Slide 1:

DENVER THE MILE HIGH CITY — McKinstry

STRATEGIC ENERGY MASTER PLANNING

Presented by: Tom Herrod, Denver Climate and GHG Program Administrator, Phillip Saieg, McKinstry Technical Services Director & Ashley Brasovan, McKinstry Account Manager

Slide 2:

DENVER THE MILE HIGH CITY — Municipal Government Trends & Current Challenges — McKinstry

Colorado Trends

- Improved Livability
- Resiliency to future risk
- Attainment of sustainability goals
- Economic development & public focus on quality of life

Slide 3:

DENVER THE MILE HIGH CITY — Addressing these Challenges and a City's Triple Bottom Line — McKinstry

ECONOMIC PROSPERITY
SUSTAINABILITY
SOCIAL EQUALITY — ENVIRONMENTAL HEALTH

Energy efficiency and sustainable operations matter!

Economic Prosperity
Lowers utility bills and provides excellent financial investment in City Facilities

Environmental Health
Produces significant reduction in GHG emissions, energy, and water

Social Equity
Improves community facilities and occupant comfort

Slide 4:

DENVER THE MILE HIGH CITY — Which sectors value Energy efficiency the most? — McKinstry

- Commercial real estate development or Property management — 91%
- Manufacturing — 90%
- Commercial architecture/Design-build/Construction — 88%
- Data center — 83%
- Shipping/distribution/warehousing/whole sale — 80%
- Business services/Financial — 79%
- Retail — 78%
- Healthcare — 75%
- Government — 74%
- Education — 71%
- Restaurant — 57%
- Hotels/casinos/conference centers — 45%

Percent Important/Very important

Slide 5:

DENVER THE MILE HIGH CITY — What are the biggest drivers of investment in energy efficiency? — McKinstry

Anywhere from $60-115 Billion is spent on efficiency improvements every year within the US. Drivers for this include:

- <u>Policy is #1</u>
- Building codes and appliance standards
- Utility energy programs and incentives
- Certifications – LEED & Energy Star
- Energy Performance Contracts

U.S. GREEN BUILDING COUNCIL — LEED — USGBC

CEO — COLORADO Energy Office

energy ENERGY STAR

Slide 6:

DENVER THE MILE HIGH CITY — Denver Ranks 9th on ACEEE's 2017 Energy Efficiency Scorecard — McKinstry

City Scorecard Rank
9 **Denver, CO**
70.50 Scored out of 100 Updated 5/2017

DENVER THE MILE HIGH CITY — Measuring Impact — **McKinstry** *For The Life Of Your Building*

- Denver has been tracking resource consumption metrics since 1990
- 2005 initiated focus on carbon intensity of resource consumption
- Realized that Government Operations represent a small percentage of Community resource consumption

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DENVER THE MILE HIGH CITY — Comparison of Gov't Ops metrics to Community — **McKinstry**

- Denver Gov Ops vs. Community
  - 1.1% of Transportation Fuel
  - 5.6% of Electricity (Includes street lights)
  - 2.4% of Natural Gas for heating
  - 2.4% of Carbon emissions

DENVER THE MILE HIGH CITY — **McKinstry**

- In order to make Denver a Sustainable City, requires
  1. Leading by example
  2. Setting Community Goals to drive strategy, program, and policy development

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DENVER THE MILE HIGH CITY

- In order to lead by example
- Government Operations Goals

DENVER THE MILE HIGH CITY

- Established Community Goals
- Energy is a key Goal
  - Types of Energy influence Air Quality and Climate Goals
  - Mobility, Housing, Land Use, Food, Water, and Workforce, Materials all contribute to energy consumption

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DENVER THE MILE HIGH CITY — Plan Development — **McKinstry**

- 2014 emphasis was placed on developing actionable plans to meet 2020 community goals
- Energy Plan required robust, flexible, and independent analysis.
- Plan needed to project energy consumption to 2020, identify the gaps, and analyze potential strategies that will meet the goal.
- Strategies needed to evaluated by impact, feasibility, and estimate of cost, transparent assumptions/methodology, co-benefits, timeline, and complimentary strategies.

Slide 1:

DENVER — THE MILE HIGH CITY

Energy Plan Strategies

McKinstry — For The Life Of Your Building

- Top Strategy and Key to Success
  - Energy Benchmarking & Transparency
    - Provides better measurements for improved management
    - Delivers data and transparency to the market for informed decision making
    - Moves the City beyond two points of data
    - Proven strategy in cities
    - Leads to better City programs or policies
- Building on Benchmarking:
  - Developing a performance track for under-performing buildings
  - Could require audit, building commissioning, or demonstrated savings

Slide 2:

DENVER — THE MILE HIGH CITY

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- Energize Denver Ordinance – December 2016

Slide 3:

DENVER — THE MILE HIGH CITY

McKinstry — For The Life Of Your Building

- Energy Code updated to IECC 2015 and exploring "Beyond Code"
- Reviewing Residential Strategies aimed at Energy Efficiency improvements at time of sale and increase access to renewables
- Utilize tool to demonstrate distributed renewables impact on energy and climate goals
- Serves as a backdrop for consideration of community goals like 80% GHG reduction and 100% renewables.

Slide 4:

DENVER — THE MILE HIGH CITY

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- Gap analysis
- Strategy recommendations
- Dynamic energy model

Slide 5:

DENVER — THE MILE HIGH CITY

McKinstry — For The Life Of Your Building

Hold total energy consumed in Denver for buildings, mobility and industrial processes below the total consumed in 2012, while cutting fossil fuel consumption by 50% from 2012 levels.

Slide 6:

DENVER — THE MILE HIGH CITY

McKinstry — For The Life Of Your Building
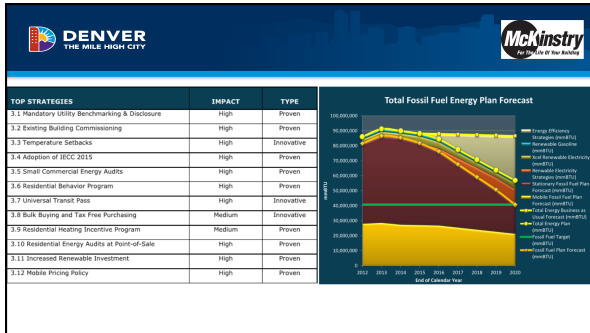
Dynamic Tool Demonstration

Thank you!

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