

A group of people, including a man with glasses and a woman with a white cap, are gathered around a table outdoors. They appear to be engaged in a workshop or meeting. The background shows trees and a wooden fence.

# 2021 FHDA FACILITIES MASTER PLAN

# Sustainability Workshop

February 11, 2021

A photograph of a campus scene with a semi-transparent dark overlay containing text. The background shows a paved walkway lined with trees, with several people walking. In the distance, a modern building with a dark facade and large concrete pillars is visible. The lighting suggests a bright, sunny day with long shadows cast across the path.

# AGENDA

**FMP PROCESS AND STATUS**

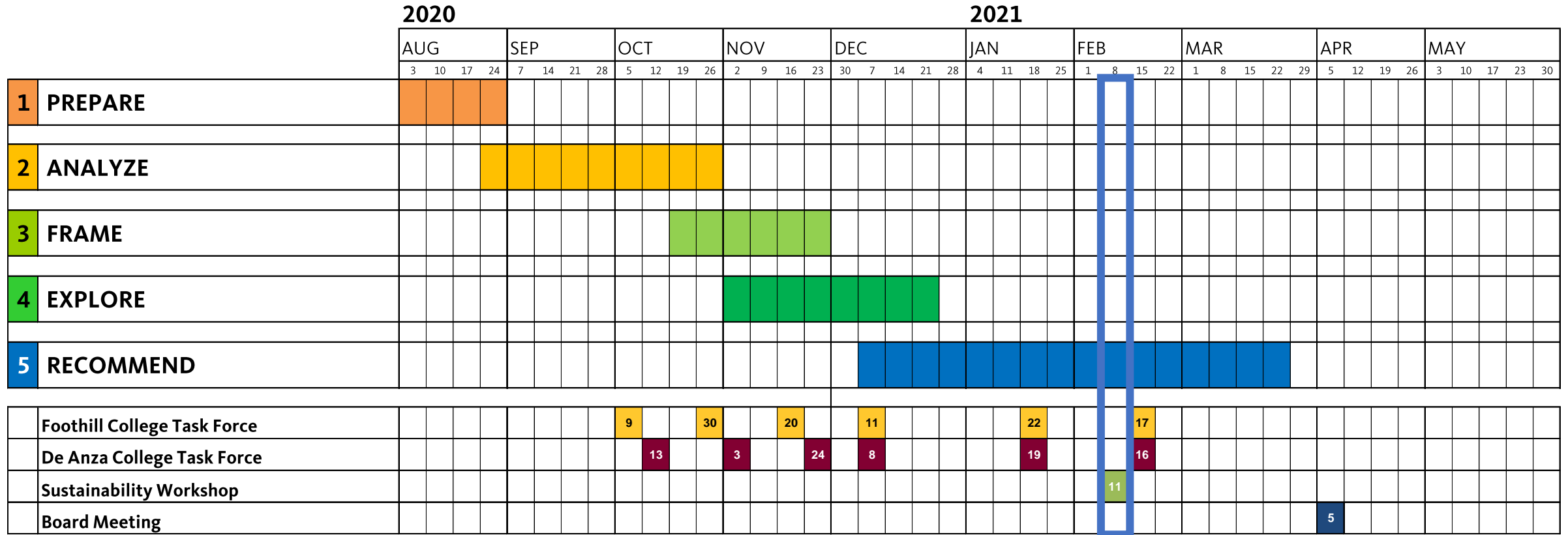
**SUSTAINABILITY INSIGHTS**

**BREAKOUT SESSIONS**

**REPORT-OUTS**

**NEXT STEPS**

# PROJECT STATUS



# SUSTAINABILITY

## Informing the FHDA 2020 FMP



# FHDA FMP 2016

## Sustainability Leadership



Foothill-De Anza  
Community College District

2016 FACILITIES MASTER PLAN

## Planning for Sustainability

Foothill-De Anza Community College District is a recognized regional leader in the responsible and accountable stewardship of resources. Over the years, sustainability initiatives at each of the colleges have guided the development of site and facility improvements.

The 2016 Facilities Master Plan process provided an opportunity to establish a districtwide set of sustainability goals to serve as the basis for development recommendations at each campus.

This chapter provides an overview of the sustainability planning process.

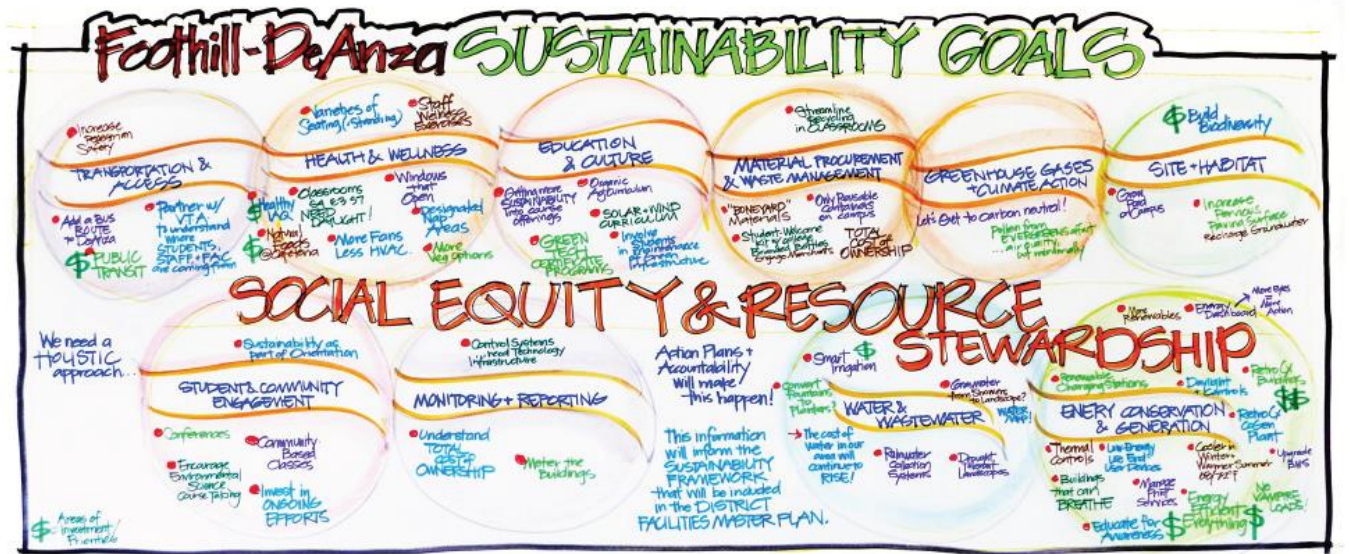
The Foothill-De Anza Community College District Sustainability Workshop was held on March 8th, 2016. Thirty-six student, faculty, and staff representatives from Foothill College, De Anza College, and Central Services attended the workshop.








# FHDA FMP 2016 Sustainability Workshop



# FHDA FMP 2016 Sustainability Goals



## Goals

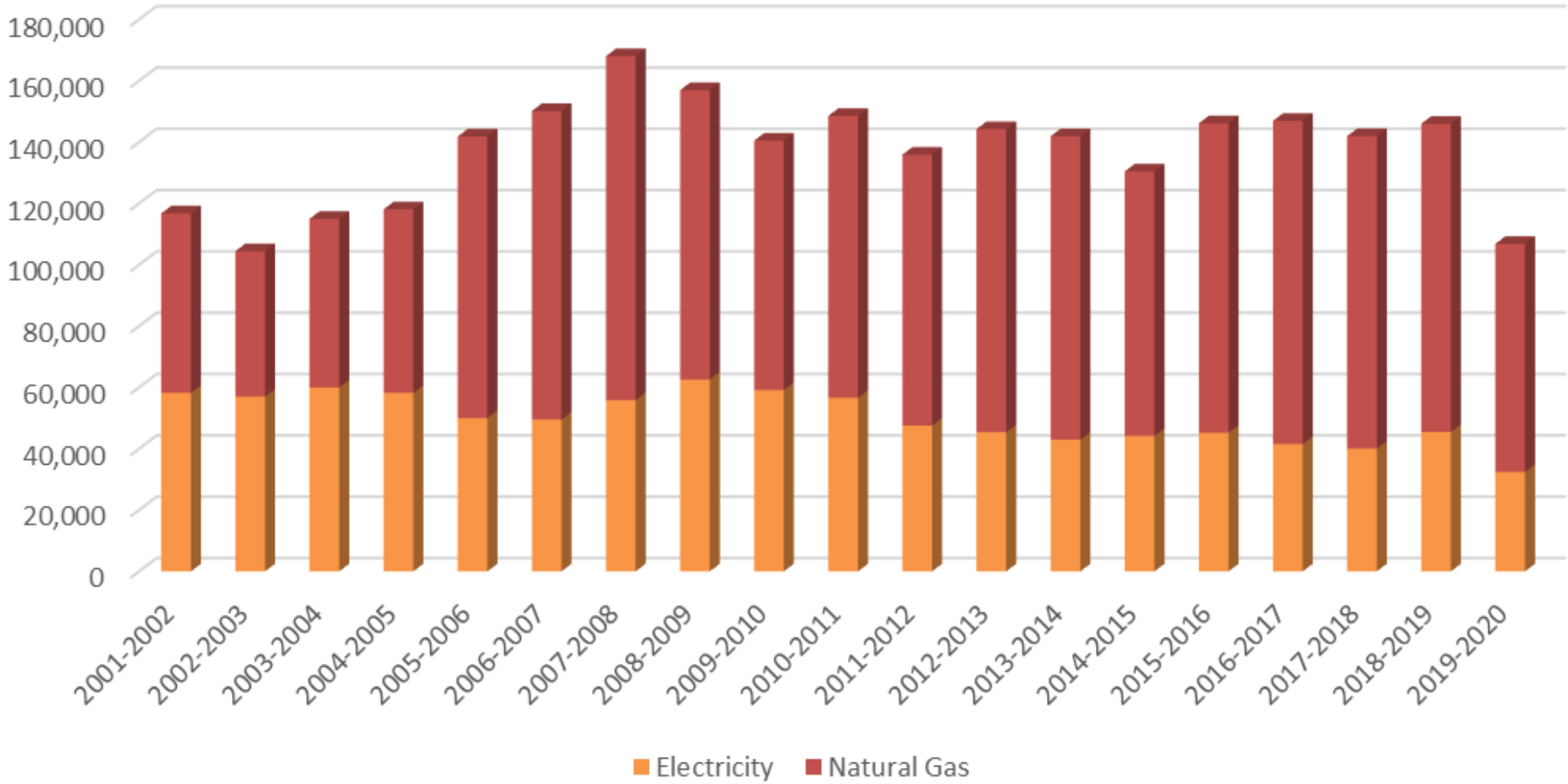
 ENERGY	 WATER	 HEALTH	 EDUCATE	 MONITOR	 RECYCLE
<p>Continue as a leader in energy efficiency, manage energy use at district level</p>	<p>Manage building and landscape water use to conserve water</p>	<p>Promote healthy living culture, and provide a safe and healthy environment</p>	<p>Nurture environmental stewardship and literacy across the campus, educate and prepare students for the green workforce</p>	<p>Set high bars for building performance goals, with consistent monitoring and routinely report</p>	<p>Promote a culture of reduce, reuse and recycle</p>
<p><b>REDUCE ENERGY CONSUMPTION/INCREASE ENERGY EFFICIENCY</b></p> <ul style="list-style-type: none"> <li>Use efficient appliances, equipment and computers</li> <li>Encourage change of behavior in lighting and HVAC use</li> </ul> <p><b>INCREASE SELF-GENERATED ENERGY CAPACITY</b></p> <ul style="list-style-type: none"> <li>Incorporate renewable energy at appropriate locations</li> </ul> <p><b>DISTRICTWIDE ENERGY MANAGEMENT</b></p> <ul style="list-style-type: none"> <li>Establish new Building Management System for entire district</li> <li>Establish District Energy Manager Position</li> <li>Establish districtwide guidelines for heating and cooling of facilities</li> </ul>	<p><b>WATER USE REDUCTION AND CONTROL/ WATER USE PLANNING &amp; WATER MAP</b></p> <ul style="list-style-type: none"> <li>Optimize building water efficiency</li> </ul> <p><b>INCORPORATE SMART IRRIGATION/NON-POTABLE WATER OPPORTUNITIES</b></p> <ul style="list-style-type: none"> <li>Incorporate xeriscape/drought-tolerant plants</li> <li>Convert current irrigation system to smart system</li> <li>Encourage rainwater harvesting</li> </ul>	<p><b>PROVIDE HEALTHY FOOD &amp; BEVERAGES</b></p> <ul style="list-style-type: none"> <li>Provide natural/organic food at cafeteria</li> </ul> <p><b>IMPROVE INDOOR/OUTDOOR AIR QUALITY</b></p> <ul style="list-style-type: none"> <li>Provide access to natural ventilation through operable windows</li> <li>Commit to initiate tangible actions to reduce greenhouse gases</li> </ul> <p><b>PROVIDE PUBLIC TRANSIT ACCESS</b></p> <ul style="list-style-type: none"> <li>Create Foothill-De Anza bus line and/or carpool system</li> </ul> <p><b>BE RESPONSIBLE FOR ENVIRONMENTAL HEALTH AND BIODIVERSITY</b></p> <ul style="list-style-type: none"> <li>Commit to ecologically responsible landscaping, installation and maintenance</li> </ul>	<p><b>ENGAGE CAMPUS COMMUNITY IN SUSTAINABILITY AWARENESS</b></p> <ul style="list-style-type: none"> <li>Develop themes and messages to encourage and promote sustainability practices across the campus</li> </ul> <p><b>PROMOTE SUSTAINABILITY IN CURRICULUM</b></p> <ul style="list-style-type: none"> <li>Create additional curriculum and program on sustainability and green workforce, e.g., environmental education, renewable energy and energy management, and organic agriculture</li> <li>Broaden on-site green-collar workforce training program</li> </ul>	<p><b>PROMOTE GREEN BUILDING CONSTRUCTION AND RENOVATION</b></p> <ul style="list-style-type: none"> <li>Outperform Title 24 standards for all new buildings</li> <li>Target for LEED Certification or equivalent for all new buildings</li> </ul> <p><b>MONITOR AND REPORT</b></p> <ul style="list-style-type: none"> <li>Develop methods to monitor consumption activity and routinely report</li> </ul>	<p><b>HAZARDOUS AND SOLID WASTE REDUCTION AND CONTROL/MINIMIZE WASTE GENERATION</b></p> <ul style="list-style-type: none"> <li>Maximize use of recyclable materials</li> <li>Make recycling easy by providing paper recycling receptacles in classrooms</li> </ul> <p><b>GREEN PURCHASING AND PROCUREMENT CONTROLS IN THE COLLEGE SUPPLY CHAIN</b></p> <ul style="list-style-type: none"> <li>Strongly encourage the use of vendors that demonstrate their commitment to sustainability</li> <li>Implement managed print service</li> </ul>

**AND NOW...**



# FHDA CCD

## Total Energy Use Trend (Mbtu)

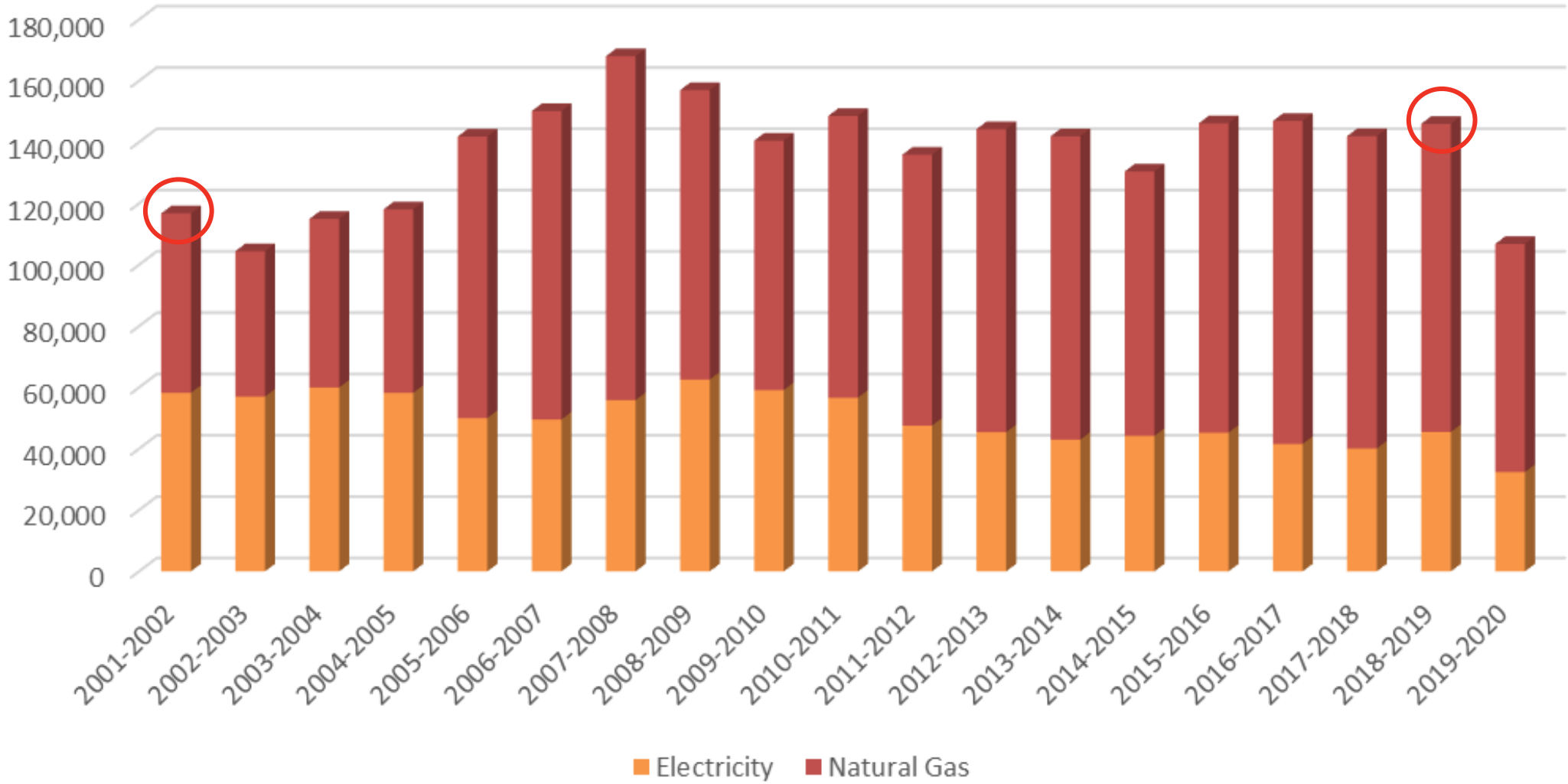


2020 FACILITIES MASTER PLAN

# FHDA CCD

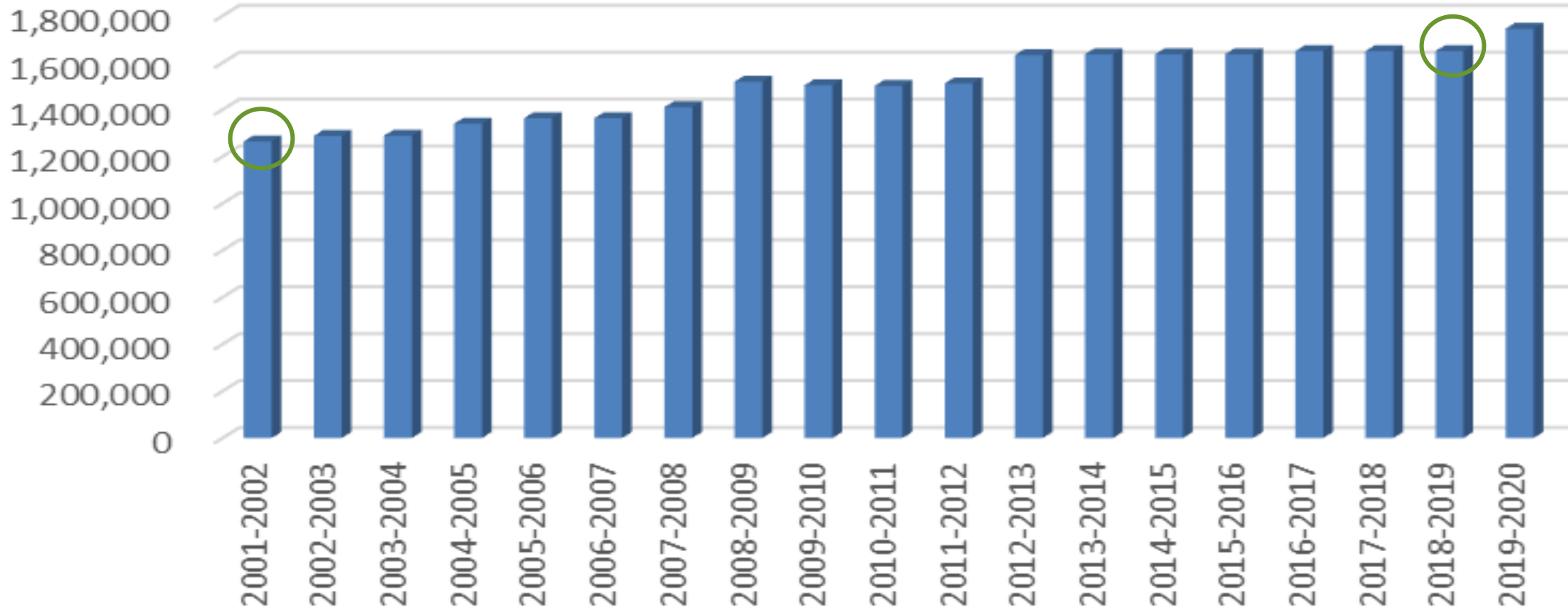
## Total Energy Use Trend (Mbtu)

25% increase in total energy use  
2001 – 2019



# FHDA CCD Building SF Trend

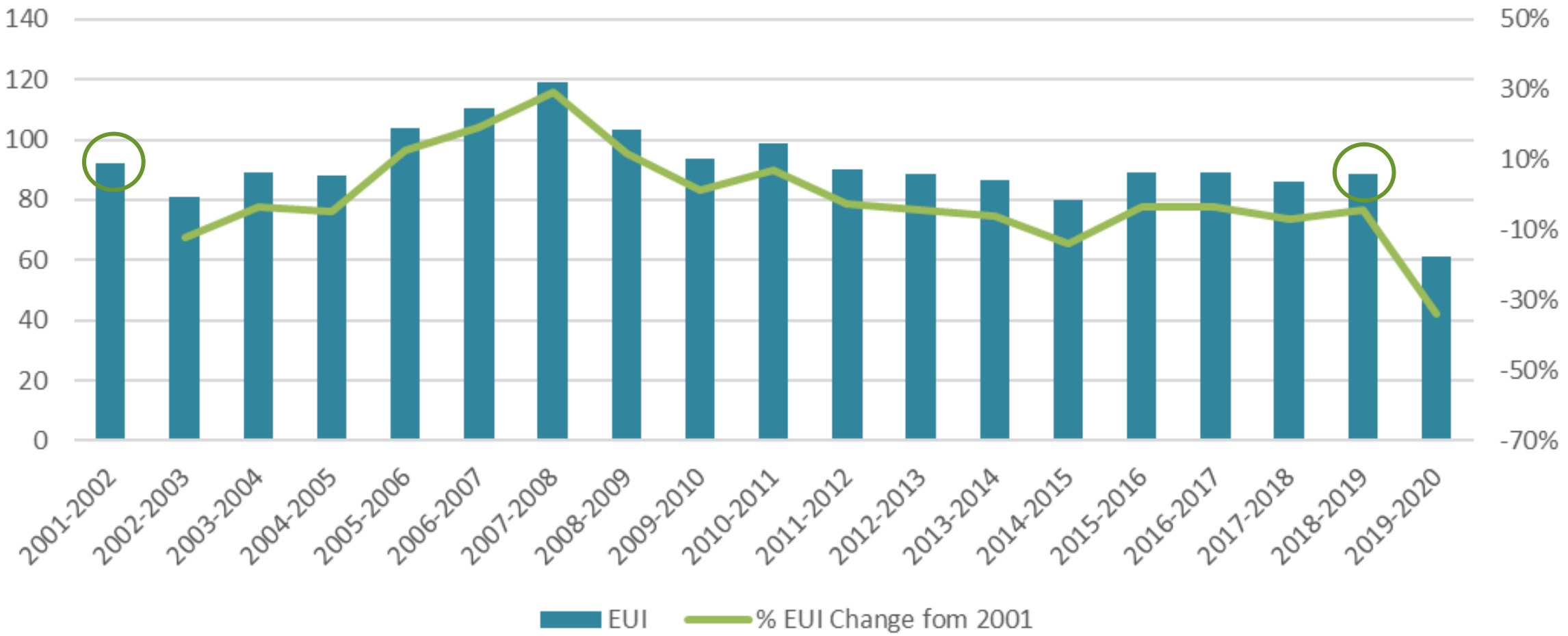
30% increase in  
total gsf 2001 –  
2019



# FHDA CCD

## Energy Use Intensity Trend (kbtu/sf/yr)

4% decrease in energy use intensity (EUI) 2001 – 2019



# CA BOLD GOALS

## Getting to Zero Net Energy (ZNE)



### CA "Big Bold" Goals

- 1** All new commercial construction will be ZNE by 2030
- 2** 50% of existing buildings will be retrofit to ZNE by 2030
- 3** All new residential construction in California will be ZNE by 2020

*The California Efficiency Strategic Plan (Sep 2008)*  
[californiaenergyefficiency.com/docs/EEStrategicPlan.pdf](http://californiaenergyefficiency.com/docs/EEStrategicPlan.pdf)



Exploratorium | San Francisco, CA



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Please cite the source as: "California ZNE Communications Toolkit, July 2013"



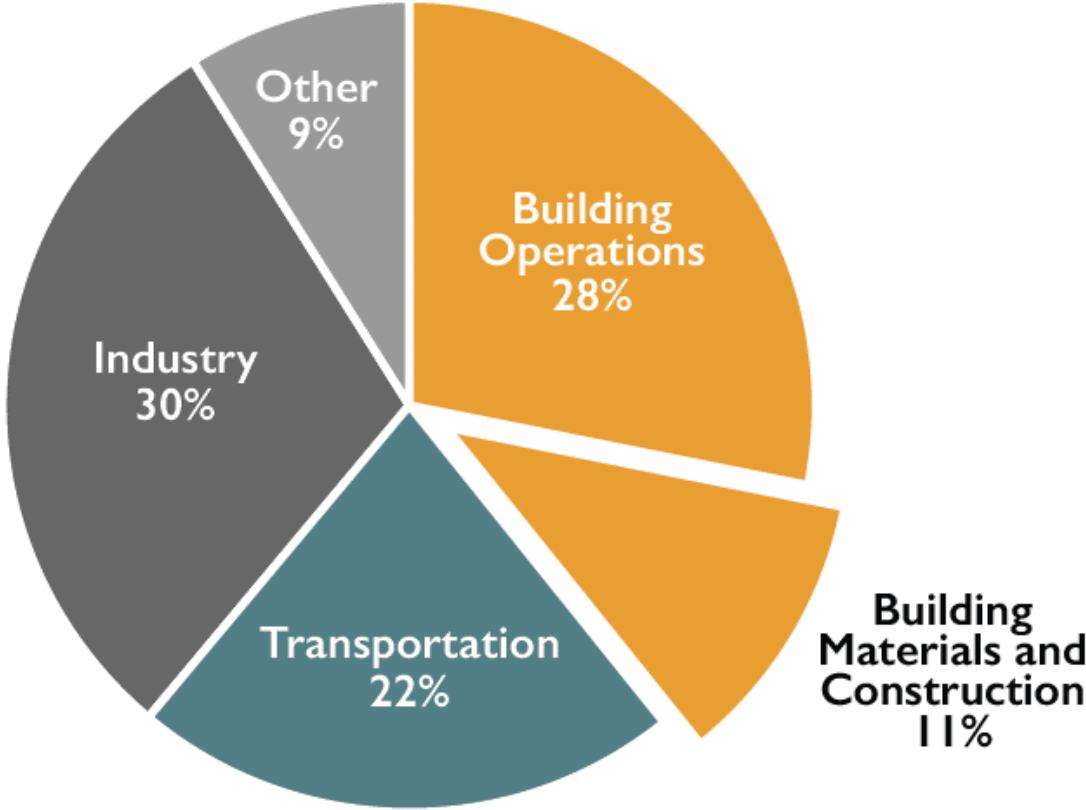
### CA State Buildings

- 50% of new facilities designed after 2020 to be ZNE
- 100% of new buildings & major renovations designed after 2025 to be ZNE

# THE BIG AH-HA

## Let's talk Zero Carbon along with NZE

Global CO<sub>2</sub> Emissions by Sector



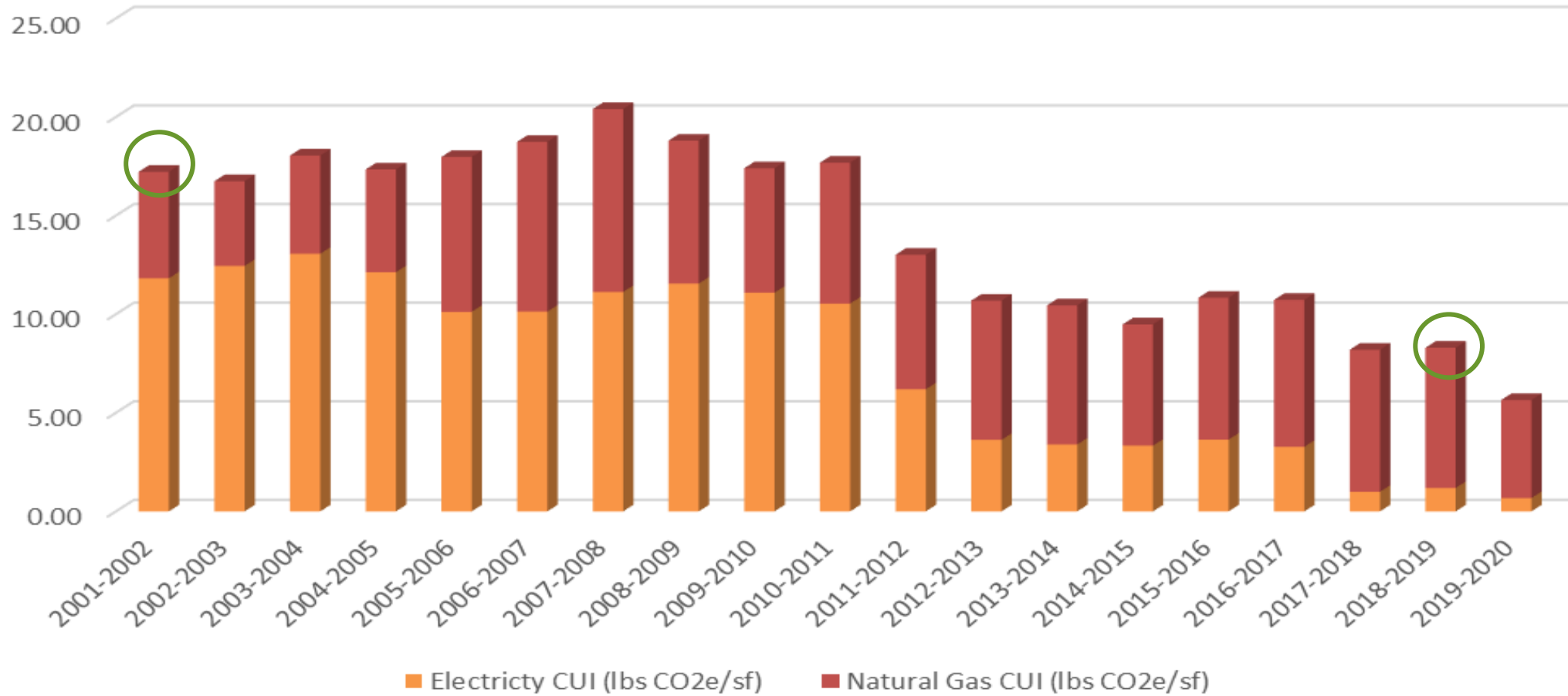
Source: © 2018 2030, Inc. / Architecture 2030. All Rights Reserved. Data Sources: UN Environment Global Status Report 2017; EIA International Energy Outlook 2017

# FHDA CCD

## Carbon Use Intensity Trend (lbs CO2e/sf/yr)

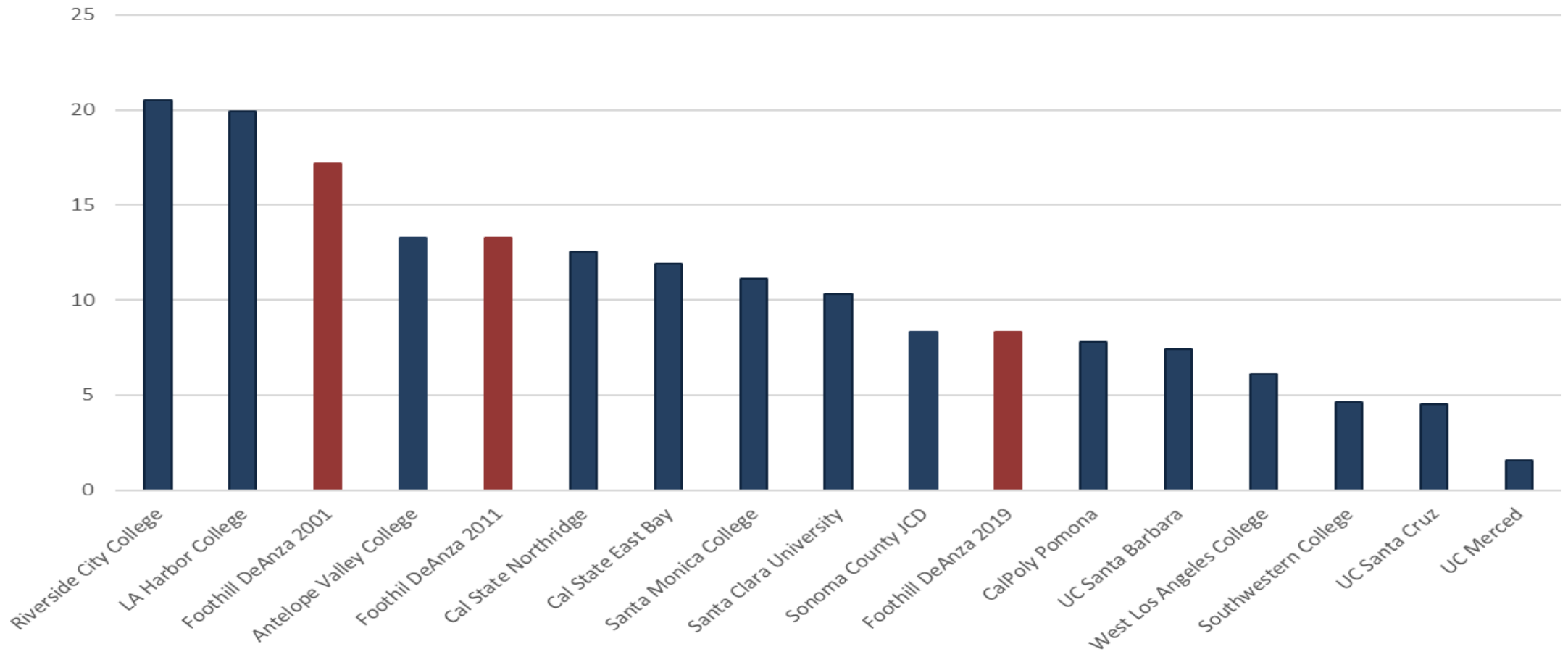
52%

decrease in carbon use intensity (CUI) 2001 – 2019



# FHDA CCD

## Comparative CUI Trend (lbs CO2e/sf/yr)



2020 FACILITIES MASTER PLAN



# Message from the Chancellor

In supporting Measure G, local residents have given Foothill-De Anza Community College District an extraordinary opportunity to restore and rebuild essential infrastructure, both physical and technological, that will benefit many generations to come. We are deeply grateful for this, and for all the public support that has allowed us to build and maintain two of California's top community colleges.

Over a period 15 years, Measure G bonds will help the district keep pace with the accelerating change that has become such a constant and protect the investment the community has made in Foothill College and De Anza College since 1957.

These bonds will help improve the sustainability and energy efficiency of our campuses, reducing our carbon footprint and cutting power costs. They will allow us to renovate and rebuild classrooms and labs to meet evolving community needs and provide maximum flexibility in teaching and learning. Through Measure G, we can keep technology and equipment up to date and improve the safety and security of Foothill and De Anza colleges as public spaces.

...

I assure you with confidence that the district will continue acting as a careful steward of your investment and that we will devote ourselves to ensuring that students of all ages and backgrounds leave our colleges well prepared to further their education or contribute to the workforce, whether they are just beginning careers or returning to learn new skills.

Having already educated more than 1 million students, we look forward to continuing our partnership with you.

Warm regards,

Judy C. Miner, Chancellor



# MEASURE G

## Goals and Purposes:

The cost to attend California's public universities has risen to at least five times that of attending a community college. As a result, more students and their families rely on their local community college to save tens of thousands of dollars. This measure would allow Foothill College and De Anza College to increase opportunities for local students to earn college credits, certifications, and job skills at a reasonable price and transfer to four-year universities.

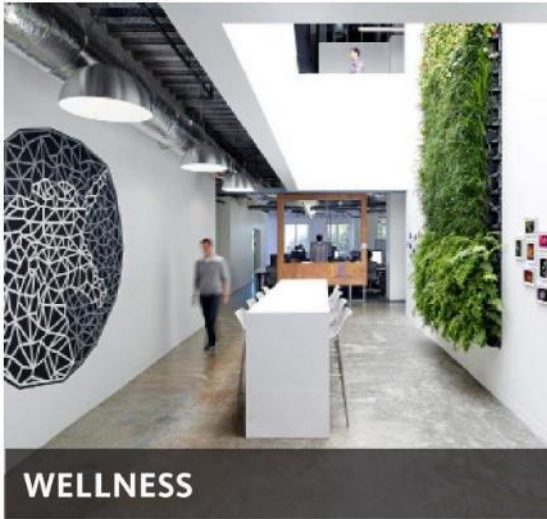
One of the qualities that make Foothill College and De Anza College the top performers in California is that their students have access to a well-rounded education. This measure will ensure that Foothill College and De Anza College are each able to continue offering students the broad science, technology, arts and vocational opportunities needed to be prepared for four-year universities and careers.

- Repair or replace aging plumbing systems to prevent flooding and water damage.
- **Improve access to college facilities for students with disabilities.**
- Improve deteriorating gas, electrical, sewer and plumbing lines and systems.
- Improve earthquake safety.
- Upgrade classrooms and labs for science, technology, engineering, and math-related fields.
- Improve water conservation and install systems that will help manage future droughts.
- Replace aging internet and electrical wiring.
- Improve and maintain classrooms and labs for career preparation in fields like healthcare and early childhood education.
- Improve vocational classrooms and labs, such as auto repair and technology training programs; construct new permanent buildings.
- Upgrade job training and vocational classrooms.
- Repair deteriorating classrooms and facilities.

CONTEXT SETTING

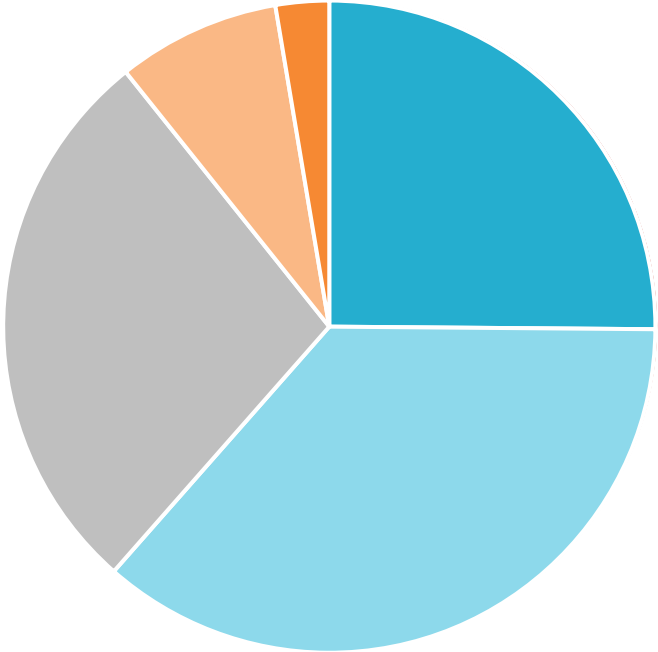
# INCLUSIVE DESIGN GOALS

SOURCE: IDEA CENTER, UNIVERSITY OF BUFFALO



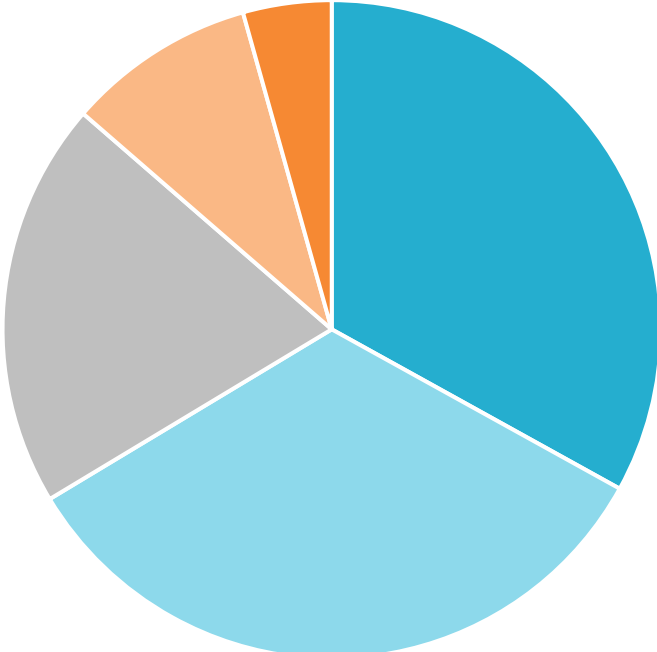
# Student Sense Of Belonging

I feel a sense of belonging at De Anza College.



■ All of the time ■ Most of the time ■ Some of the time ■ Rarely ■ Never

I feel a sense of belonging at Foothill College.



■ All of the time ■ Most of the time ■ Some of the time ■ Rarely ■ Never

# MOVING FORWARD

## A Focus on Two Key Lenses of Sustainability

### GETTING TO ZERO

- DISTRICT ENERGY SYSTEMS
- BUILDING OPERATIONS
- NEW BUILDINGS
- TRANSPORTATION
- SEQUESTRATION

### WELLBEING FOR EVERYONE

- AIR QUALITY
- INCLUSIVE DESIGN
- OUTDOOR LEARNING
- FOOD & WATER
- DIVERSITY & EQUITY

# BREAKOUT DIRECTIONS

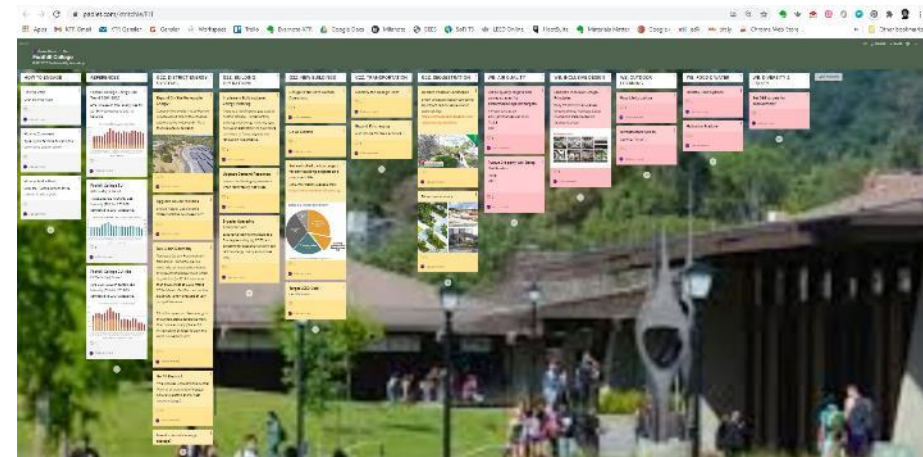
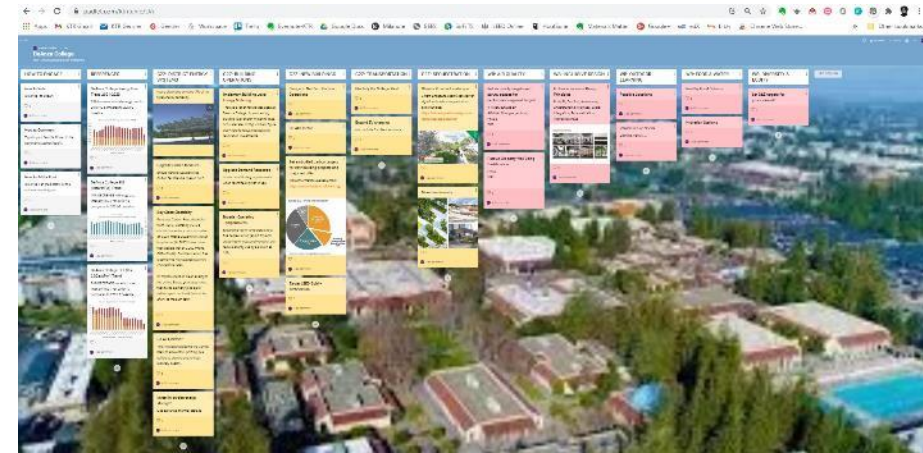
**OUR HOPE IS TO BE COLLABORATING, BRAINSTORMING AND PRIORITIZING IN REAL TIME ON THE KEY FOCUS AREAS (GETTING TO ZERO AND WELL BEING FOR EVERYONE)**

We are using Padlet

- DeAnza College: <http://padlet.com/ktritchie/DA>
- Foothill College: <http://padlet.com/ktritchie/FH>
- Note: Check the chat box for links

Timing

- 10 minutes to jump to your breakout zoom, load up your padlet, learn how to engage (vote, comment, add posts)
- 15 minutes focused on Getting to Zero (comment, add new ideas, vote and pick someone to report out)
- 15 minutes focused on WellBeing for Everyone (comment, add new ideas, vote and pick someone to report out)
- Back to the main zoom for report out



padlet.com/ktritchie/DA

Apps KTR Gmail KTR Gensler Gensler Workspace Trello Evernote-KTR Google Docs Milanote BEES SoFi TS LEED Online HootSuite Materials Matter Google+ edX bitly Chrome Web Store... Other bookmarks

DeAnza College  
MAP 2020 Sustainability Workshop

**HOW TO ENGAGE**

- How to Vote: Click the little heart
- How to Comment: Type in your favorite flower in the comments section below.
- How to Add a Post: Click the + at the bottom of the column to add a post.

**REFERENCES**

- DeAnza College Energy Use Trend 2001-2020: 18% increase in total energy use for 2018-19 compared to 2001-02 baseline.
- DeAnza College EUI (kbtu/sf/yr) Trend: 10% DECREASE in Energy Use Intensity (EUI) for 2018-19 compared to 2001-02 baseline.
- DeAnza College CUI (lbs CO2e/sf/yr) Trend: 86% DECREASE in carbon use intensity (CUI) for 2018-19 compared to 2001-02 baseline.

**GZZ: DISTRICT ENERGY SYSTEMS**

- yearly electricity demand (7% of the total energy demand)
- Upgrade CoGen facilities: Should Natural Gas powered CoGen facilities be phased out?
- Buy Clean Electricity: Purchase Carbon Free electricity from PGE. Currently PGE's electricity carries a carbon burden of 0.294 metric CO2e/kwh, which is quite low (in 2012 it was more than double that at 0.305 metric CO2e/kwh). Certified carbon free electricity is now available at very competitive rates...
- Go All Electric?: This includes upgrading the Central Plant to an electric (shifting gas boilers to electric and/or heat recovery design).
- Invest in on-site energy storage?: Like batteries, thermal storage

**GZZ: BUILDING OPERATIONS**

- Implement Building Level Energy Metering: There is a lot of natural gas used at DeAnza College. Implementing building level energy metering (gas, hot water, electricity) will help figure out where to focus upgrades and renovation investments.
- Upgrade Demand Response: Lower conditioning requirements when room/facility not in use.
- Broader Operating Temperatures: Expanding room temperature to a five degree swing (eg 67-72) and adjusting for seasonal variation can reduce energy use by as much as 10%.
- Target LEED Gold + certification

**GZZ: NEW BUILDINGS**

- Design to Net Zero Carbon Operations
- Go All Electric
- Set embodied carbon targets for new building projects and major retrofits. More information available from <https://carbonleadshipforum.org/>
- Global CO<sub>2</sub> Emissions by Sector: Industry 37%, Building Materials and Construction 10%

**GZZ: TRANSPORTATION**

- Electrify the College Fleet
- Expand EV charging: also include for bikes, scooters,...

**GZZ: SEQUESTRATION**

- Climate Positive Landscape: Smart landscape design can deliver significant carbon sequestration opportunities! <https://online.sustainablecampus.org/resources/campus-studies/>
- More bio-diversity

**WB: AIR QUALITY**

- Set air quality targets and survey spaces for performance against targets: % Fresh/outside air, ACH (Air Changes per hour), PM2.5, CO2
- Pursue 3rd party Well Being Certification: Fitwel WELL

**WB: INCLUSIVE DESIGN**

- Embrace Inclusive Design Principles: Body Fit, Comfort, Awareness, Understanding, Wellness, Social Integration, Personalization, Appropriateness

**WB: OUTDOOR LEARNING**

- Possible Locations
- Infrastructure Needs: Lighting, Power, ...

**WB: FOOD & WATER**

- Healthy Food Options
- Hydration Stations

**WB: DIVERSITY & EQUITY**

- Set D&E targets for procurement?

DeAnza College: <http://padlet.com/ktritchie/DA>

padlet.com/ktritchie/FH

Apps KTR Gmail KTR Gensler Gensler Workspace Trello Evernote-KTR Google Docs Milanote BEES SoFi TS LEED Online HootSuite Materials Matter Google+ edX bitly Chrome Web Store... Other bookmarks

padlet

Kevin Mulla 10m

**Foothill College**  
FMP 2020 Sustainability Workshop

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**REFERENCES**

- Foothill College Energy Use Trend 2001-2020**  
40% increase in total energy use for 2018-19 compared to 2001-02 baseline.
- Foothill College EUI (kbtu/sf/yr) Trend**  
4% DECREASE in Energy Use Intensity (EUI) for 2018-19 compared to 2001-02 baseline.
- Foothill College CUI (lbs. CO2e/sf/yr) Trend**  
44% DECREASE in carbon use intensity (CUI) for 2018-19 compared to 2001-02 baseline.

**G2Z: DISTRICT ENERGY SYSTEMS**

- Expand On-Site Renewable Energy?**  
Currently the on-site PVs at Foothill provide about 80% of the colleges yearly electricity demand (1% of the total energy demand).
- Upgrade CoGen facilities**  
Should Natural Gas covered CoGen facilities be phased out?
- Buy Clean Electricity**  
Purchase Carbon Free electricity from PG+E. Currently PG+E's electricity carries a carbon burden of 0.094 metric CO2e/kWh, which is quite low (in 2019 it was more than double that at 0.202 metric CO2e/kWh). Certified carbon free electricity is now available at very competitive rates.
- Go All Electric?**  
This includes upgrading the Central Plant to all electric (shifting gas boilers to electric and/or heat recovery design).
- Invest in on-site energy storage?**

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- Target LEED Gold + certification**

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- Set air quality targets and survey spaces for performance against targets**  
% Fresh/outside air  
ACh (Air Changes per hour)  
PM2.5  
CO2
- Pursue 3rd party Well Being Certification**  
Fitwel  
WELL

**WB: INCLUSIVE DESIGN**

- Embrace Inclusive Design Principles**  
Body Fit, Comfort, Awareness, Understanding, Wellness, Social Integration, Personalization, Appropriateness

**WB: OUTDOOR LEARNING**

- Possible Locations**
- Infrastructure Needs**  
Lighting, Power...

**WB: FOOD & WATER**

- Healthy Food Options**
- Hydration Stations**

**WB: DIVERSITY & EQUITY**

- Set D&E targets for procurement?**

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# BREAKOUTS