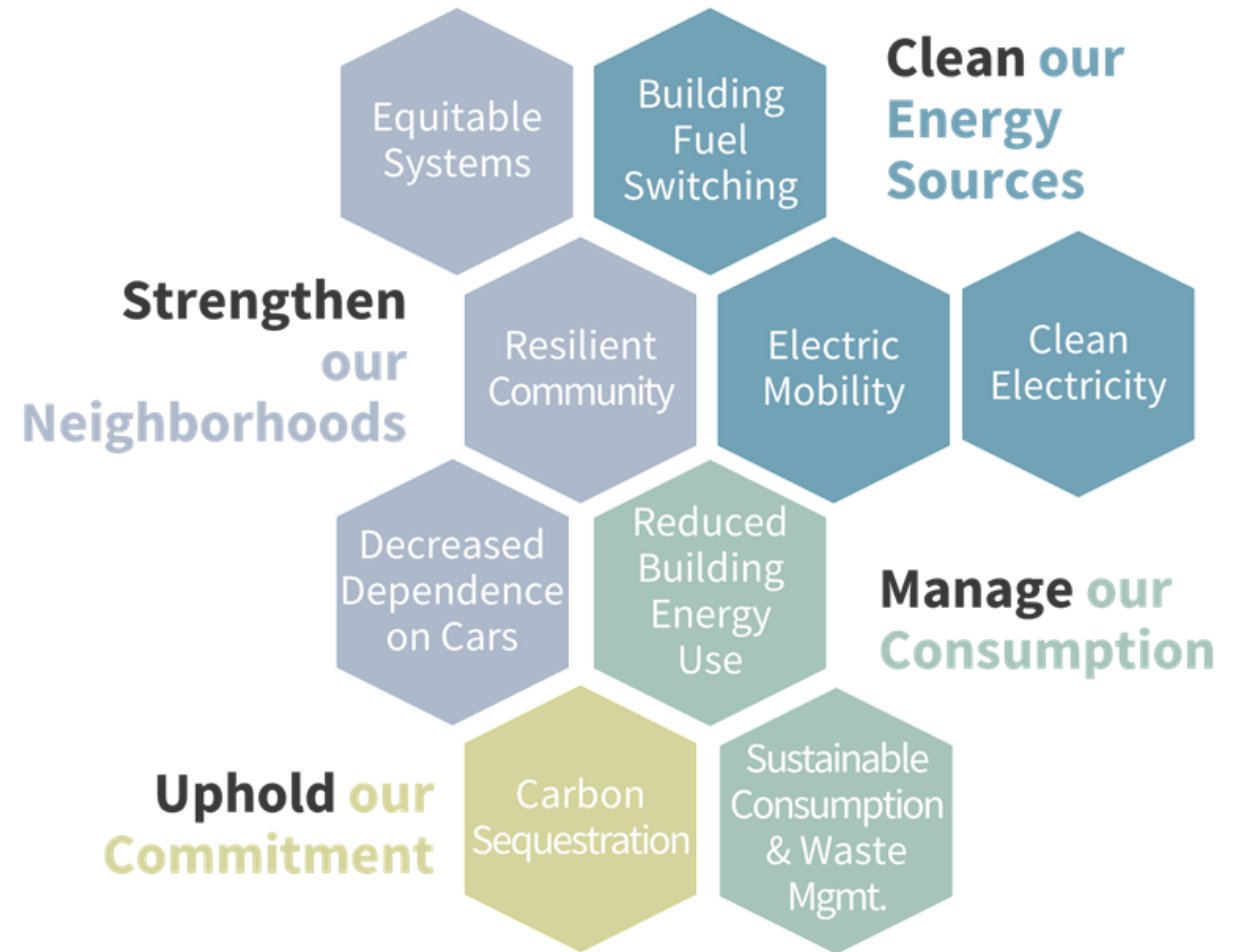
1) Scenario A reduction strategies?

Building Energy 22%	Consumption 12%
Transportation 10%	Sequestration 56%

2) Scenario B reduction strategies?

Building Energy 17%	Consumption 12%
Transportation 5%	Sequestration 66%

3) A more aggressive scenario per City Council direction?



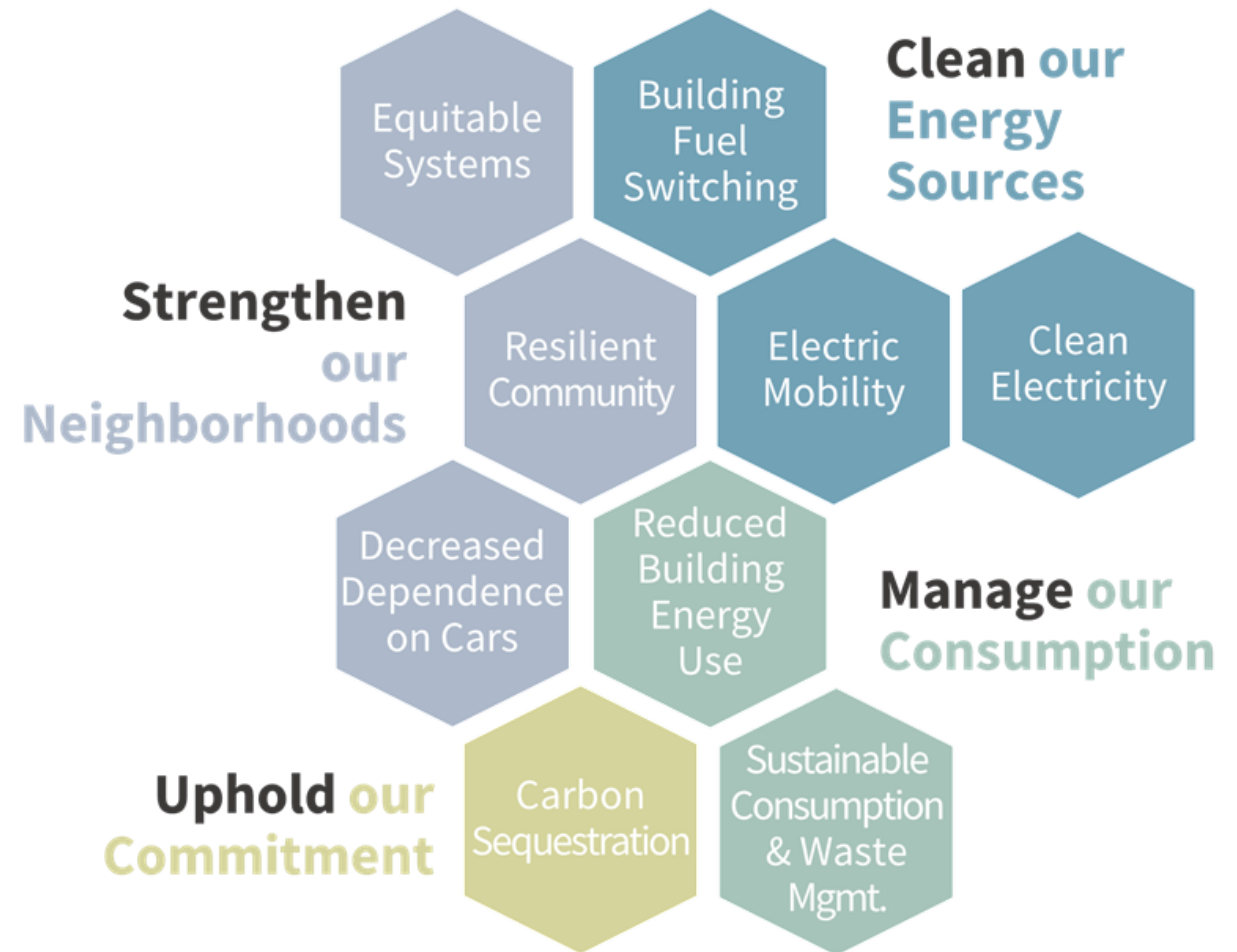


The Path Forward

1) If scenario A or B are preferred, staff will:

- a. Launch a 3rd public survey seeking input on the final plan – the survey would be open for two weeks
- b. Propose the final plan the Sustainability Commission on March 25, 2021
- c. Return to City Council April 6, 2021 for consideration of formal adoption

2) If a different scenario is preferred, staff will return to City Council to present an updated draft plan on April 6, 2021



Thank you.

