



Title:	City and County of Denver Climate Action, Sustainability & Resiliency - Percent Reduction Analysis	Author(s):	Manuel Morales, Celeste Cizik
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Description:	This document summarizes the analysis performed to estimate what EUI percent reduction target would need to be set as an alternate compliance pathway to the existing Energize Denver (ED) Energy Performance Requirements while maintaining the goal of achieving a 30% reduction in building energy consumption.		

Background

The City and County of Denver (CCD) [Rules & Regulations Governing Energize Denver Building Energy Performance Requirements](#), effective on January 20, 2022, established existing building performance requirements for covered buildings with a gross floor area equal to or greater than 25,000 square feet. Owners of these buildings “must meet energy performance targets in calendar years 2024, 2027 and 2030”, with “[f]inal 2030 targets ... set for every Covered Building type in Denver such that 30% total normalized site energy savings across all Covered Buildings is achieved.”

In 2021, Group14 performed an analysis for CCD to determine Energy Use Intensity (EUI) targets by building type that would be needed to meet this requirement. The [Building Typology and EUI Targets report](#) published on the CCD website provides a summary of this analysis. Table 2 of that report indicates that for EUI targets set at the 15th percentile of standard building performers and with compliance from 100% of covered buildings, there is the potential for 33% site energy savings across all covered buildings. Group14 recommended that Energize Denver EUI targets be set at the 15th percentile of standard building performers.

In 2023, Group14 performed an analysis for CCD that considered the impact of adding an alternate compliance pathway that allowed building owners to reach a target EUI percent reduction instead of the existing EUI target for their building type.

Percent Reduction Pathway Calculation Methodology

The analysis relied on the [published CCD EUI targets](#) to estimate the required savings from each benchmarked building in Denver. The benchmarked building dataset used in Group14’s 2021 analysis was reused in order to provide a direct comparison between the results from that analysis and this percent reduction analysis.

For each building in the dataset, the analysis estimated the energy savings required by the building’s corresponding EUI target and the specified percent reduction target. Buildings were assumed to achieve the minimum savings required to meet either the EUI target or the percent reduction target. The percent reduction target was adjusted to achieve the goal of a 30% reduction in energy consumption across all buildings.

Assumptions

This analysis assumed compliance from 100% of covered buildings. These include Manufacturing/ Agricultural/ Industrial (MAI) buildings, mixed-use buildings, buildings exempt from benchmarking requirements, and any building types with a 30% EUI reduction target.



All buildings had the option to comply with either the EUI target or the percent reduction target, and buildings were assumed to comply with the target that required the least energy savings.

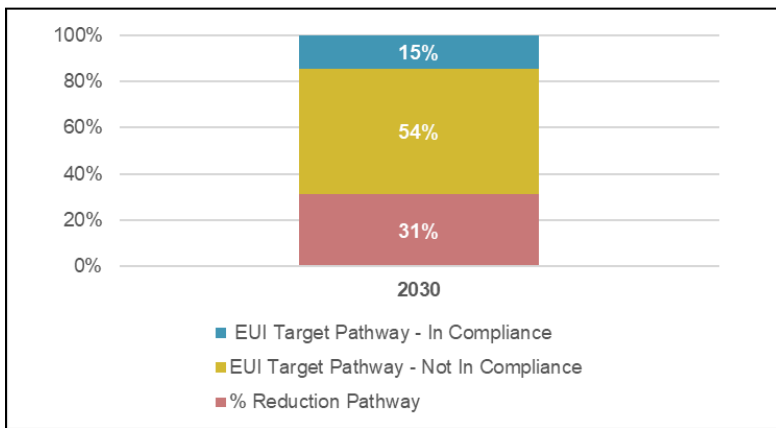
The EUI target specified for each building was determined by that building’s primary building type. As a result, this analysis does not consider how target adjustments requested by mixed-use buildings or any other buildings could impact energy savings.

Results

To offer a percent reduction pathway as an alternative to the published EUI targets and achieve a 30% energy reduction across all buildings, **CCD would need to set the percent reduction target to 42%.**

If this compliance pathway is implemented, those buildings that would have to reduce their EUI by an amount greater than 42% to achieve their EUI target would instead opt for the percent reduction pathway. Based on the analysis, the percent reduction pathway would be the preferred compliance pathway for 31% of covered buildings. As the EUI targets were set according to the 15th percentile of standard building performers, the remaining 54% of buildings not in compliance would follow the EUI target pathway.

Anticipated Pathway Breakdown



Those buildings that choose the percent reduction pathway would realize lower energy savings than if they were to have complied with their EUI target. As a result, assuming 100% building compliance, **implementing the percent reduction pathway would decrease the potential energy savings for all covered buildings from the 33% previously determined in the [Building Typology and EUI Targets report](#) to 30%.**

Energy Savings Potential by Building Compliance

Buildings Meeting Target	# of Buildings	Energy Savings
50% of Covered Buildings	1,504	15%
70% of Covered Buildings	2,105	21%
75% of Covered Buildings	2,255	23%
90% of Covered Buildings	2,706	27%
All Covered Buildings	3,007	30.0%