



Sacramento  
City Unified  
School District

## SACRAMENTO CITY UNIFIED SCHOOL DISTRICT BOARD OF EDUCATION

Agenda Item# 9.4

**Meeting Date:** October 5, 2023

**Subject:** Approve Resolution No. 3348: Adopting Carbon Neutral Goals and Guidelines

### for SCUSD Buildings

- Information Item Only
- Approval on Consent Agenda
- Conference (for discussion only)
- Conference/First Reading (Action Anticipated: \_\_\_\_\_)
- Conference/Action
- Action
- Public Hearing

**Division:** Facility Support Services

: Approve Resolution No. 3348: Adopting Carbon Neutral Goals and

: Resolution No. 3348 would adopt the Carbon Neutral Goals and

2. Energy & Carbon Goals
3. Energy & Carbon Project Guidelines

**Estimated Time of Presentation: 5 minutes**

Submitted by: Mathewal Dhanraj, Director of Facilities


Sacramento City Unified School District  
Resolution # 3348

RESOLUTION TO ADOPT CARBON NEUTRAL GOALS AND GUIDELINES

WHEREAS the Intergovernmental Panel on Climate Change (IPCC), the world's most authoritative

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

scientific body on climate change states in their Sixth Assessment Report that human activities

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

**WHEREAS**, an Executive Order to achieve Carbon Neutrality of 2018 (B-55-18) requires the California to achieve statewide carbon neutrality by 2045 and maintain net negative emissions thereafter; and

**WHEREAS**, the Sacramento Municipal Utility District (SMUD) is committed to carbon emission

reductions, the implementation of renewables and beneficial electrical technologies, and

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

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[REDACTED]

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[REDACTED]

[REDACTED]

possible, and has a goal to reach zero carbon emissions in their power supply by 2030; and

**WHEREAS**, research has shown that prioritizing energy efficiency and carbon neutral construction with

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

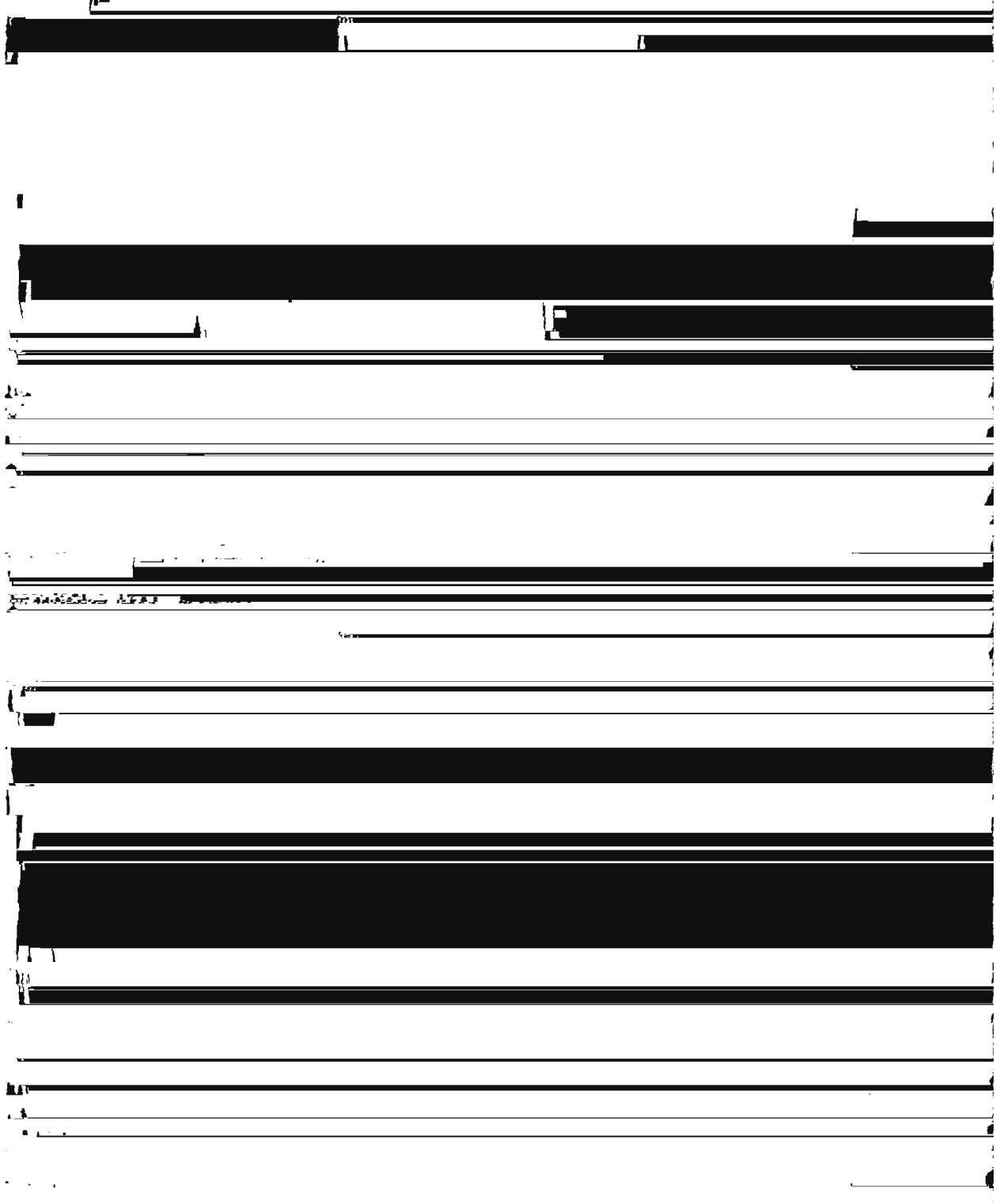
**1. All new construction/addition projects will:**

Achieve a site energy use intensity of 19-24 kBtu/square foot/year before PV, depending on building type,

Be all-electric and have no on-site gas combustion,

Be PV-ready for all projects (wherever on site appropriate),

Incorporate renewable energy sources to offset annual electricity use



of carbon-emitting equipment such as vehicles, heating or cooling elements, and maintenance tools when possible.

**PASSED AND ADOPTED** by the Sacramento City Unified School District Board of Education on this 5<sup>th</sup> day of October 2023, by the following vote:

AYES: 6

NOES: 0

ABSENT: 1

ABSTAIN: 0

ATTESTED

nua  
President of the Board of Education

en  
Superintendent

# **Sacramento City Unified School District**

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**INTRODUCTION**

Guided by the



**(2) All major modernization projects:**

- x Will achieve a site energy use intensity of **25-35 kBtu/sf/yr** before PV, depending on the building type (see table 1: Energy Use below for building specific EUI),
- x Will eliminate on-site gas combustion completely or include a designed plan to eliminate gas by 2045.

Sacramento City Unified Energy and Carbon Requirements

Table 1. Energy Use Intensity Targets by Building Type

Building Type	New Construction Site EUI <sup>5</sup>	Major Modernization Site EUI <sup>6</sup>	Retrofit EUI
<b>Administrative</b> Admin building EUI includes a data room which accounts for the higher EUI. Other unique loads such as maintenance & operation shops, kitchens, evaluated on a case by case basis.	21 kBtu/sf/yr	26 kBtu/sf/yr	Retrofit projects will improve the site energy use intensity by 20-50% from a 2019 baseline weighted by the amount of work slated.
<b>Primary School</b> (K-5 and Middle)	19 kBtu/sf/yr	25 kBtu/sf/yr	
<b>Secondary School</b> (High School)	20 kBtu/sf/yr	25 kBtu/sf/yr	

Note: Sacramento is ASHRAE Climate Zone 3B<sup>7</sup>.

For New Construction, ASHRAE dictates that an EUI of 21.1 for office, an EUI of 19 for primary and an EUI of 19.4 for secondary is feasible for new construction in Climate Zone 3B ±but we have provided a range for design teams.

For Modernization, ASHRAE sets the standard that an EUI of 33 is achievable for office, an EUI of 30 for primary school, and an EUI of 33 for high school. Based on the NBI Getting to Zero database and past work in schools, we have amended the ranges above to be slightly more aggressive except for secondary schools which may have unique loads in some cases.

With the low average EUI across the district, the lower end of this scale should be achievable by these future projects.

<sup>5</sup> New construction targets come from the ASHRAE Advanced Energy Design Guide for K-12 Zero Energy Schools and ASHRAE Advanced Energy Design Guide for Small to Medium Office for Administrative buildings: <https://www.ashrae.org/technical-resources/aedgs/zero-energy-aedg-free-download>

<sup>6</sup> Modernization targets come from ASHRAE Standard 100 targets for existing buildings which identifies that offices can achieve an EUI of 33, primary can achieve an EUI of 30, and secondary an EUI of 33.

<sup>7</sup> [https://openei.org/wiki/Climate\\_Zone\\_3B](https://openei.org/wiki/Climate_Zone_3B)

**CAPITAL PROJECTS - NEW CONSTRUCTION**

The design team will incorporate the following elements into the construction process. New construction projects under the capital construction program will prioritize building envelope, HVAC, lighting, and

**PRIORITIZE LOAD REDUCTION:** A key strategy in integrated design is a strategic implementation hierarchy to achieve energy and carbon emission reduction goals. This strategy prioritizes energy load reduction, with attention to the building envelope and lighting improvements. This sequencing often allows for a greater rate of return and savings to investment ratio. For example, minimizing heating load before replacing existing HVAC systems avoids oversizing of equipment and allows for replacement with equipment and/or systems that are more efficient and, where feasible, do not have on-site fossil fuel combustion. Every project is unique and although envelope should generally be prioritized, this process may be different, for example, during a major modernization. The key point is that all aspects of building load reduction should be considered and balanced with heating and cooling demand.

**PARTICIPATE IN UTILITY AUTO DEMAND RESPONSE PROGRAMS:** Continue participation in the local electric utility (SMUD) auto demand response program, PowerDirect®. The financial incentives offered further encourage the District to shed load during critical electrical strain on the grid. These funds can be used to further optimize equipment operation.

### Technical Approaches

**BUILDING DESIGN GUIDELINES:** Design teams will refer to the technical guidance contained in [Sacramento City Unified Energy and Carbon Requirements](#).

**ENERGY MODELING:**







**MODERNIZATION**



## DISTRICT ENERGY AND CARBON GUIDELINES

In order to adhere to the goals set forth by the District, design teams will consult the [Advanced Energy Design Guide for K-12 School Buildings \(AEDG\): Achieving Zero Energy \(ASHRAE\)](#) and follow the *Energy and Carbon Guidelines* below. While these guidelines are most easily implemented in new construction, they should also be utilized where applicable in other projects. Fould also be ect.



**KITCHENS**

Electrification of kitchens should be fully considered, including the kitchen hot water heater. The electric combi-oven with ventless condensation hood should be prioritized.



