

CASR Capital Projects Briefing

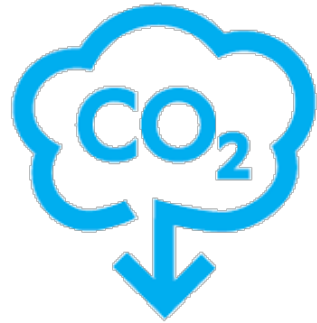
Transportation & Infrastructure (TIN) Committee

September 17, 2025

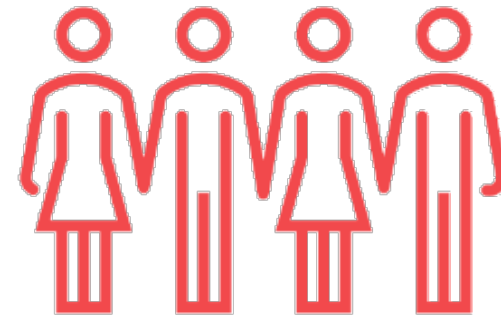
Overview

1. CASR Vision and Decarbonization Strategies
2. Deep Dive: CASR Capital Projects
3. Summary & Discussion

CASR vision: Together, we build a carbon-pollution free, sustainable, and climate-resilient Denver for all.

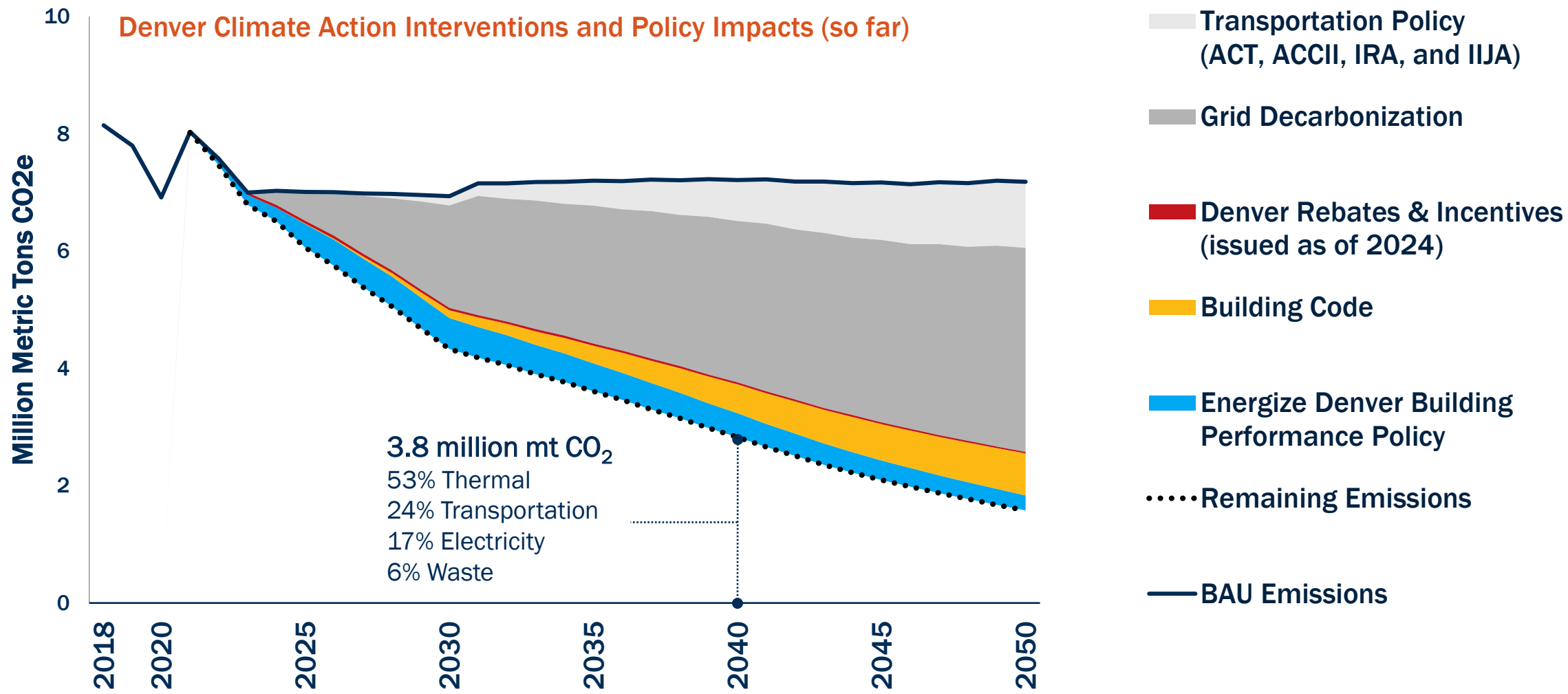


**Decarbonize Denver
as quickly as possible**



**Support climate vulnerable
communities.**

Climate Action Division: Achieve zero emissions as quickly and equitably as possible.



Climate Action Strategies



Influence \$ billions of recurring investments.
Determines the affordability, reliability, and sustainability of the built environment.

Community investment and incubation.
Demonstrates solutions in the community that the private sector can replicate.

Lead by example projects and city operations.
Shows what's possible and enables the next generation of energy infrastructure.

The actions of others determines our success.
From individuals to institutions, everyone must believe in and pursue sustainable solutions.

Deep Dive: CASR Capital Projects

Demonstrating the path to carbon-free, affordable, and reliable energy for all

CASR Capital Projects Vision & Focus Areas

Demonstrate what it will take to achieve a zero-carbon future using today's technology.

Evaluate the impacts of various technologies that can increase reliability and reduce cost over time.

Communicate those findings to enable others to act.



**Solar Generation &
Energy Storage**



**Public and Fleet EV
Charging**



Resilient City Buildings



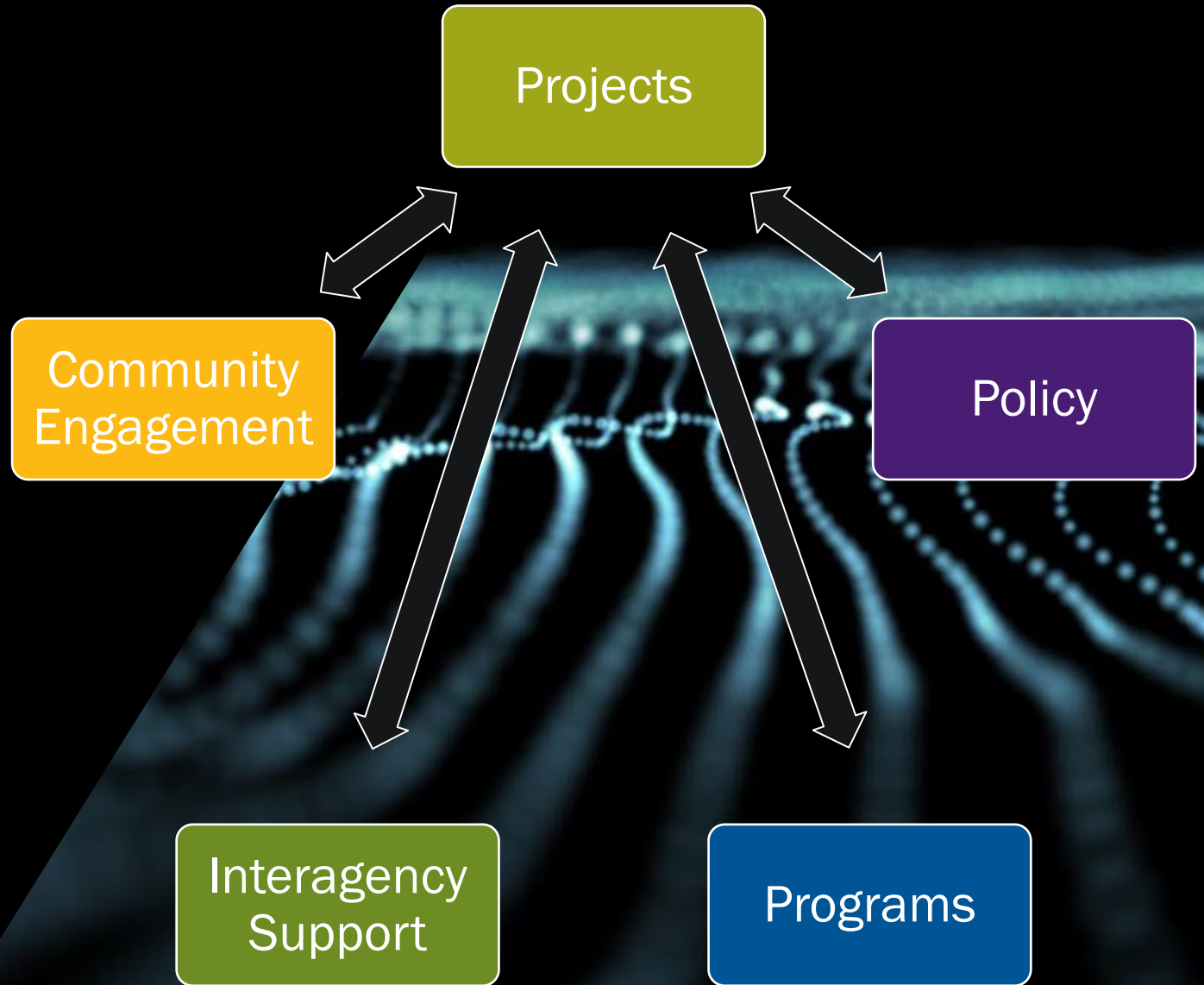
**Thermal Decarbonization &
District Energy**

**Solar Generation &
Energy Storage**

**Public and Fleet EV
Charging**

Resilient City Buildings

**Thermal Decarbonization &
District Energy**



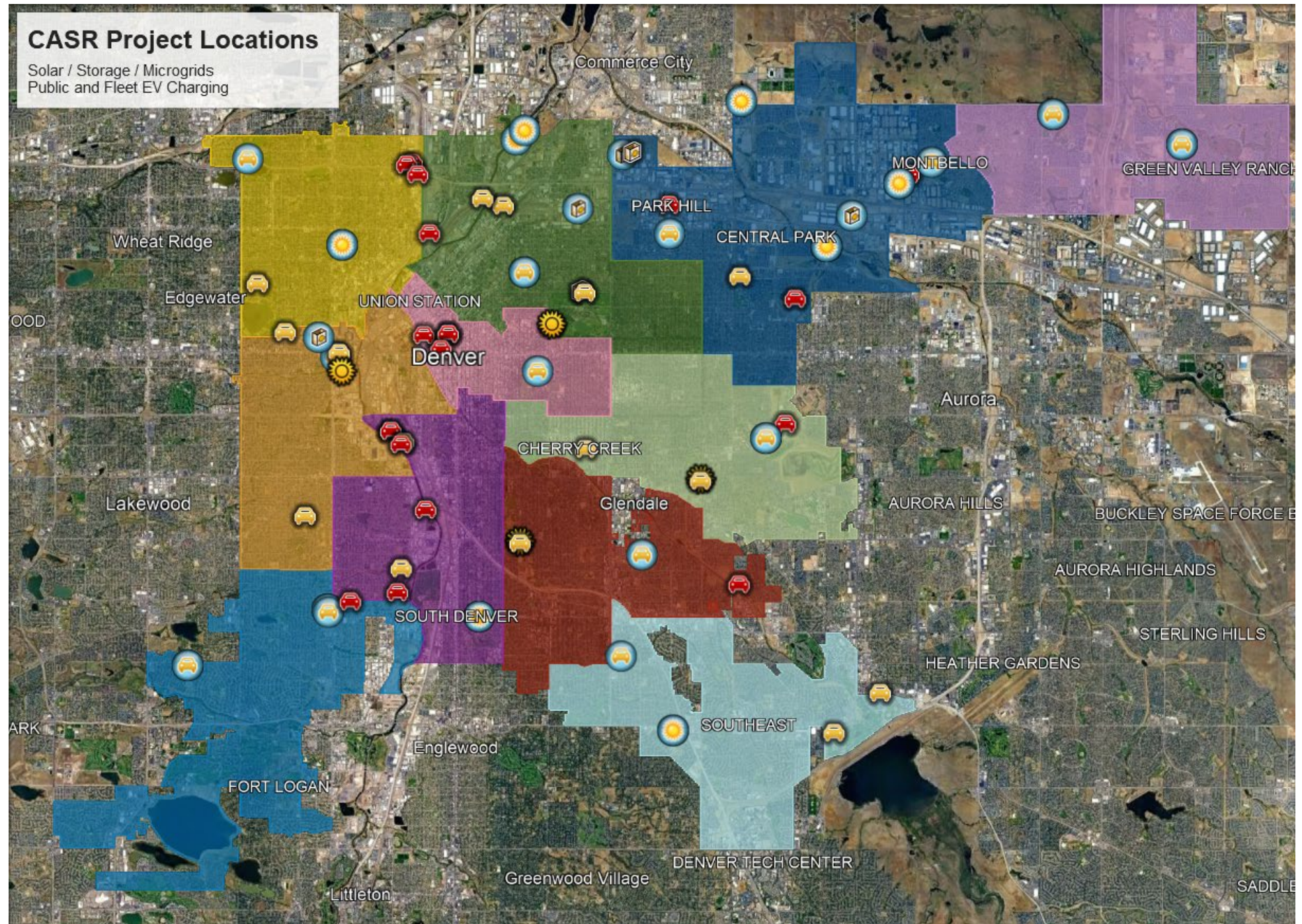
Project Culture

- Do it right the first time
- Aim high and hold the line
- This may be our only chance to make a good impression
- Our partner agencies are our clients – happy hosts make happy projects.



CASR Project Locations

Solar / Storage / Microgrids
Public and Fleet EV Charging



All Roads Lead to Managing Electrical Demand

New Loads From EV Charging and Electrified Space and Water Heating



Shift from Summer Afternoon to Winter Morning Peak

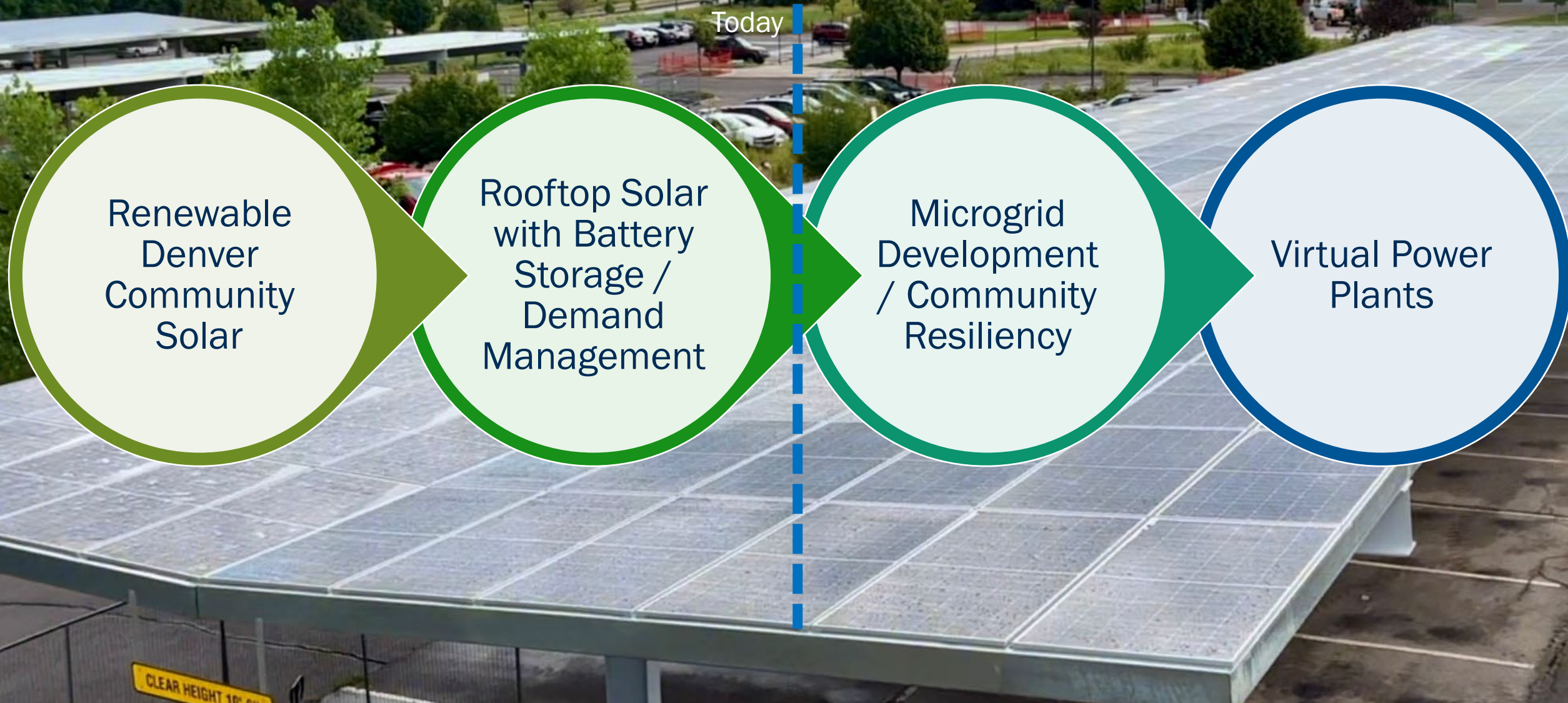


Increased Reliance on Renewables



Significant Required Improvements to Transmission and Distribution Systems

Solar Generation & Battery Energy Storage



Community Solar for Community Impact

“[Community Solar] helps a lot, I'm really glad and thankful for this program. Thanks to this program, and the money I have been saving, I have been able to buy more food for my family.” -AH

“Yes, I would recommend that people join [community solar] because it helps us to save energy, save on our bills, and helps the planet so that our kids will live in a healthier and better world.”

“I am very thankful to this program that is coming from people that don't know us and that it's helping families like mine. Especially, in this summer that has been very hot, the a/c is used more and so [community solar] has been very helpful in keeping our bill affordable.” -HG



Community Solar for Community Impact



“It has helped a lot to be honest. I used to pay a lot for the light bill and now I pay less, which is very helpful.”

“The solar program definitely helps! Honestly, we have to sign up for LEAP each year. I live in the Elyria-Swansea neighborhood. My mother lives next to me, she's an amputee. I have a brother with mental illness, and I had to get a job as a substitute teach[er] so I can take care of my family. With rent going up, but my paychecks staying the same, the community solar credits are a huge help.”

Public and Fleet EV Charging

Widespread, Convenient, Reliable Public Charging

- CASR-delivered projects at DPR, DPL, Zoo, DBG, and other facilities
- Supporting other capital agencies to install code-required EV Charging at their sites
- Partnerships with private actors to unlock ROW charging

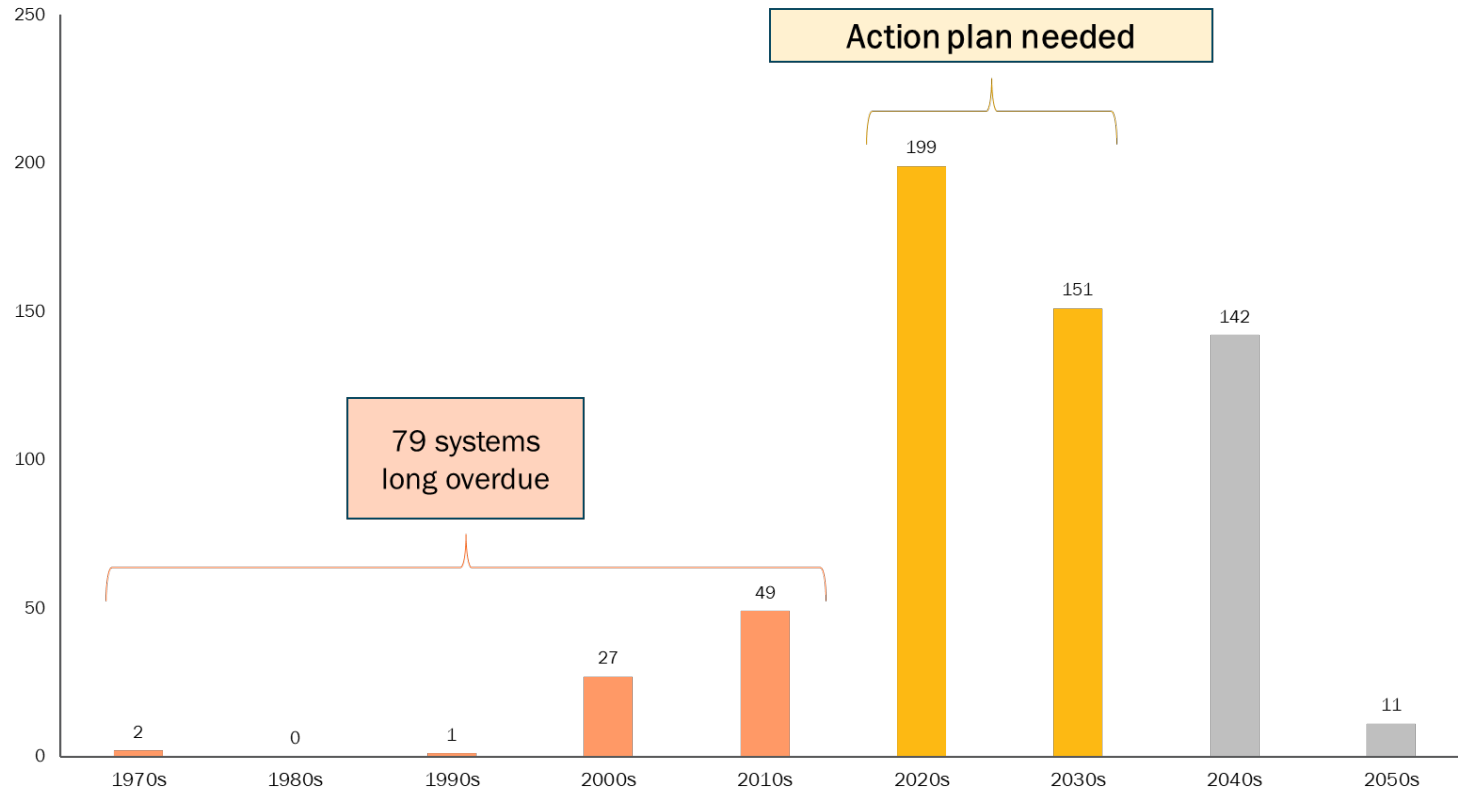
Fast, Reliable, and Location-focused Fleet Charging

- Incorporated existing and new fleet charging into our EV Asset Management program
- Developing DC Fast Charging projects at numerous DOTI, DPD & DFD locations
- Getting chargers where they need to be before they are needed



Resilient City Buildings

Energy Efficiency and Electrification



Performed by CASR

LED Lighting

Equipment Commissioning

Minor Automation

Energy Efficiency

CPF investment yields >\$2M
General Fund cost avoidance
per year

Performed by DOTI

Equipment Replacement

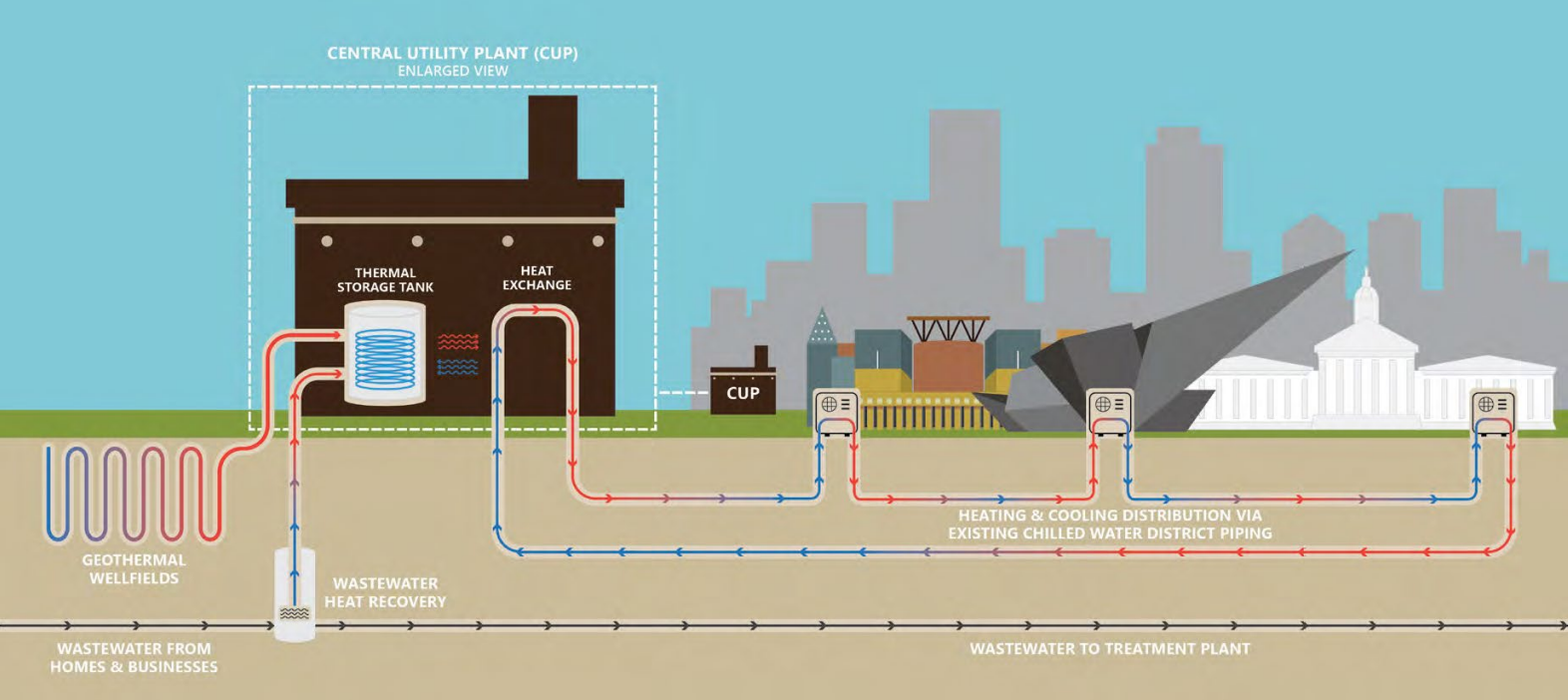
System Electrification

Controls Overhauls

Envelope Improvements

Lower Operating Costs,
Added Resiliency, Higher
Indoor Air Quality, Avoids
costly failures

Renewable Thermal – Downtown Ambient Loop



System Type	CapEx	OpEx	Public Impact	Building Impact	Resiliency
Ambient Loop	\$	\$	✓	✗	✓
All-Electric LTHW	\$\$\$	\$\$\$	✗	○	✗
Dual-Fuel / Hybrid LTHW	\$	\$	✗	○	○
Green Steam	\$\$\$\$	\$\$\$	✗	✓	✗

- ✓ Electrify downtown buildings using the existing electrical service
- ✓ Thermal resources exist to drive a new district energy system
- ✓ Reuse most of the existing building infrastructure and equipment
- ✓ Overall demand reduction of up to 11MW for demonstration scope

Ambient Loop Thermal Energy Network Feasibility Study

Results & Conclusions

Prepared for:
City & County of Denver
Office of Climate Action, Sustainability & Resiliency

Summary & Discussion

CASR is committed to helping Denver achieve a socially, economically, and environmentally sustainable community.

- We are mindful of the big picture decarbonization trajectory.
- We're investing wisely to walk the walk and find compelling community co-benefits in our projects.
- We recognize the importance of getting things right.
(balance pushing the envelope while managing project risks)
- We enable others to act by doing our part to show the way through our successes and lessons learned.
- Ultimately, our success lies in leveraging our partnerships with stakeholders to achieve the scale needed for widespread impact.



Appendix

CASR's mission embraces a solution-oriented mindset.

Our vision encourages holistic and multi-faceted solutions.

Mission

The climate crisis is solvable.

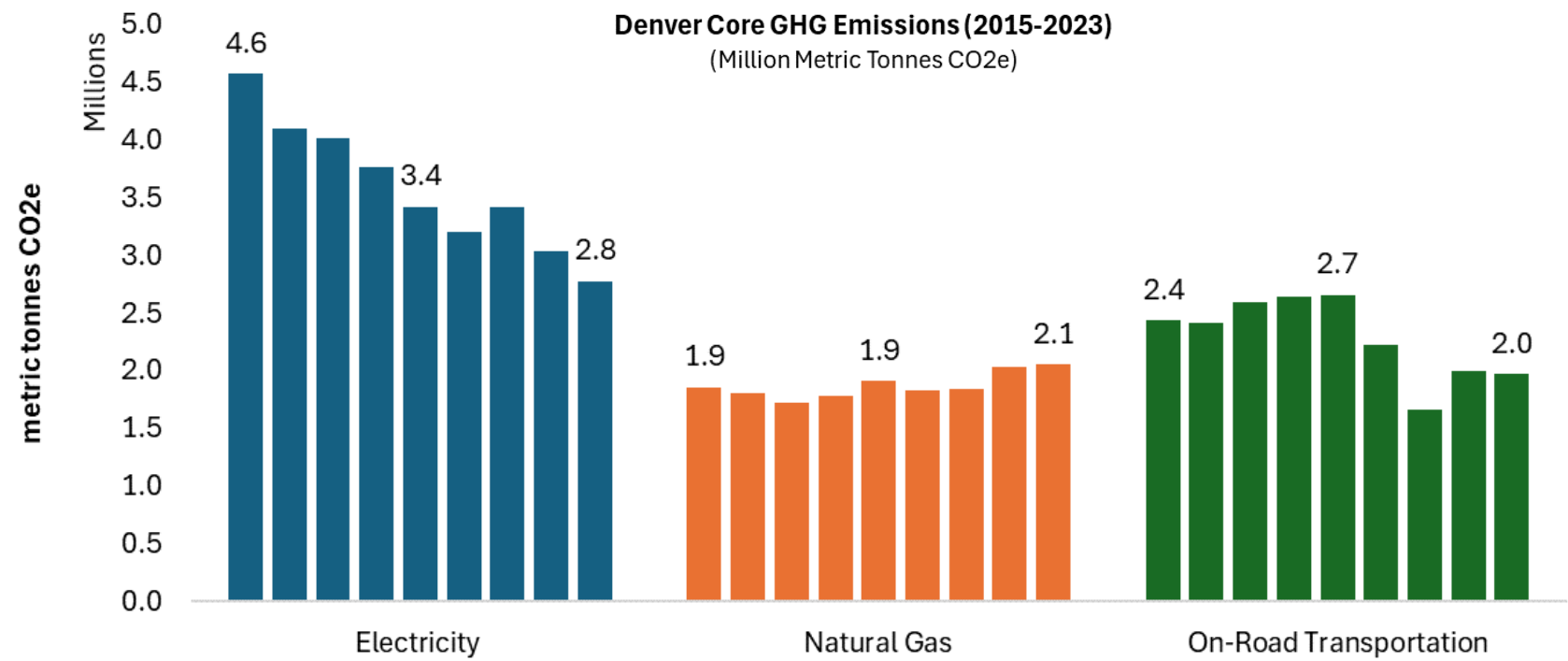
Together, we are the ones to solve it.

Vision

**Together, we build a carbon-pollution free,
sustainable, and climate-resilient Denver for all.**

Climate Action Division objective: Achieve zero emissions as quickly and equitably as possible.

We are attentive to the pace of decarbonization, infrastructure needs, system reliability, and the cost of solutions.



The "State of the City" climate action statements align with the Climate Action division strategies

- “Aggressively move Denver off fossil fuels to renewable energy”
- “Electrify buildings and homes while keeping costs down”
- “Convert the steam loop downtown into a state-of-the-art district energy system to heat and cool buildings without carbon pollution.”
- “Electrify our city-owned vehicles and build the charging infrastructure necessary for Denverites to easily transition to EVs”

Billions of dollars are already deployed in recurring, institutional investment.

These investments should be economically, socially, and environmentally sustainable.



Scale of Resources

- Climate Protection Fund
~\$50M annual revenue



Scale of Resources in CO

- Electricity & Fossil-Gas Businesses
~\$5B annual revenue
- PUC Authorized Incentive Programs
~\$420M annual programs
- Energy Infrastructure Planning
~\$50B identified thru 2050