GOVERNING BOARD REGULAR MEETING/ STUDY SESSION

2021 – 22 ANNUAL SUSTAINABILITY REPORT
CONTRA COSTA COMMUNITY COLLEGE DISTRICT

NOVEMBER 9, 2022

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I. Executive Summary

The State of California has been rapidly developing long range energy and sustainability goals, mandates and plans in realization that action is necessary in order to deescalate a myriad of problems, including wildfires, coastal erosion from rising seas, disruption of water supply, health threats from air pollution, contaminated soil, unhealthy water and many other issues that contribute to large equity gaps and have damaging impacts on the economy.

Climate crisis and increased equity gaps have many major and contributing common factors. How we procure and use our energy, procure our materials, generate and dispose of waste, landscape and irrigate our property, maintain our investments, travel to work or school, share our food, and so many other factors, all contribute to environmental justice and thus equity for all. Many studies have noted that polluted air, dirty water and soil are all associated with illnesses, and those conditions put people more at risk. Research also shows these environmental factors contribute significantly toward so-called “fence-line communities,” defined as areas situated near facilities that produce hazardous waste. While these environmental factors impact all people, animals and our ecosystems, it is important to note these factors disproportionately impact young people and future generations, and disproportionately affect people of color and people in poverty, thereby exacerbating existing inequities and limiting opportunities. Closing equity gaps requires continued conversations, strategy and ultimately a collective call to action to improve our educational system, our internal infrastructure and operations.

This report provides a summary of 4CD’s 2021-22 sustainability highlights, progress and current status, challenges and steps we must take in order to develop and advance a comprehensive 4CD policy on sustainability. As a step toward developing a comprehensive 4CD policy, this year the sustainability committees reached consensus to collectively pursue nine main 4CD sustainability goals, which align with the most recent Board of Governors 2021 Climate Action and Sustainability Framework goals, various state mandates, policies and plans referenced in this report. Additionally, the committees reached a common agreement as to how we can collectively move forward the crucial dialogue and action towards these goals. Specifically, goals were identified as either District lead with campus involvement or campus lead with District support or solely campus lead. As such, the Colleges sustainability teams and college users continue to complete energy and water-savings and waste reduction projects. The college sustainability committees have continued to make strides in engaging faculty, staff and students in change management: namely, changing behaviors to conserve energy and resources.

This report also looks forward in this year, as we plan to continue to engage in this vision and determine resources required in order to advance our newly developed 4CD sustainability goals with each of the campuses, while aligning their vision with these goals. This information will also be tied together in the Facilities Master Plans, as many of the goals will require further development and funding for our

infrastructure and buildings. Finally, this report highlights the early stages of that process, as the activities, projects, initiatives and events of the college sustainability committees collectively continue to foster an increased awareness about the way 4CD, and its colleges can foster the best possible environment for our students and continue to provide an enriched and student-focused academic experience.

Planning and implementing solutions to achieve statewide goals will take determination, perseverance, culture shifts, funding, and collaboration from the entire 4CD community. Just as we worked together to transition to remote operations and continue to press on in a global pandemic, we will also need to continue to lead the way and work together to move the dial substantially for the climate justice movement.

II. 4CD Sustainability Highlights: Progress and Current Status

Collaboration and Long Term Goals toward Positive Climate Action

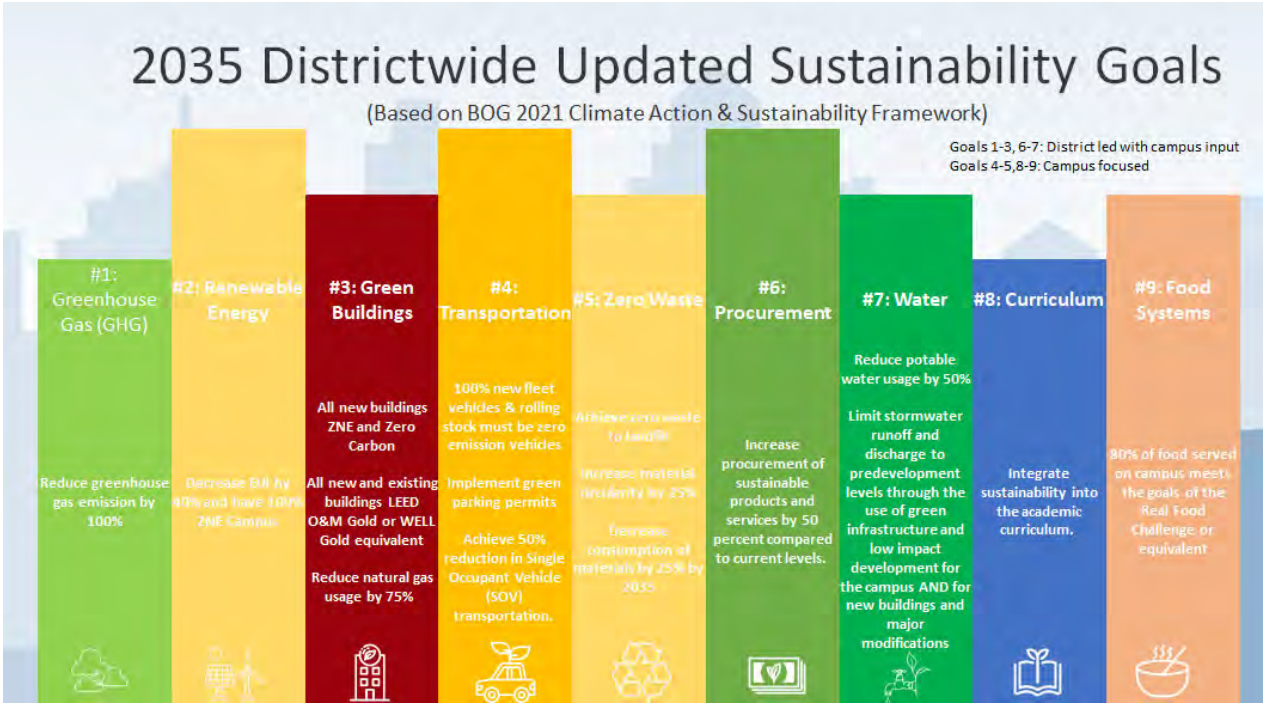
One of the largest accomplishments districtwide this year was collaborating across multiple committees and groups to collectively pursue the nine main 4CD sustainability goals, which align with the most recent Board of Governors 2021 Climate Action and Sustainability Framework goals, various state mandates, policies and plans referenced in this report.

In last year's report, we mentioned the State Chancellor's Office Board of Governors (BOG) adopted a new California Community College Board of Governors Climate Change and Sustainability Policy in May 2019 and adopted a resolution in support of those goals. Details of this policy are noted in the Appendix of this report. In September of 2021, the BOG issued the BOG Climate Action and Sustainability Framework, which reaffirms the 2019 Board of Governors' Climate Change and Sustainability Policy and offers a set of goals and policies that are consistent with the Climate Change Strategy Pillars identified in the state of California's 2017 Climate Change Scoping Plan. The updates refined the 2019 policy to reach further and have a bigger impact on climate change, as well as extending the end target year by five years, putting it out to 2035. The Climate Action and Sustainability Framework updates and guide our district climate change strategy and environmental sustainability efforts by creating goals that can guide system actions and future alignment of other system policies.

Worth noting is that this policy sets sustainability goals for 2035 with intermediate targets in 2025 and 2030, encouraging districts to adopt their own local resolutions. In many ways, this timing aligned perfectly with the culmination of several years of 4CD sustainability committee efforts to determine long-term goals that aligned with state policies and committee visions.

Presently, the three college committees and District Office sustainability teams work very closely together and have agreed to collectively pursue nine large 4CD sustainability goals noted below. We took these goals to various stakeholders, including the Chief Business Officers, Associated Student groups at each campus, Sustainability Committees at each campus and the Student Trustee Advisory Council, during a collaboration period from March 2022 through June 2022. Each goal has been assigned to be either 4CD-led with campus involvement or campus lead with 4CD involvement, or solely campus led. These goals align and support this year's Governing Board resolution. This will form a basis for future planning of infrastructure upgrades as well as future building retrofits in our Facilities Master Plan, and serve as a guidepost for fine tuning campus operations. Presently, and for the first time, the State Chancellor's Office Scheduled Maintenance funding includes an energy efficiency projects category, signaling a movement in the State's desire to include funding for these goals.

The following graphic is a summary of 4CD Districtwide Sustainability Goals:



The table below shows our goals in more detail with the intermediate goals and some of the steps required to achieve the goals, as set forth in the 2021 Framework.

Categories	Intermediate Goals by 2025	Intermediate Goals by 2030	Goals by 2035
#1: Greenhouse Gas (GHG)	Establish baseline/benchmark greenhouse gas emissions. Conduct emissions inventory and create a Climate Action Plan.	Reduce GHG by 75% below the baseline.	Reduce GHG by 100% below the baseline.
#2: Renewable Energy	Establish Campuswide EUI score Conduct Effective Useful Life (EUL) analysis of all gas using appliances and systems Plan for electrification of systems with EUL of less than 10 years	Decrease EUI by 25% Produce or procure 75% of electrical consumption using renewable energy	Decrease EUI by 40% ZNE Campus
#3: Green Building and ZNE	Benchmark EUI for each building Develop ZNE and campus electrification strategy Optionally conduct LEED or WELL assessments of existing buildings.	All new buildings LEED or WELL Gold Reduce natural gas usage by 30%.	All new buildings ZNE and Zero Carbon All existing buildings LEED O&M Gold or WELL Gold equivalent Reduce natural gas usage by 75%.
#4: Transportation	Conduct accounting and conditions assessment of fleet vehicles; assess remainder rolling stock for electrification Develop EV charging infrastructure to encourage faculty, staff and students to use EVs Promote accessible shared transport methods Make pedestrian and bicycle assess improvements by 2025.	50% of new fleet vehicles must be ZE vehicles 50% of rolling stock must be ZE Implement green parking permits by 2030	100% of new fleet vehicles must be ZE vehicles 100% of rolling stock must be ZE Achieve 50% reduction in Single Occupant Vehicle (SOV) transportation

Categories	Intermediate Goals by 2025	Intermediate Goals by 2030	Goals by 2035
#5: Zero Waste	Conduct waste categorization assessment Benchmark and comply with T14, Division 2, Chapter 5 Benchmark and comply with Title 14, CCR Division 7 Develop a total material consumption benchmark Conduct an AB341 compliance assessment Centralize reporting for waste and resource recovery	Achieve zero waste to landfill Conduct a circularity analysis Reduce material consumption by 10%	Maintain zero waste to landfill. Increase material circularity by 25% Decrease consumption of materials by 25% by 2035
#6: Procurement	Benchmark sustainability of existing products and services Adopt sustainable procurement policy and administrative procedure Purchase environmentally preferable electronics products.	Increase procurement of sustainable products and services by 25%	Increase procurement of sustainable products and services by 50%

Categories	Intermediate Goals by 2025	Intermediate Goals by 2030	Goals by 2035
#7: Water	Develop local benchmarks for potable water usage Identify non-potable water resources Create landscape zoning map and irrigation metering strategy Adopt CCC Model Stormwater Management Program practices	Reduce potable water usage by 25% Install meters on all landscape irrigation systems of 2500 SF or more (unless using local or municipal reclaimed water) Landscape plantings are 90% native Irrigated turf cannot exceed 50% of landscaped areas on campus Follow Municipal Separate Storm Sewer Systems (MS4) requirements	Reduce potable water usage by 50% Limit stormwater runoff and discharge to predevelopment levels for temperature, rate, volume and duration of flow through the use of green infrastructure and low impact development for the campus AND for new buildings and major modifications
#8: Curriculum	Seek to further integrate sustainability into the academic curriculum. Will solicit and evaluate feedback from faculty, staff, students and community organizations to monitor the effects of sustainability and energy conservation efforts on instructional programs and the environment.		
#9: Food Systems	Campus food service organizations track their sustainable food purchases. See Real Food Challenge (www.realfoodchallenge.org/resources/real-food-resources/) guidelines, or equivalent, with consideration to campus-requested improvements	Increase sustainable food purchases to 20% of total food budget	80% of food served on campus meets the goals of the Real Food Challenge or equivalent

Progress toward Long Term Goals

In support of the sustainability goals, we have now formalized a 4CD Sustainability Committee presence and are adding a new Utilities and Sustainability Specialist position in the District Office Facilities Planning and Construction Department. We continue to have part-time support from Moises Rocha as the Sustainability Coordinator Intern.

We also participated in the second round of the Energy Star Higher Education Benchmarking Initiative (HEBI). The HEBI was created in 2020 to spark dialogue and action on efficiency, providing a way for colleges and universities to understand how the energy and water performance of their campus buildings compare to that of peer institutions through free, individualized scorecards. We anonymously shared our energy and water usage data to participate in this effort to allow us to begin to benchmark our buildings (which is one of the 2025 intermediate sustainability goals). 100 institutions with 200 campuses participated in the first round HEBI.

Last year, the District Office launched the Zero Waste Initiative in alignment with Goal#5, Zero Waste above. We engaged in planning exercises with Isma'il al-Shabazz, former Custodial Manager at DVC, along with the DVC Sustainability Committee members, to ensure best practices are followed. This initiative focuses on reducing the amount of overall waste that we create by reducing our consumption, reusing and recycling as much as possible and composting food waste and soiled papers. We were able to launch this effort by having our Sustainability Coordinator Intern Moises Rocha lead the effort by seeking advice, training, and developing and implementing the plan to get all three stream bins placed throughout our building as well as provide training to custodial and all staff on how to properly use the bins. Mr. Rocha also developed the following informational story map, showing landfill in our college community, links to cancer and how reducing waste directly impacts equity and student success:

We took this initiative to SRC and started the three stream systems at that location and also implemented it at CCC in the new Science building. The CCC and LMC Custodial Managers began implementing this initiative in many of their existing buildings, collaborating with DVC's Custodial Manager. Our sustainability committees worked with the waste haulers and came up with consistent 4CD signage for each

stream and are working toward producing and installing this signage throughout 4CD. We completed our first round of zero waste training at both SRC and CCC.

To help with educate and train our community on our Zero Waste Initiative, our District Marketing Intern Iyan Godwin produced two zero waste videos entitled What is Zero Waste? and What are Landfills? Our Student Trustee, Austin Green and his team of students also created a video entitled "How can the college or district help?" which helps vocalize student desires around sustainability.

The District Office also won an Eco Award from the City of Martinez and were recognized at the City Council meeting in February for our Zero Waste efforts in our district.

Last year, due to the COVID-19 pandemic, we continued to focus on getting our buildings ready for return to work by improving the ventilation and filtration systems. During this project, we focused on long-term solutions, repairing the central heating, ventilation and air conditioning systems (HVAC) by repairing the outside air controls and adding higher efficiency filtration to the units. By focusing on long-term repairs, we ensured our buildings have healthy indoor air quality and optimized energy usage/cost, without adding portable air purifiers unless necessary as they require additional maintenance and energy and take away resources from long term fixes. We continue to use the lessons learned to maintain our filtration and ventilation, in support of the health and wellness of our faculty, staff and students. The data collected during this effort also provided us with data that was useful for determining our long-term HVAC replacement/end-of-life needs. This also fed into our Scheduled Maintenance allocation of projects, combining both lessons learned from the COVID work as well as the nine sustainability goals above, to shift our HVAC systems away from fossil fuel and toward all electric systems that can be powered by clean, renewable energy.

Again, last year, during COVID, we saw some great energy savings, as parts of our campuses, building lighting, building HVAC, and other systems were shut down. This resulted in lower energy consumption and lower costs compared to a normal operating year. As our campuses opened up this fiscal year, our energy usage also ramped back up, increasing by 20%. Electricity, gas and water rates also increased (electricity rates increased by 7% and gas rates increased by 29%). Combined, these two increases caused our overall utility expenses to increase by nearly 30%. In 2008, we installed solar PV throughout 4CD. Those systems generate roughly 10% of our overall campus energy requirements and offset (or provide savings of) $700,000 in utility costs annually. The long-term plan is to add additional solar PV and battery storage to bring our annual utility costs down as well as meet our number one GHG reduction goals and number two Renewable Energy goals mentioned above. We have an analysis that shows adding 3200 kW of PV would cost nearly $13.7M and save us nearly $1M annually in utility costs. The new Inflation Reduction Act (IRA) currently allows community colleges to get 30-40% of their investment costs back, thus reducing the investment costs from $13.7M down to

$8.2-$9.5M. Since utility rates have skyrocketed in the last year and are projected to continue to rise, this would help stabilize our utility costs and move us closer to Goal number one, GHG and Goal number two, Renewable Energy.

In 2022, we were able to use bond savings from the LMC projects to fund the PV and resiliency project at the Brentwood Center. This is our first step toward adding more PV and battery storage throughout 4CD. This project is expected to save us nearly $120,000 in annual electricity costs. We will publish a Request for Qualifications (RFQ) in December 2022, with construction expected in the summer of 2023.

Again, in 2022, the District Office hosted a Bike-to-Work Day energizer station, which supports Goal number 4. Fellow employees helped host the event and biked to work as well. We met several community members who bike past our building daily as well as some who took a detour to gather goodies from our station.

There are several other opportunities to reduce energy, water and overall materials usage, most of which require additional funding. For example, most of the interior lighting systems have not been retrofitted to LED (Light Emitting Diode) fixtures. Several of our existing buildings have outdated and broken building automation system (BAS) controls, resulting in simultaneous heating and cooling and excessive fan energy. Their parts and pieces are no longer manufactured, so replacement is imminent. Updated BAS controls would allow for much smarter and more comfortable operation of the HVAC systems and lighting systems in addition to automatic fault detection software to help operations and maintenance staff find and repair high usage problems. They would also help maintain consistent indoor air quality and ventilation. Each of these energy reduction opportunities needs to be included in future bond funding as well as additional PV and battery storage.

Grants Creating Positive Climate Action

In addition to the large bond projects, we continued to seek grant funding and other programs to plan, develop and implement projects to help lower greenhouse gases resulting from transportation and other end uses. To qualify for these funding opportunities, it is essential that we have clear sustainability goals and planning efforts in place as part of the grant funding process. We have a good success record in securing grant funding based on early planning efforts. One example of our collective efforts can be seen in receiving and implementing grant funding that provided 80 new Level 2 Electric Vehicle Charging Stations (EVCS) installed throughout 4CD, bringing the total to 86. 4CD received Bay Area Air Quality Management District (BAAQMD) grants, Contra Costa Transit Authority (CCTA) and participated in the Pacific Gas & Electric Company (PG&E) EV (Electric Vehicles) Charge Program, totaling approximately $894,000 in contributing funds, which covered most of the construction and equipment costs for the EVCS.

This year, 4CD is collaborating with ProspectSV, which has a grant to complete a total cost of ownership analysis and a draft plan to shift our fleet vehicles to EVs. We have gathered a list of all the fleet vehicles and worked with our Operation and Management (O&M) teams and others to identify miles driven, vehicle use requirements (e.g., loading materials, people, delivery mail, etc.), vintage of the vehicles, and so on. With this data, we will develop a plan to electrify our fleet and apply for applicable grants as they arise.

Bond Projects Creating Positive Climate Action

This year we continue to highlight projects that have received awards as well as some “firsts” at 4CD. Throughout the description of these projects, you can see we have been implementing some of the nine goals mentioned above. The CCC Science building is designed to be Zero Net Energy (ZNE) Ready. It was the first to be designed as such, and it was awarded the California Community Colleges Board of Governors Energy and Sustainability Award for the Best Overall Large District Innovative Project in 2021. During the project’s design phase, targets were developed to create a building that uses energy well below similar benchmark science buildings. The building has an all-electric heating and air conditioning system (which eliminates burning fossil fuels on campus) and will utilize existing campus solar Photovoltaic (PV) power to offset part of its energy use, promoting clean, green power. Designing and constructing buildings with sustainability features incorporated from the beginning are the most responsible uses of bond funds as they also reduce the total cost of ownership to the college.

The next project to highlight is the DVC Physical Education Complex and the Art Complex. Together, these are the first 4CD projects that are being designed as ZNE and also targeting ZNE LEED Certification. Both complexes feature all-electric heating and air conditioning systems (which eliminates burning fossil fuels on campus) and will utilize existing campus solar Photovoltaic (PV) power to offset energy use, and promoting clean, green power.

The LMC Kinesiology/Athletics and Student Union Complex has the distinction of

receiving an Award of Honor in the Growth Category through the 2021 Community College Facility Coalition (CCFC). The LMC Kinesiology/Athletics and Student Union Complex building as well as the Brentwood Center were also all awarded LEED Gold Certification this year.

Optimizing bond funds to install efficient lighting, heating, and ventilation and air conditioning systems, electric vehicle charging stations, and installing drought tolerant native plants are being taken into consideration. Additionally, designing for excellent indoor air quality and many more features all help us to be on track to meet existing and future mandates. They also tie into many of our existing policies, strategic plan objectives and will help to reduce equity gaps. As a result, 4CD has set various design-based energy targets for its bond-funded project renovations and new building construction. These targets are intended to reduce the energy usage and demand of the building, so it can be a ZNE building with the addition of future solar PV.

Each new building and large renovation project have a target goal of being LEED Silver certified, exceeding Title 24 State Energy Codes by a minimum of 10%; receiving PG&E's Savings by Design Incentives (or equivalent) for high efficiency buildings; and, in some cases, achieving ZNE. Additionally, 4CD targets using drought tolerant, native plants in new building landscaping to reduce water usage and reduce maintenance. These goals and requirements will help 4CD move closer

to ZNE; reduce energy and water usage and reduce future waste on all large renovation and new building projects, while creating buildings that require lower annual operating costs use more recycled materials and result in healthier buildings for students, faculty and staff.

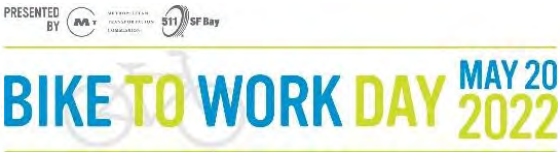
III. College Sustainability Committee Accomplishments

We continued to organize and facilitate 4CD sustainability meetings with DVC, LMC and CCC staff attending in-person and via *Zoom*. Since the pandemic, some committees experienced a shift in their focus and priorities. These types of meetings allow each committee to learn and share resources to help provide efficiency and unity in sustainability initiatives across 4CD and to meet our nine energy and sustainability goals.

Listed below are the 2021-22 College Sustainability Committees' detailed accomplishments.

CCC

A. Bay Area Bike-to-Work Day



On May 20, 2022, CCC hosted an Energy Station for the Bay Area Bike-to-Work Day. Whether you were commuting or working from home, everyone was invited to get outside on their bikes to celebrate this event, all in alignment with Goal number 4, Transportation and Goal number 1, GHG Reduction.

B. Culinary Department Arbor Day Event

The Culinary Department hosted another Arbor Day event in their Culinary Garden. Ten trees were planted for this year's celebration. Arbor Day allows everyone in the community to learn about trees and the environmental, social, economic, and health benefits they provide to communities. Planting new trees reduces GHG, limits global warming and allows for lower surface and air temperatures, thus reducing the impact of urban heat islands. Arbor Day also teaches fundamental lessons about stewardship of natural resources and caring for our environment as well as contributes to Goal number 1, GHG and Goal number 10, Food Systems.

C. Earth Day Celebration

Annually, on April 22, approximately one billion individuals across more than 190 countries take action to raise awareness of the climate crisis and bring about behavioral change to protect the environment. This year, the CCC Sustainability Committee hosted 25 vendors and outside organizations. In addition, the event included food, giveaways, music and contests. This contributes to all nine of our Goals above.

D. CCC New Swimming Pool Cover

CCC received a $28,000 grant from Marin Clean Energy (MCE), to purchase a new swimming pool cover. MCE is a not-for-profit public agency that has set the standard for clean energy in our communities since 2010. They are our community choice aggregate (CCA) supplier at CCC. Pool covers provide the benefits listed below.

- Conserve water by reducing the amount of evaporation and thus make-up water needed by 30%–50%
- Reduce the pool's chemical consumption by 35%–60%
- Conserve energy by reducing heat loss to the surrounding air
- Reduce cleaning time by keeping dirt and other debris out of the pool.

This work supports Goal number 1, GHG, Goal number 2, Renewable Energy, Goal number 3, Green Buildings and Goal number 7, Water.

E. CCC Campus Zero Waste Initiative

The Zero Waste International Alliance defines ZW as the conservation of all resources through responsible production, consumption, reuse, and recovery of products, packaging, and materials without burning and with no discharges to land, water, or air that threaten the environment or human health. Implementing the three-stream bin (compost, recycling and landfill) as part of our ZW campus initiative began in April 2022. Under the guidance of Custodial Manager William

Tandongfor, his fantastic team completed the three stream bin implementations in the Science Center (SC), Student Administration Building (SAB), Fireside Hall (FH), and the Student Service Center (SSC) building. Next, they will begin implementation in the Gym Annex (GA) and the Gym (G). CCC is working hard to have the three-bin infrastructure implemented by November 2022. This work supports Goal number 5, Zero Waste.

DVC

A. Shrink, Drink and Think Campaign

Fall 2022 began with the Shrink, Drink and Think campaign to reduce waste production in Student Union and Faculty Annex. The message is currently being displayed on various television screens around campus. The goal is to raise environmental awareness amongst students, staff, and faculty members. It supports Goal number 5, Zero Waste.

B. Campus Zero Waste Initiative

Under the guidance of the Custodial department, a three-stream bin system was implemented at SRC and in the new PE/K building at DVC. The three-bin system is designed to facilitate the campus waste segregation program. In addition, the new bin infrastructures and continued community education will help the college achieve its zero waste goals.

The DVC Sustainability Committee also participated in the Districtwide Sustainability meeting. As a result, the group agreed on uniform signage for waste containers across all colleges and centers. The signage was designed to make waste segregation throughout 4CD easier for our students, faculty, and staff members.

The college also planned, but could not complete, waste audits to assess the success of segregation due to a change in personnel at the garbage hauler for PHC (Republic Services). This item supports Goal number 5, Zero Waste.

C. EV Demonstration Event

On Oct. 25, 2021, the college co-organized an EV demonstration event with the local non-profit, Charge Across Town. Charge Across Town's mission is to reduce pollution from cars and trucks in California by promoting the adoption of ZEVs. The event generated nearly 200 test drives for bikes and cars. This supports Goal number 1, GHG and Goal number 4, Transportation.

D. Earth Day 2022

A Treasure Hunt for Earth Day was organized from April 18 to 22. Videos were created, featuring six sustainable aspects of DVC for the website. The videos can be seen HERE. In addition, the sustainability group used the app Action bound to lead students to information about sustainable campus practices. This supports all of our goals above.

E. Water

Water is a precious and limited resource, especially in drought-prone California, where the next dry period could be right around the corner. As a result, water conservation and the efficient use of California's water supply are major priorities for the State, according to the California Water Resource Department. The Sustainability Committee reviewed water usage data by meeting with a Contra Costa Water District representative and also reviewed its water usage report. The Sustainability Committee is also working with the District Office Facilities Planning and Construction Department to identify potential sources of a leak on campus. This supports Goal number 7, Water.

F. Newsletters

The intent of the newsletter is to provide information on some of the initiatives and projects the Sustainability Committee is undertaking and to gain support and interest in sustainability. It is a great way to stay connected

with the campus community and to encourage feedback. This year there were three published newsletters sent to all employees. These can be found HERE. This supports all of the goals above.

LMC

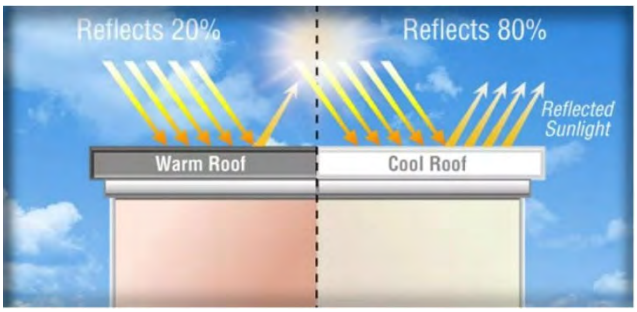
A. Building Automation Systems Upgrades (BAS)

BAS systems control the HVAC systems in a building to provide comfort and ventilation to building occupants, while balancing energy efficiency. Existing systems in the Music and Science buildings are a mix of pneumatically controlled systems and outdated digital controlled systems. Both will be updated to 4CD controls design standard/master specifications, which incorporate the American Society of Heating, Refrigerating and Air Conditioning Engineers' (ASHRAE) Guideline 36 controls sequences in the Automated Logic (ALC) controls. Research has shown the energy savings for upgrading to G36 saves roughly 30% of building HVAC-based energy usage, which is likely 10% of the overall building usage. The savings will likely be even higher in the pneumatically controlled areas. Science buildings typically use three to five times the energy of a standard classroom building, so higher savings are expected. This measure supports Goal number 1, GHG, Goal number 2, Renewable Energy, and Goal number 3, Green Buildings.

B. Increasing bottle filling stations on campus

LMC added two new water filling stations in the Math and Child study buildings. A key benefit of filtered water bottle filling stations is their ability to provide safer drinking water. Most stations use high-performance filters that remove common contaminants, such as chlorine and lead. In addition, it is estimated that 80 percent of plastic bottles end up in landfills. Filtered water bottle filling stations serve as an alternative to plastic water bottles by encouraging people to reuse and refill their water bottles with water that is safe, healthy, and accessible. This measure supports Goal number 1, GHG, Goal number 3, Green Buildings and Goal number 5, Zero Waste.

C. Cool Roof



LMC is installing a new "Cool Roof" in Vocational Technology buildings. A cool roof is designed to reflect more sunlight than a conventional roof, absorbing less solar energy. This lowers the temperature of the building just as wearing light-colored clothing keeps you cool on a sunny day. Traditional roofs can reach temperatures of 150°F or more on a sunny summer afternoon. Under the same conditions, a reflective roof could stay more than 50°F (28 °C) cooler. This can save energy and money in buildings with air conditioning or improve comfort and safety in buildings without air conditioning, by reducing heat flow from the roof into the occupied space. This measure supports Goal number 1, GHG, Goal number 2, Renewable Energy, and Goal number 3, Green Buildings.

D. Brentwood Center Solar PV

In 2022, bond savings from the LMC projects were used to fund the PV and resiliency project at the Brentwood Center. This is our first step toward adding more 4CD PV and battery storage. This project is expected to save us nearly $120,000 in annual electricity costs. Construction is expected in the summer of 2023. Solar PV parking canopies will be ground mounted steel structures topped with solar panels. They are a smart way to produce energy from large sun-exposed surfaces, while providing covered parking for drivers or shaded rest areas for people. Some of the additional benefits are listed below.

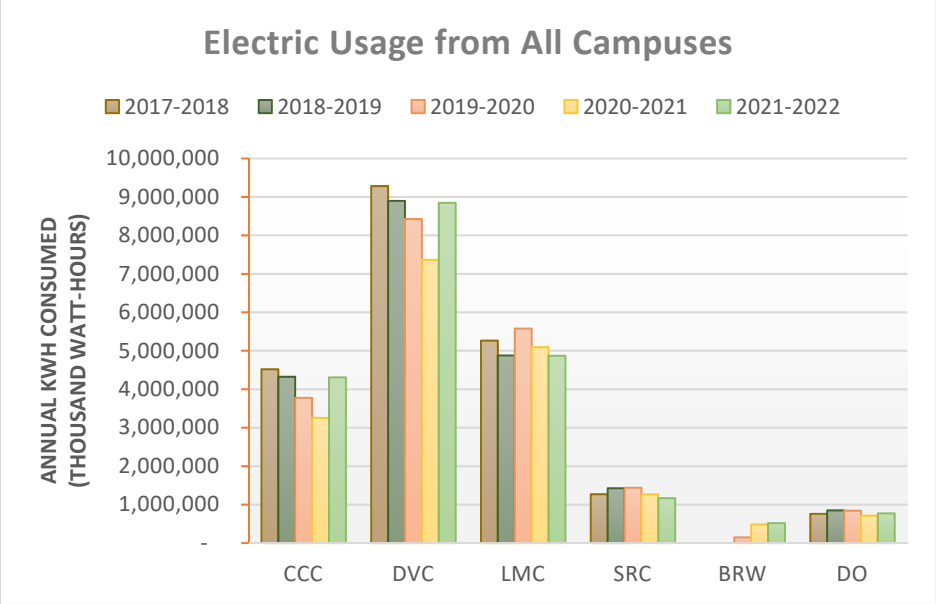
- Significant energy cost savings
- Reduced parking lot maintenance costs
- Reduced greenhouse gas (Goal number one, GHG and Goal number 2, Renewable Energy above)
- Efficient use of space
- Easy EV charger integration

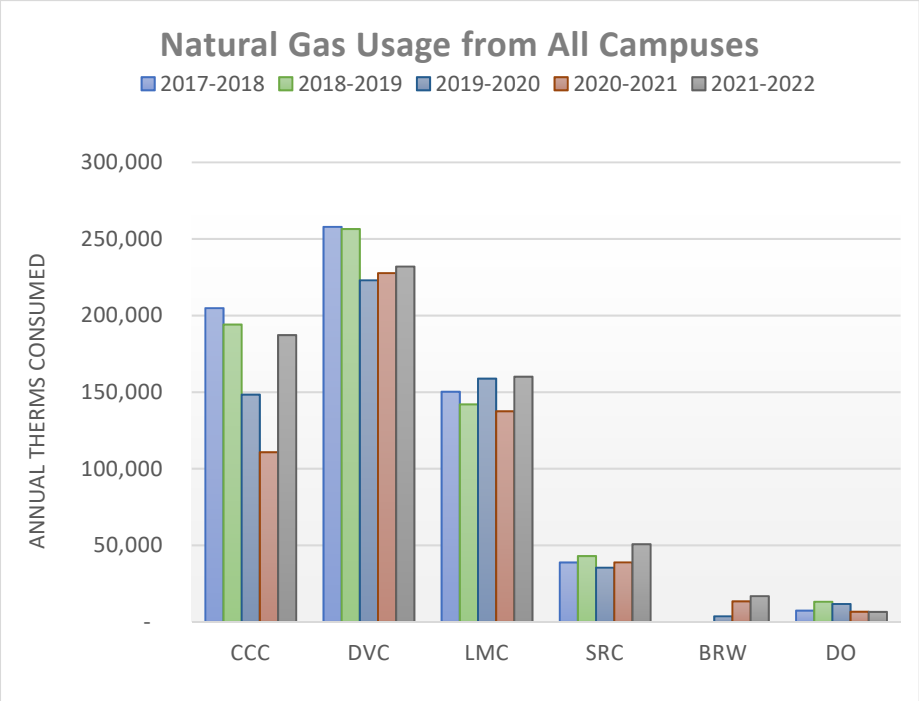
IV. <u>Baseline Usage Data and Analysis</u>

In order to show measurable progress toward energy efficiency and water and waste reduction efforts, baseline usage is required along with annual usage comparisons to the baseline. The table on the following page shows the historical electricity and gas usage of all 4CD-owned facilities combined over the past five years.

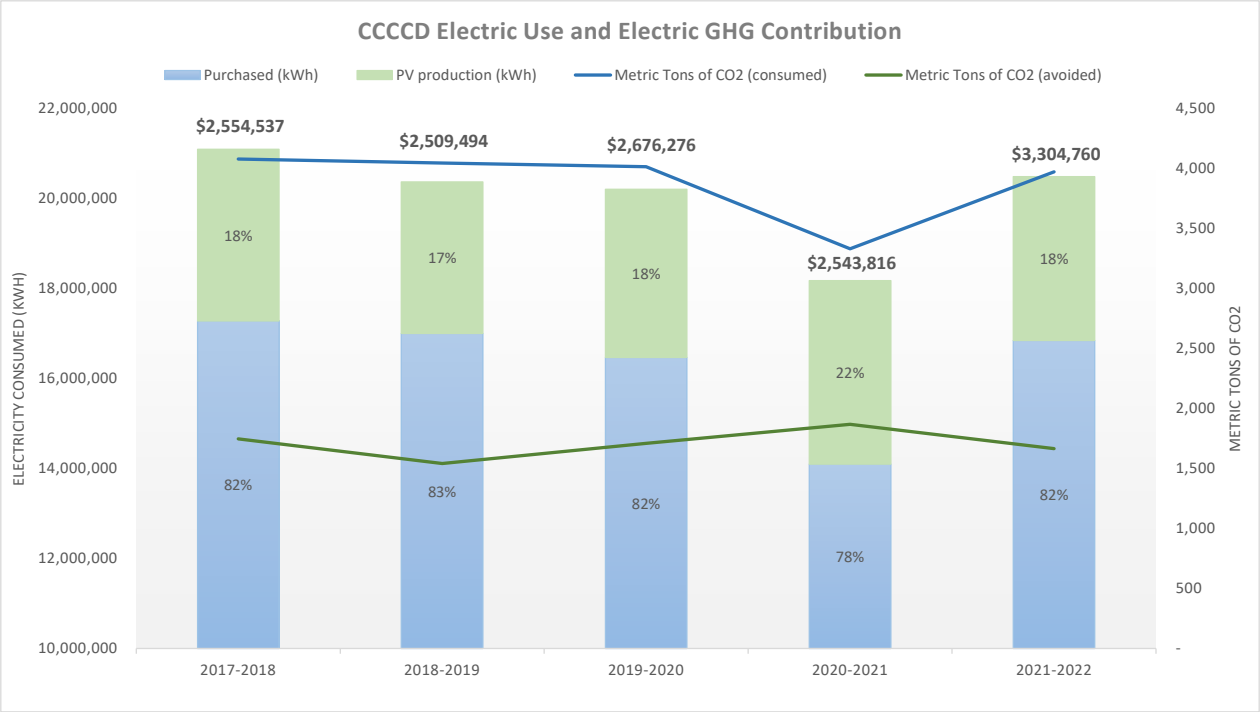
The graphs that follow show electric energy usage has been steadily decreasing over the past five years at CCC, DVC, LMC and the District Office (DO). SRC has been increasing somewhat, which warrants some study. The gas usage has been slowly decreasing at each campus as well, with a bit of a rise at SRC. During the remote/hybrid part of the pandemic from March 2020-2021, nearly all sites were able to greatly reduce the operating hours of building systems and thus save energy. This largely impacted the 2020-21 electric and gas usage.

Prior to 2019, the Brentwood Center was a leased facility where utilities were incorporated into the lease, so this is a new usage and new cost that is being incurred in the utilities' budget/expenses. During the 2019-20 fiscal year, the new Brentwood Center came online and was only operational for a few months. During this fiscal year, the energy usage across 4CD has increased as each site is operating more closely to pre-pandemic mode. It will likely increase further, as classes extend hours and are offered more fully in-person.





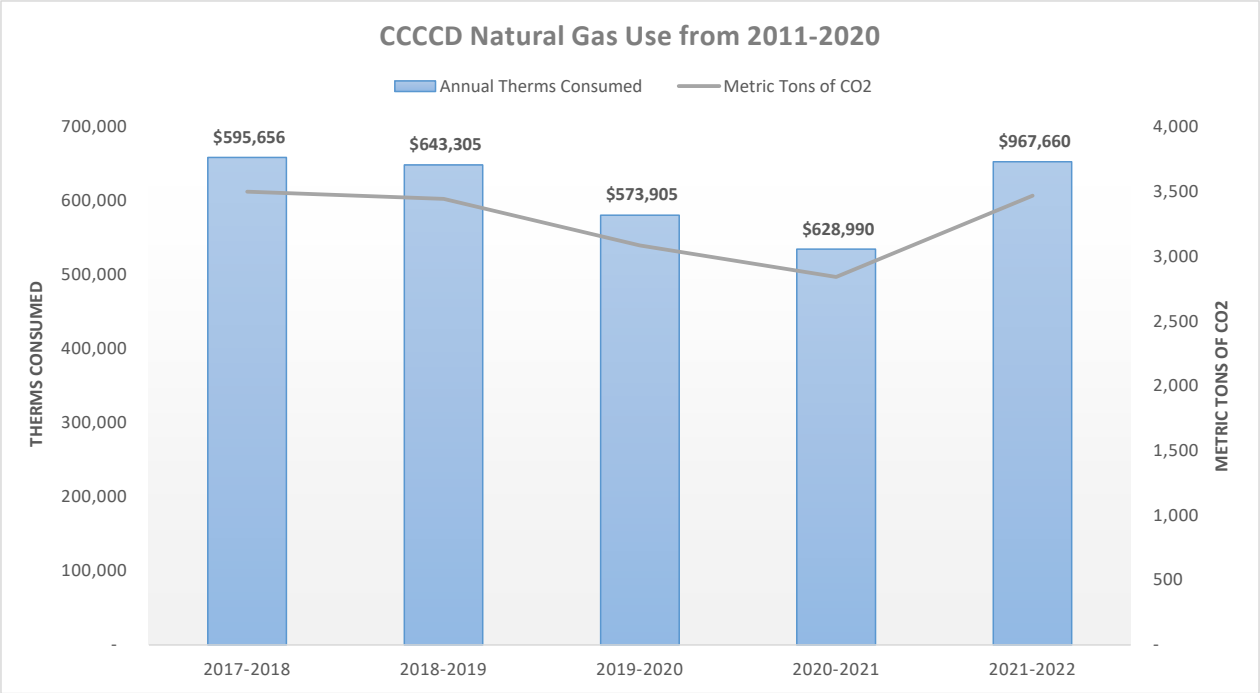
4CD's electric usage dropped by 10% overall during the pandemic, even with the Brentwood Center coming online. This year, our usage is closer to our pre-pandemic usage of 2018-19. Compared to 2013, 4CD has dropped its overall electric usage by 4%, while the overall gross area of 4CD has increased by 14%, or 228,000 square feet. This shows that while our building quantity and size have increased over the years, our newer buildings are using a lot less energy per square foot (otherwise known as EUI). The graph below also shows the greenhouse gas contribution of our electric consumption, as well as our avoided GHG consumption by having onsite solar PV, a renewable energy source at CCC, DVC and LMC. The more we can reduce our energy usage, and the more PV (or other renewable energy sources) we are able to install on our campuses, the more we can reduce our contribution to climate change and lower our utility expenses. This analysis shows that we are moving closer to achieving Goal number 1, GHG and Goal number 2, Renewable Energy and our new buildings are meeting most of Goal number 3, Green Buildings.



4CD's gas usage dropped by 18% overall during the pandemic, even with Brentwood coming online. This year, our usage is slightly higher than our pre-pandemic usage of 2018-2019. Compared to 2013, 4CD has increased its overall gas usage by 2%, while the overall gross area of 4CD has increased by 14%, or 228,000 square feet. This shows that while our building quantity and size have increased over the years, our newer buildings are using a lot less energy per square foot (otherwise known as EUI), since the overall energy usage didn't increase by 14%. This analysis shows that we are moving closer to achieving Goal #1 GHG and Goal #2 Renewable Energy and our new buildings are meeting most of Goal #3 Green Buildings.

The graph below also shows the greenhouse gas contribution of our gas consumption, which is very similar in magnitude to the GHG contribution of our electric consumption. The gas usage GHG is caused by burning natural gas on our campuses and generating this pollution in our communities. Gas is primarily used for heating our buildings and heating our potable water for showers and our pools. This energy usage can be converted to green renewable energy by shifting our building systems to be all electric, using highly efficient heat pump technologies for heating and cooling systems as well as heating domestic hot water. Making this shift would then increase our electric usage, decrease our gas usage and allow us to offset this usage with green, renewable, carbon free solar PV on our campuses. Having more onsite PV would also greatly reduce our annual energy costs.

From a GHG emission reduction view, we can also buy clean, green energy, from the electricity grid. This would require higher annual utility costs to get us toward carbon neutrality, Goal #1 GHG. The most likely cost-effective strategy is to add additional PV to our campus and to switch our grid purchases to clean, green renewable energy.

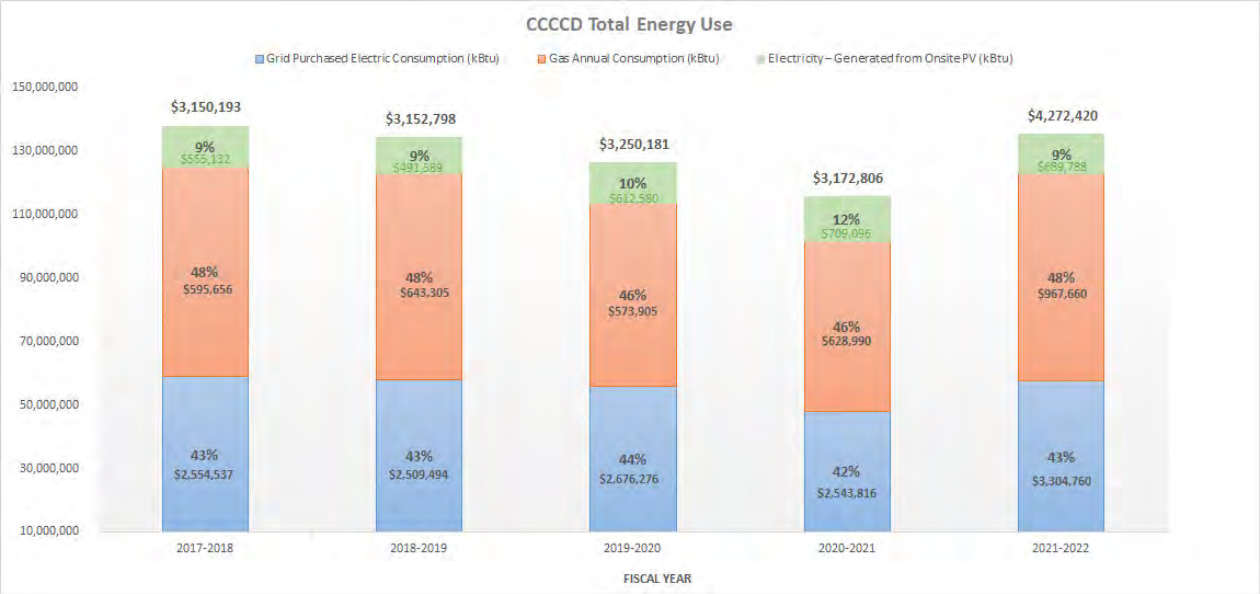


In the chart below, we converted the electric and gas usage to the same unit of energy (kBtu) to better compare overall energy usage. As the graph shows, our gas usage is higher than our electric usage, and thus a larger contribution to our GHG emissions. The electric side is much easier to offset currently with green power, such as wind and solar PV. Thus, converting our gas usage to electric usage will be key in reducing our Scope 2 GHG emissions, and meeting our Goal number 1, GHG and Goal number 2, Renewable Energy. Converting gas fired equipment to electric heat pump equipment also reduces our overall energy consumption, as the heat pump technology is much more efficient. While electric energy from the grid is more expensive on a per kBtu basis, the conversion to heat pumps offset that increase, because there is overall less energy usage. Converting our building to all electric heat pump technologies would reduce the BTU usage of the gas in the graph below by 15-24%, thus requiring an even smaller PV system to offset that usage. Again, converting as much as possible to onsite PV will reduce our overall annual utility expenses.

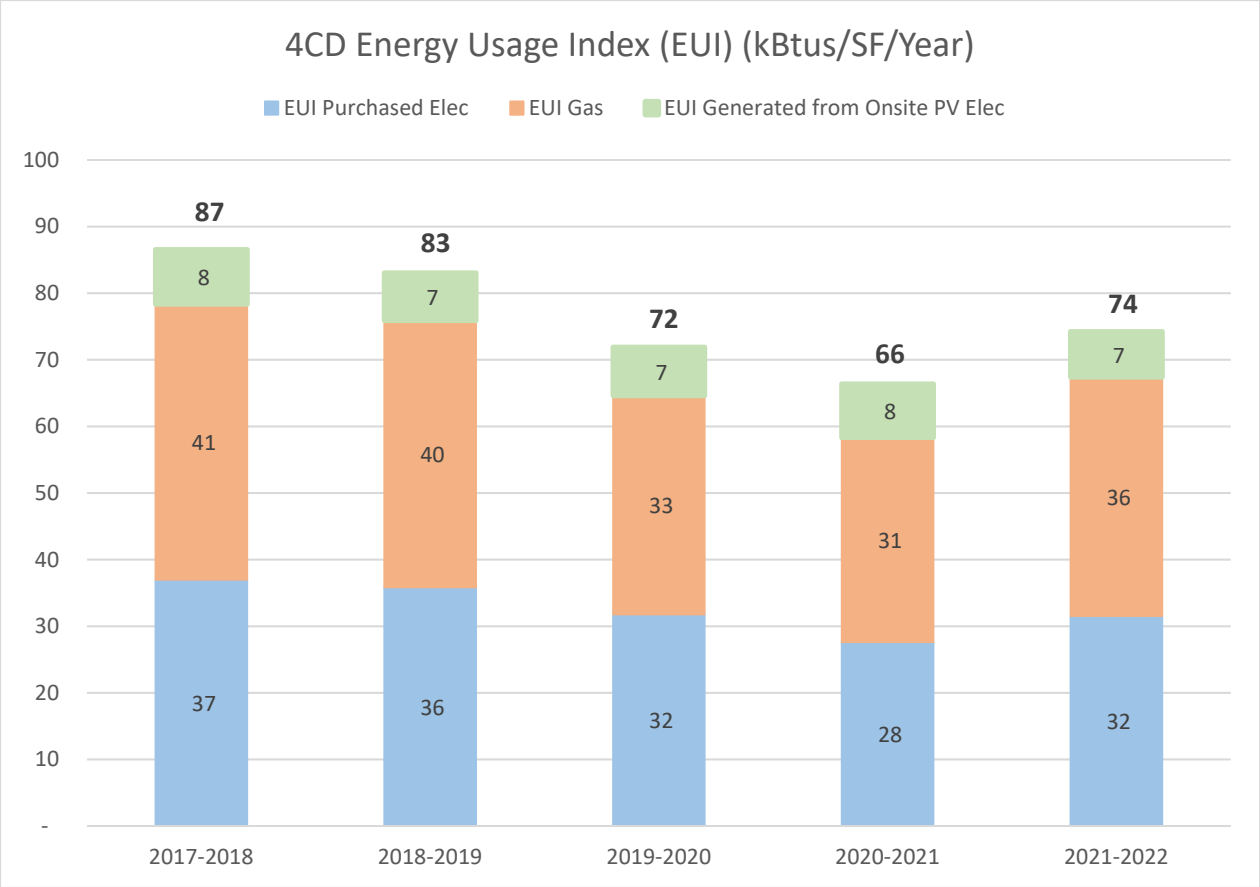
In a typical higher educational institution, the transportation of students and faculty to and from the campus is one of the main contributors of GHG emissions. Transportation contributes to the largest emissions overall in California. These emissions are considered Scope 3 emissions (whereas onsite usage like gas and electricity, are Scope 2 emissions). Transportation emissions can be reduced by reducing the miles we drive, shifting to electric or hybrid vehicles, carpooling, using public transportation, and when appropriate, working/learning remotely and avoiding the commute when possible. We do not currently have measured data compiled for this usage, but we are targeting a compilation of the baseline usage by 2025, to meet Goal number 4, Transportation.

This graph also shows 9-12% of our overall energy is offset by our onsite solar PV systems. In the past, we showed this offset based on electricity alone, which converts to roughly 16-25% of our overall electricity usage. We are also showing the cost of each utility below. For the electricity

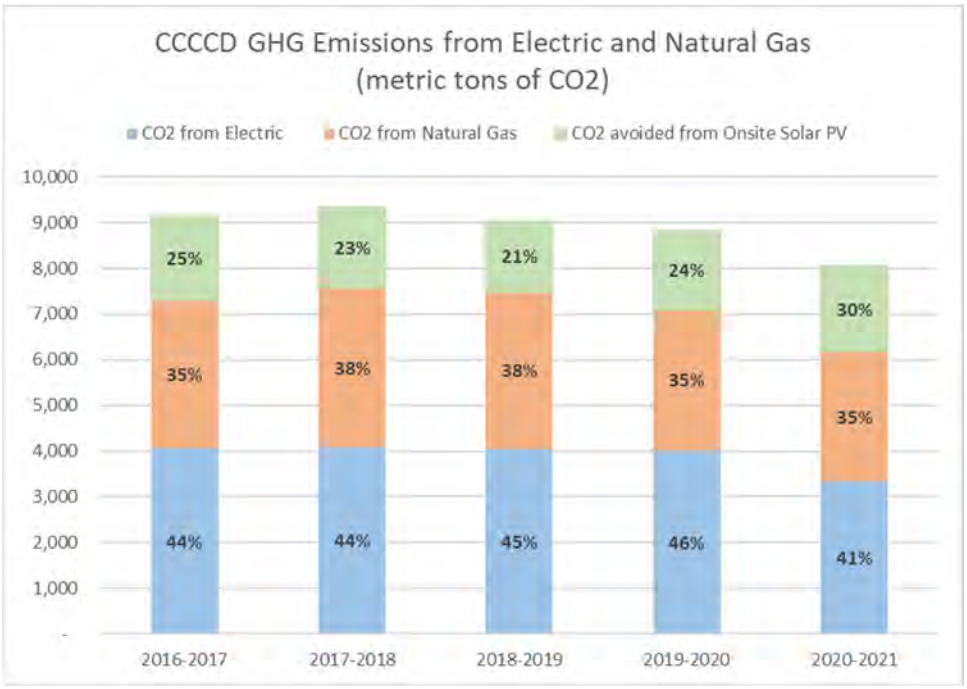
generated on site from our PV panels, we're showing the avoided cost (what we would have paid if we had to purchase that electricity from the grid). As electricity costs rise, the avoided cost also increases.



The chart below shows our overall energy usage per gross square foot. You can see that as we renovate or add new buildings, our EUI drops, because those new buildings are more energy efficient. This usage, however, could fluctuate greatly depending on how often the buildings operate, for example, if we turn HVAC and lighting systems off on holidays and so on. We can build the buildings to optimize efficiency, but the operators and building occupants have a huge impact on how effectively we operate the buildings, and ultimately, the utility usage and cost.

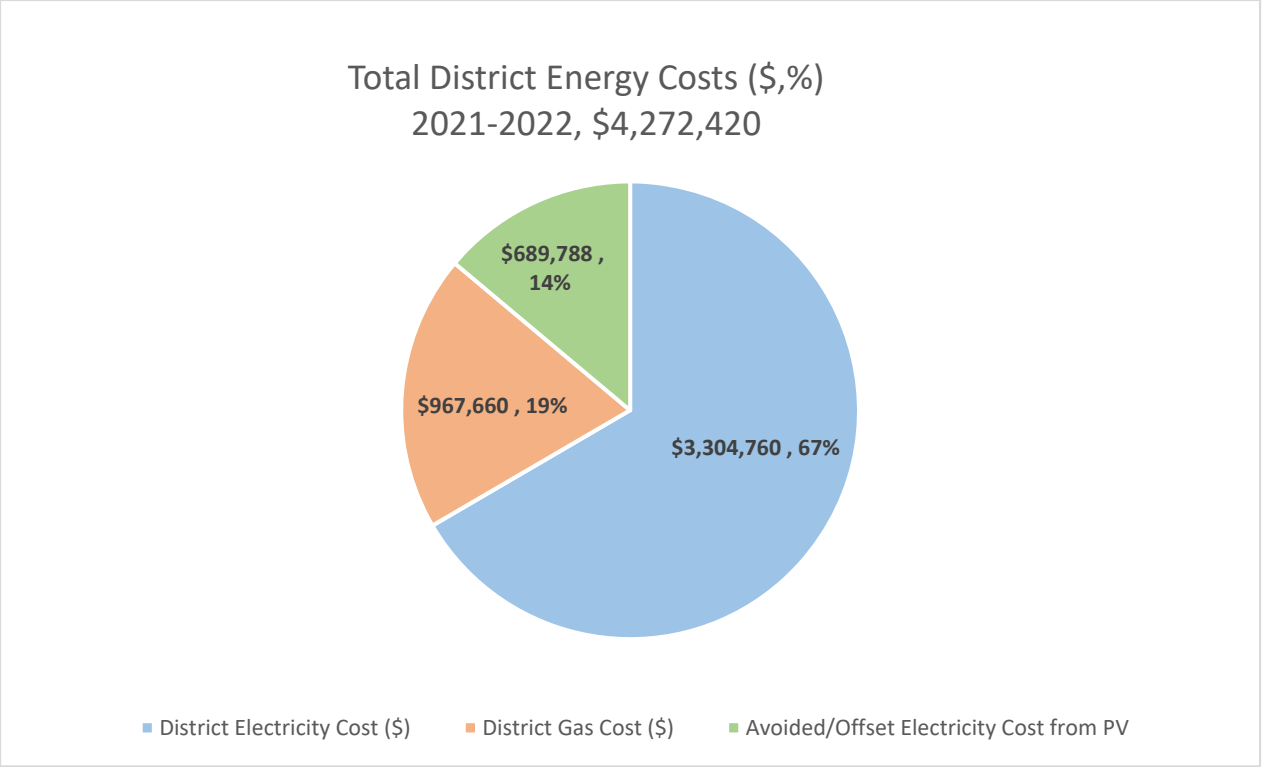


The chart below illustrates the story of where our GHG emissions are coming from and how much we are able to avoid/offset from our onsite solar PV. Having onsite PV systems is one of the most common ways in which to significantly reduce GHG emissions and meet our 4CD Goal 1, GHG. The other way is to buy GHG offsets, which may be necessary to offset things that cannot be converted to electricity, such as lab Bunsen burners and art kilns.



The chart below shows the 2020-21 energy consumption costs, which include the Brentwood Center for an entire year. Due to the pandemic, all campuses had a reduction in usage and cost, due to buidling HVAC and lighting systems being shut off or reduced hours of operation during largely remote learning. It should be noted the PV systems installed in 2008-09 are resulting in roughly $500,000 in annual avoided electricity costs. We project the annual energy consumption costs may be roughly $3.5M in a normal operational year with the Brentwood Center online for a full year and more traditional in-person classes and operations increasing. As a comparison, the total energy costs in 2013 were $2,889,312, for roughly 83% of the energy we consumed this fiscal year. This means our energy rates (gas and electricity) have risen 28% between 2013 and 2021.

Shifting our campuses to be all electic, while installing additional PV and battery storage at each campus, would result in even more avoided annual electricity costs and obviously reduce a recurring expense item for our colleges. More importantly, this would reduce our overall GHG emissions and help us make important contributions toward climate change.



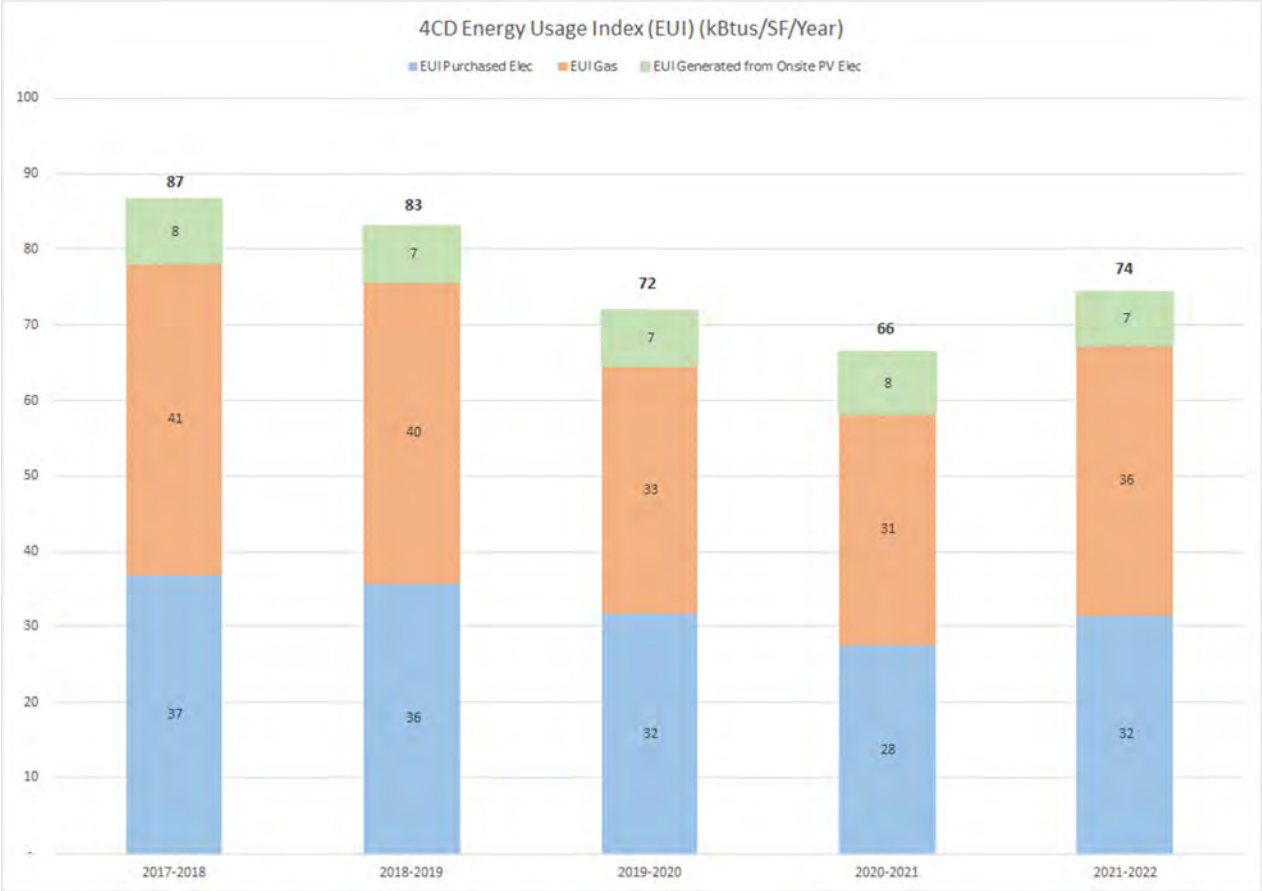
The onsite generation only supplies a portion of 4CD's overall electricity needs. In a good year, that amounts to roughly 25% of electricity usage, or 11% of the overall combined energy usage in terms of BTUs. Again, to meet various state mandates of ZNE, carbon reduction or neutrality, and to reduce our annual utility budgets, we will need to add additional PV and battery storage and switch to all electric campuses. Depending on how this is integrated into our campuses, it could also increase our resiliency during power outages. The Inflation Reduction Act of 2022 has made investing in PV and Battery storage for community colleges even more palatable. We now qualify for incentives that would give us 30-40% of our investment back, reducing the cost of the installation by millions of dollars. Again, this would also greatly reduce our utility costs annually.

Our existing onsite solar energy systems were installed between 2008 and 2009 in two phases. The system is nearly 14 years old. More frequent and higher maintenance costs will likely be undertaken in order to generate electricity at an optimum rate. For the past three years, inverters at each of the campuses have had component failures, resulting in the PV generation systems shutting down for two to three months, awaiting parts. When a PV system is shut down, it results in excess purchased power, and thus an increase in the overall utility costs as well as an increase in our GHG contributions.

Finally, energy usage is a function of the area of the buildings that are operating on campus. As the conditioned area increases, the usage typically increases. The chart on the following page normalizes the energy usage to the gross area of the buildings owned and operated by 4CD. The floor area of our buildings has increased by nearly

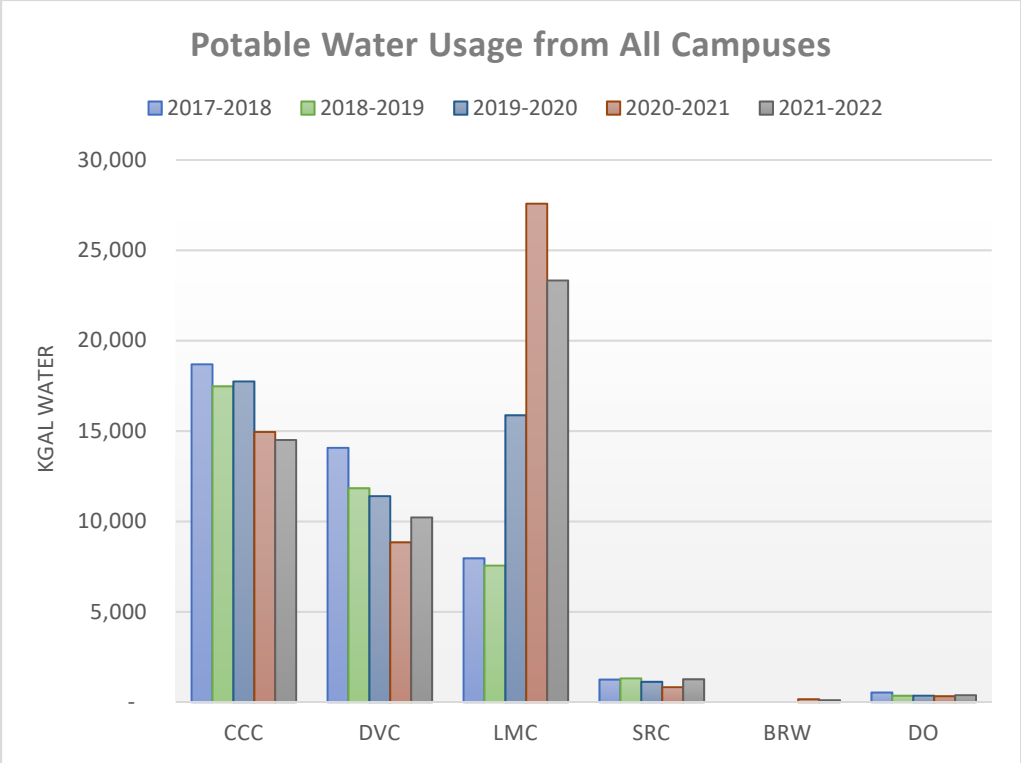
81,000 square feet in the past year and 228,000 square feet since 2013. Using an EUI helps us look at our energy usage per square foot and helps level the playing field. All new bond buildings are projected to have much lower EUIs, in order to achieve current energy efficiency codes, and future mandates of existing buildings. So, as we replace buildings or modernize them, we should also see our EUI dropping.

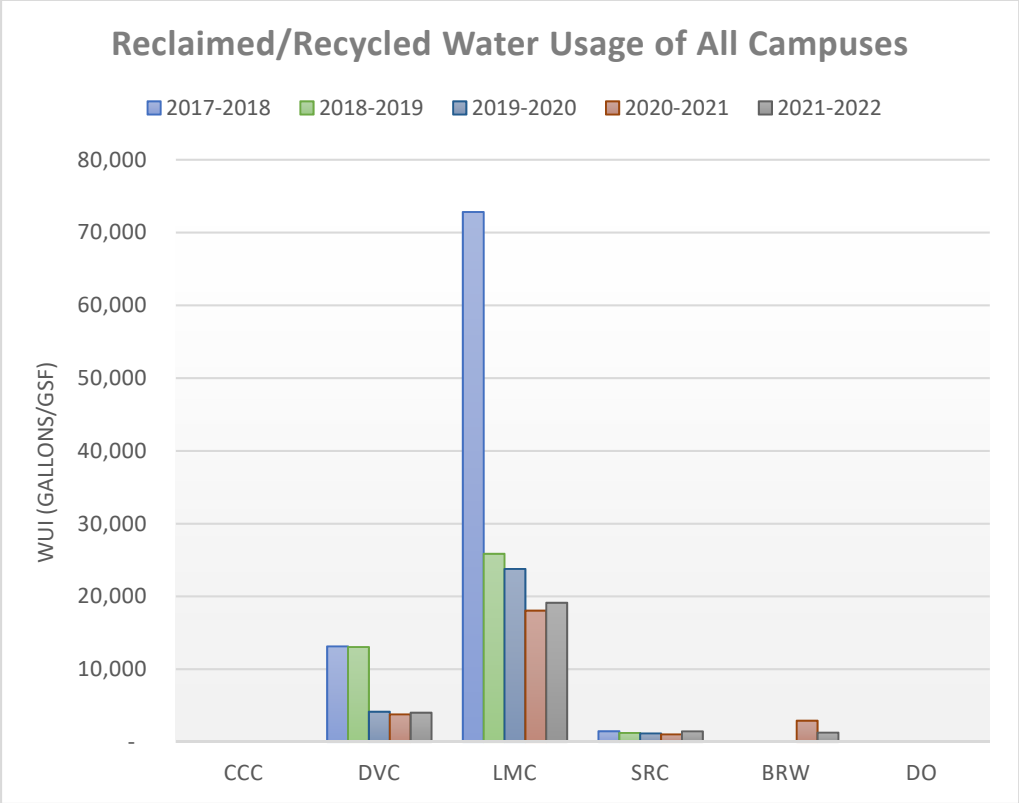
EUI is a common performance factor that can be compared against benchmarks in the same climate and in the same type of usage (college/university, office buildings, and so on. Currently, 4CD only has EUIs for the entire campus, as there is only one meter at each campus. Individual building meters would allow 4CD to use benchmarks to target high energy using buildings. EUIs can also be used to score a new building design against those same benchmarks. Requiring newly designed buildings to target lower EUIs is how ZNE buildings are designed and built. It is important to first reduce the EUI so that remaining energy can be offset by installing renewable energy systems. EUI is measured in thousands of BTUs per square foot per year (kBtus/SF/Year). The drop in the EUI during the 2019-20 and 2020-21 fiscal years is most likely related to the pandemic's impact and our buildings and grounds' staff shutting off the HVAC systems in unoccupied buildings during remote work/teaching/learning. As noted above, it is not expected this trend will continue. Still, with newer buildings coming online, we do expect the EUI to fall compared to a normal year, as the older, less efficient stock, is being replaced with buildings that are designed to operate with lower EUIs.

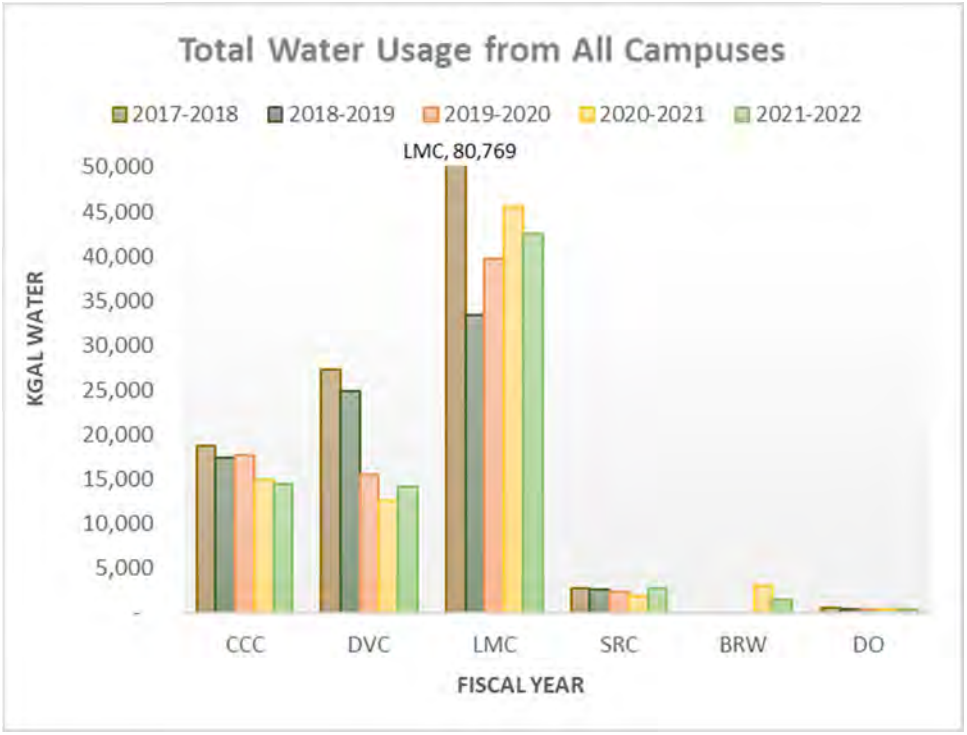


This energy usage translates into a large cost to 4CD, approximately $4.2M in operating expenses last year. Reducing usage and moving toward ZNE buildings could produce large operational savings annually, also requiring a significant investment and careful planning.

Historical water usage has largely declined over the past several years due to mandates brought on by the California droughts. In most years, the split between potable water and recycled water is roughly 50%. Yet, in the past few years, the recycled water at LMC has been too dirty and has clogged up irrigation devices, requiring a transition to potable water for irrigation. Unfortunately, LMC uses the largest amount of water in 4CD, so shifting irrigation to potable water has a large impact on our overall potable water usage. Under normal circumstances, nearly all colleges use recycled water or well water for irrigation. Shifting as much as possible back to recycled water and reducing our potable water usage are keys to help us do our part in these tragic drought conditions experienced over the past few years.

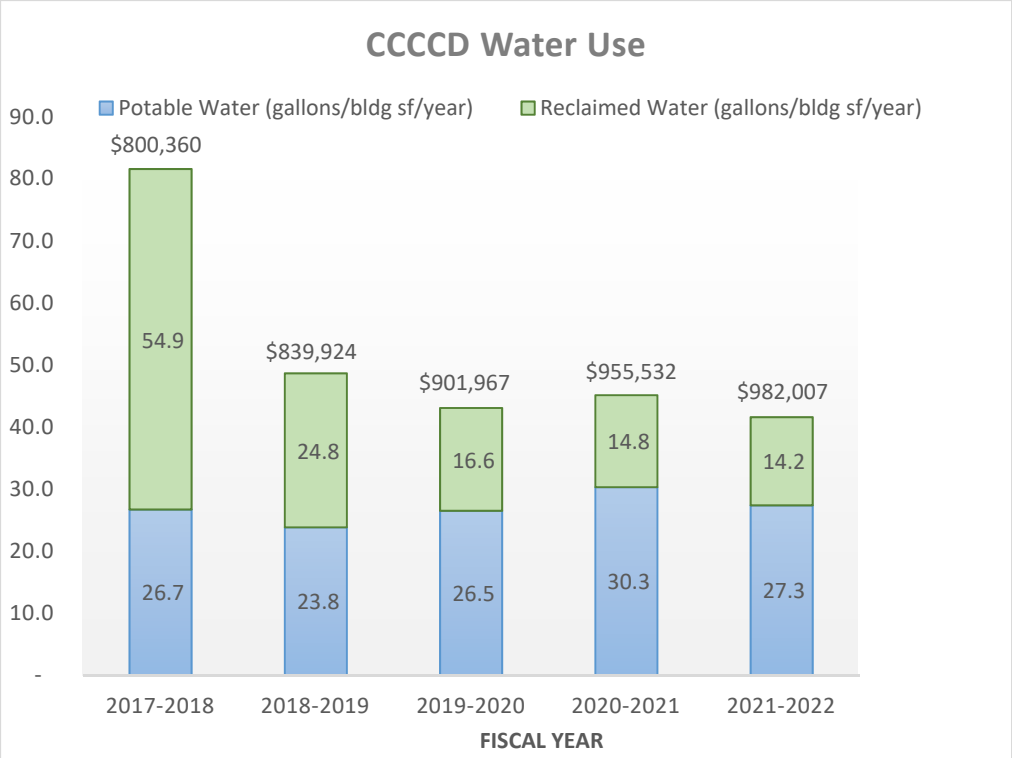

Potable Water Usage from All Campuses
2017-2018
2018-2019
2019-2020
2020-2021
2021-2022
30,000
25,000
20,000
15,000
10,000
5,000
-
KGAL WATER
CCC
DVC
LMC
SRC
BRW
DO


Reclaimed/Recycled Water Usage of All Campuses
2017-2018
2018-2019
2019-2020
2020-2021
2021-2022
80,000
70,000
60,000
50,000
40,000
30,000
20,000
10,000
-
WUI (GALLONS/GSF)
CCC
DVC
LMC
SRC
BRW
DO

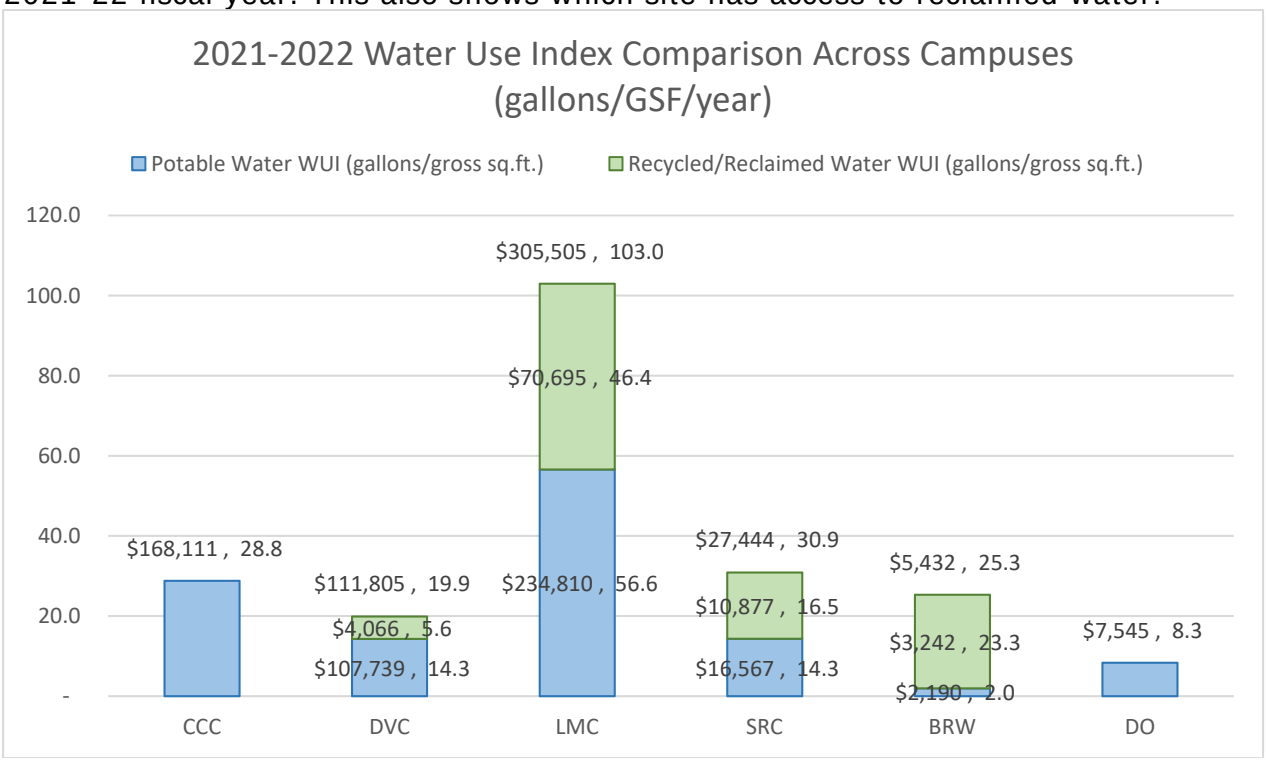


Our water costs have increased over time. Potable water is more expensive per gallon to use than reclaimed/recycled water. We also pay sewer fees on potable water usage, but not on reclaimed/recycled water use. So, if we can shift more usage to reclaimed/recycled water usage, then we can save on our water costs while also preserving a valuable resource. Just as electricity and gas rates have increased significantly, water costs have also increased significantly in response to years of drought conditions.

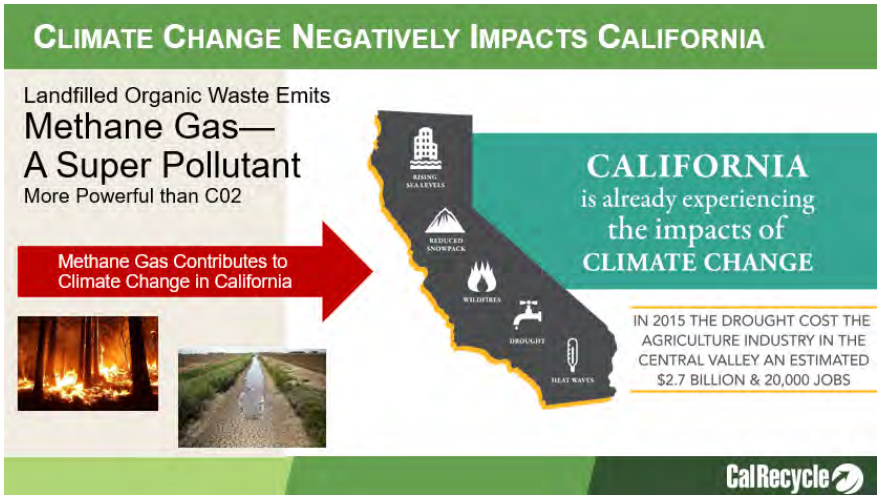
Like energy usage, we can also show the water usage per square foot, which is commonly referred to as the Water Use Index (WUI). In the graph below you can see our WUI overall is decreasing, but our potable water WUI is growing, due to the issues described at LMC.



In the chart below, you can see this breakdown of WUI and cost, by site for the 2021-22 fiscal year. This also shows which site has access to reclaimed water.



Waste reports have not been developed for the past several years at each of the campuses but were required in 2017-18. Each of the reports shows a diversion rate at or below 50%. This means 50% or less of 4CD's waste goes to the recycling stream or the compost stream and the remaining portion goes to landfill. Given all the mandates and Assembly and Senate Bills around reducing organic waste, food recovery and the fact that methane is considered a super pollutant, and is emitted by landfilled organic waste, we will shift our focus on cleaning up our waste stream, as this contributes greatly to climate change, and impacts the equity/health of our students. This will be accomplished by launching the Zero Waste Initiative throughout 4CD. As part of Goal number 5, ZZo Waste, we will be developing baselines, showing how much waste we have going to landfill, recycling and compost, so we can begin to monitor and shift our overall waste down and our landfill waste closer to zero.



V. Next Steps

In addition to energy savings projects, the Sustainability Committees at CCC, DVC and LMC continue to engage faculty, staff and students in changing behaviors to conserve energy and resources. Awareness about the many ways 4CD and its colleges can contribute to fostering a better environment is continuously encouraged.

Much like many other California community colleges, 4CD has tremendous opportunities as well as some significant challenges ahead for meeting state-mandated energy, waste/garbage and water reductions targets. 4CD is launching a sustainability initiative in order to achieve our new 4CD goals for energy, water and waste reduction. The backcasting methods discussed in the Appendix will be utilized as some of the primary collaborative tools in this exercise to help us develop a path toward those goals, meaning which specific solutions we can apply at each campus.

Many challenges exist in making existing and future 4CD buildings ZNE. Many more challenges exist in a transition toward carbon neutral buildings. These goals and achievements will require additional resources and careful planning for energy systems, ensuring our infrastructure is updated appropriately and our campus loads can be met with resiliency and autonomy. An Energy Master Plan will be developed to tie into the Facilities Master Plan and Educational Plans as well as to align with

state mandates. We will present this Resolution to the Governing Board for adoption at its November 9, 2022, regular meeting/study session. This Resolution will ask our Governing Board to adopt the State Chancellor's Office 2019 and 2021 goals, so that we can then use those to guide our FMP (Facility Management Plan) and EMP and determine costs needed in future bonds. In order to achieve and launch a Sustainability Initiative that is adaptable and can begin to be implemented by 2025 and completed by 2035, much work and collaboration, as well as a funding strategy, will be necessary.

VI. Appendices

The Background, Policies and CCC BOG sections that follow were provided in previous reports. They include the necessary information that makes past mandates easier to understand. Assembly Bills, Senate Bills, Executive Orders and internal 4CD resolutions and Strategic Plans will guide us toward reducing our contribution toward the climate crisis, resulting in social justice.

APPENDIX A

BACKGROUND: MANDATES AND CODES

A. Background: Mandates and Codes

In December 2010, the Governing Board approved Board Policy (BP) 6004, Environmental Stewardship and Sustainability. BP 6004 supports resource and environmental conservation. 4CD is committed to maintaining a policy of environmental stewardship and sustainability that supports and reinforces the use of resources to meet the needs of the present without compromising the ability of future generations to meet their needs.

BP 6004 delegates to the Chancellor or designee the authority to exercise environmental stewardship; to develop educational opportunities; and to promote environmentally responsible business processes. The intent of BP 6004 is to foster community dialog that will enhance regional awareness; advocate for environmental justice; promote responsible transportation; and economically manage the use of buildings, lands, grounds, and natural resources to be more sustainable.

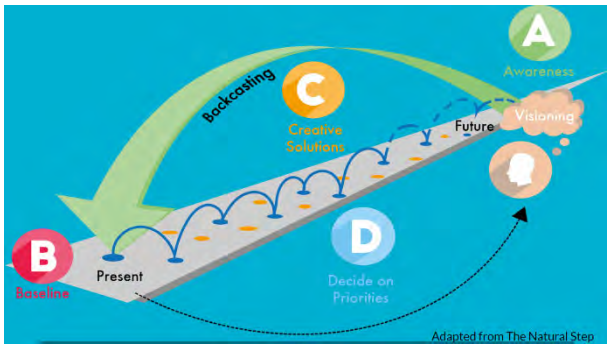
In BP 6004, 4CD has chosen to establish environmental and organizational practices that are conducive to student learning and the health, well-being, and effectiveness of all people within the community at large, and to maintain an atmosphere where students, faculty, and staff can develop the knowledge, skills, and values of environmental protection.

In June 2019, the Governing Board approved the *Contra Costa Community College District Strategic Plan 2020 – 2025*. Strategy 5, Objective 6 of the *Strategic Plan* has a specific objective that sets a goal to "develop practices and procedures that promote sustainability in all areas of the District, including but not limited to, instruction, operations, construction, facilities, land use, energy, water conservation, and environmental integrity." To measure progress, the *Strategic Plan* emphasizes the adoption of practices and procedures that promote sustainability in all areas of 4CD.

Another key section of the *Strategic Plan 2020 – 2025* is Strategy 2, Objectives 1-3 that set a goal to "Decrease Equity Gaps for All Students." Closing equity gaps requires not only continued conversations, strategy and ultimately calls to action to improve upon our educational systems, but also addresses our internal infrastructure and operations. Both are major contributing factors to the climate crisis and therefore, equity gaps. Specifically, how we procure our energy, use our energy, procure our materials, generate and dispose of waste, landscape our property, irrigate our landscape, maintain our investments, travel to work or school, share our food, and so many other factors contribute to environmental justice and thus equity for all. Many studies have noted that polluted air, dirty water and soil are all associated with a multitude of diseases, and now those conditions put people more at risk with the current pandemic. Research shows that these environmental factors also fall significantly more along "fence-line" communities, defined as areas situated near facilities that produce hazardous

waste. Climate change contributes toward social injustice and inequity issues. While these environmental factors impact all people, it is important to note that it disproportionately impacts young people and future generations, and it disproportionately affects people of color and people in poverty, thereby exacerbating existing inequities and limiting opportunities. 48% of CCC students, 33% of DVC students and 48% of LMC students receive some form of financial aid, illustrating how our students are also impacted by these inequities.

The *Strategic Plan's* sustainability objectives require a shift in how 4CD currently operates. In 2017, 4CD's Sustainability Team led its first "Backcasting" Workshop with the DVC Sustainability Committee. Backcasting begins with the end goal in mind, moves backwards from the vision to the present state, and then moves step-by-step toward the vision, using sustainability principles. Moving backwards in this way forces organizations to determine intermediate goals necessary to reach the final end goal. As 4CD begins to implement solutions, it will inevitably need to prioritize, embrace ambiguity and be ready to adjust course in order to reach its goals.



"Backcasting" is central to the Framework for Strategic Sustainable Development, which is a framework that has helped hundreds of organizations around the world integrate sustainable development into their strategic planning and create long lasting transformative change. This initial workshop focused on the guiding principles behind the process of "backcasting" and setting a plan for future goal setting. Since its initial meeting, DVC is currently focused on institutionalizing sustainability. A full "backcasting" session was held at DVC in mid-November 2019 and more concentrated backcasting sessions were also held in 2020 and 2021 for specific topics/goals. This process will be used at each campus to develop 4CD's sustainability goals and bring them through shared governance in order to develop a 4CD sustainability initiative. This initiative will require large shifts in operations, training on new technologies coming to buildings, integrating sustainability into every facet of our daily operations, including procuring sustainable materials, integrating sustainability into curriculum, and offering training on sustainable practices to employees and students.

Below are slides from the 4CD sustainability committees. This work was accomplished after setting the goals, where we decided which goals would be 4CD-led with campus involvement or campus-led. This process determined how (campus or 4CD) backcasting would be used as a tool to determine various intermediate steps and paths to achieve these goals.

Districtwide Sustainability Meeting

Contra Costa Community College District
pathways to success

CONTRA COSTA COLLEGE | DVC DIABLO VALLEY COLLEGE | LOS MEDANOS COLLEGE

4/29/2022 8:00am - 9:30am

Introductions & Meeting Goals

8:00-8:05 (5 minutes)

- What's your name/title campus and/or community affiliation?
- Desired goals of this meeting is to:
  - Review updated 8 goals
  - Review timeline toward resolution

Time	Item #	Action Item	Item Description
8:00 – 8:05 (5 Minutes)	1		Introductions & Meeting Goals (ok to record?)
8:05– 8:20 (15 Minutes)	2		CCC, DVC and LMC Sustainability Committee Updates (information/ discussion) Chair and other members • Summary of year - Focus areas, Successes and/or Challenges • Hopes for next year
8:20-9:00 (40 Minutes)	3		Summary of 2021 Goals • Deeper Dive into each goal
9:00-9:15 (15 Minutes)	4		Districtwide Updates • Zero Waste • Student Videos • Reorg and new position
9:15-9:30 (15 Minutes)	5		Next Steps/Questions/Feedback? • Schedule the next meeting

2

CCC Sustainability Committee Updates

8:05-8:10 (5 minutes)

- Current Focus areas
- Successes and/or
- Challenges

CONTRA COSTA COLLEGE

DVC Sustainability Committee Updates

8:10-8:15 (5 minutes)

- Current Focus areas
- Successes and/or
- Challenges

DVC DIABLO VALLEY COLLEGE

LMC Sustainability Committee Updates

8:15-8:20 (5 minutes)

- Current Focus areas
- Successes and/or
- Challenges

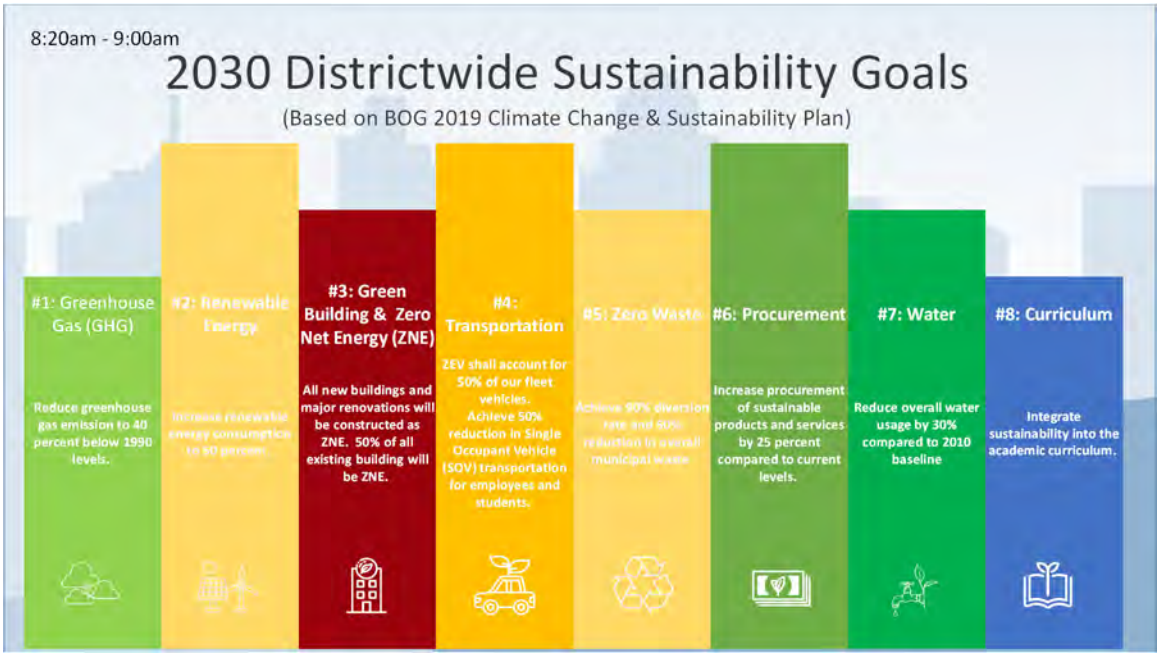
LOS MEDANOS COLLEGE

8:20am - 9:00am

Strategic Direction 5:

RESPONSIBLY, EFFECTIVELY, AND SUSTAINABLY STEWARD DISTRICT RESOURCES

Objective 6:
"Develop practices and procedures that ***promote sustainability in all areas of the District,*** including but not limited to, instruction, operations, construction, facilities, land use, energy, water conservation, and environmental integrity."



8:20am - 9:00am

2021 BOG Climate Action and Sustainability Framework

Summary of Updates

- Goals
  - Added 2 categories (water and food)
  - Combined 2 categories into 1 (district goals already had them combined)
  - Updated goals to be in alignment with state policies
- Timeline
  - Create benchmarks and Plans by 2025
    - Baseline usage across all categories
    - Create Climate Action Plan
    - Create Campus Electrification Strategy
    - Track progress toward goals
  - Intermediate goals of 2030 and 2035 for achieving goals
  - 5 year extension from 2019 Goals that ended in 2030
  - ***In summary, we need to get our baselining/benchmarking done and create a plan by 2025 to meet the intermediate goals of 2030 and end goals of 2035 and track our progress toward the goals along the way.***

8

8:20am - 9:00am

2021 BOG Climate Action and Sustainability Framework

Summary of Updates

California Community Colleges Chancellor's Office efforts will also be part of providing supports to enable resource allocation:

- Analysis of Climate Change Impacts
- Advocacy (request for resources/funding part of scheduled maintenance projects)
- Climate Action Data
- Sustainability Toolkit
- District Goals

8:20am - 9:00am

Funding $$$

- Facility Master Plans
  - Goals will drive FMP and help to determine/justify funding
  - Climate Action Plan and Energy Master Plan will also be needed
- Grants & Funding
  - When we have a plan we can jump on grants
  - Grants usually available when we're ahead of "mandates" and "code requirements" – phased out after
    - EV Charging Stations as an example:
      - Funding from BAAQMD, PG&E, 511ContraCosta
      - 80 new EVCS installed and operational in 2019 – 20
      - ~88% of the total construction costs were covered by programs/grants = **$894,000**
    - PG&E EV Fleet Program is another possible program, but we need a "plan" to participate

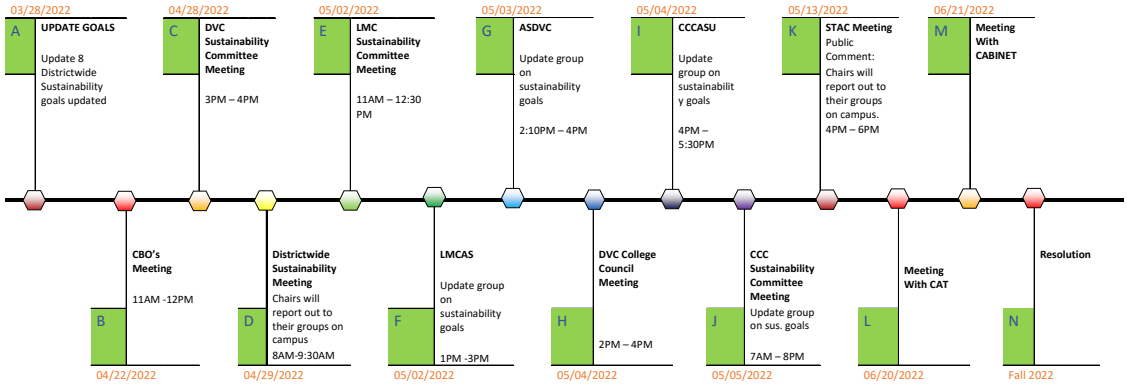
8:20am - 9:00am

2035 Districtwide Updated Sustainability Goals

(Based on BOG 2021 Climate Action & Sustainability Framework)

8:20am - 9:00am

Road to a Districtwide Sustainability Resolution



8:20am - 9:00am

2035 Districtwide Updated Sustainability Goals

(Based on BOG 2021 Climate Action & Sustainability Framework)

CATEGORIES	GOALS BY 2025	GOALS BY 2030	GOALS BY 2035	NOTES	ASSIGNMENT
#1: GHG	Estabilsh baseline/benchmark greenhouse gas emissions. Conduct emissions inventory and create a Climate Action Plan.	Reduce GHG by 75% below the baseline.	Reduce GHG by 100% below the baseline.	-Based on 2021 BoG Climate Action and Sustainabity Framework - Track inventory with secondnature.org/webinars/getting-started-on-your-acupcc-climate-action-plan-2/ -Emissions include both purchases of **electricity** and **natural gas**; **fleet** and marine vessel usage; and **other emissions** over which the college or self-support entity has direct control. - promote the use of alternative transportation and/or alternative fuels to reduce GHG emissions related to **college-associated transportation, including commuter and business travel**	District led with campus involvement.

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8:20am - 9:00am

2035 Districtwide Updated Sustainability Goals

(Based on BOG 2021 Climate Action & Sustainability Framework)

CATEGORIES	GOALS BY 2025	GOALS BY 2030	GOALS BY 2035	NOTES	ASSIGNMENT
#2: Renewable Energy	Establish Campuswide EUI score Conduct Effective Useful Life (EUL) analysis of all gas-using applicances and systems Plan for electrification of systems with EUL of less than 10 years	Decrease EUI by 25% Produce or procure 75% of electrical consumption using renewable energy	Decrease EUI by 40% ZNE Campus	-Based on 2021 BoG Climate Action and Sustainabity Framework	District led with campus involvement.
#3: Green Building & Zero Net Energy	Benchmark EUI for each building Develop ZNE and campus electrification strategy Optionally conduct LEED or WELL assessment sof existing bulidings	All new buildings LEED or WELL Gold Reduce natural gas usage by 30%	All new buildings ZNE and Zero Carbon All existing buildings LEED O&M Gold or WELL Gold equivalent Reduce natural gas usage by 75%	-Based on 2021 BoG Climate Action and Sustainabity Framework	District led with campus involvement.

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8:20am - 9:00am

2035 Districtwide Updated Sustainability Goals

(Based on BOG 2021 Climate Action & Sustainability Framework)

CATEGORIES	GOALS BY 2025	GOALS BY 2030	GOALS BY 2035	NOTES	ASSIGNMENT
#4: Tranportation	Conduct accounting and conditions assessment of fleet vehicles; assess remainder rolling stock for electrification Develop EV charging infrastructure to enrouage faculy, staff and students to use EVs Promote accesssible shared transport methods Make pedestrian and bicycle access improvements by 2025	50% of new fleet vehicles must be zero emission vehicles 50% of rolling stock must be zero emissions, Implement green parking permits by 2030	100% of new fleet vehicles must be zero emission vehicles 100% of rolling stock must be zero emissions, Achieve 50% reduction in single-occupancy vehicle (SOV) transportation for employees and students.	-Based on 2021 BoG Climate Action and Sustainabity Framework Plus backcasting goals on transportation from 2019	Campus focused.

8:20am - 9:00am

2035 Districtwide Updated Sustainability Goals

(Based on BOG 2021 Climate Action & Sustainability Framework)

CATEGORIES	GOALS BY 2025	GOALS BY 2030	GOALS BY 2035	NOTES	ASSIGNMENT
#5: Zero Waste	Conduct waste categorizationg assessment Benchmark and comply with T14, Division 2, Chapter 5 Bechnmark and comply with Title 14, CCR Dividion 7 Develop a total material consumption benchmark Conduct an AB341 complicance assessment Centralize reporting for waste and resource recovery	Achieve zero waste to landfill Conduct a circularity analysis Reduce material consumption by 10%	Increase material cirularity by 25% Decrease consumption of materials by 25% by 2035	-Based on 2021 BoG Climate Action and Sustainabity Framework	Campus by campus.
#6: Procurement	Benchmark sustainablity of existing products and services Adopt a sustainable procurement policy an dadministrative procedure Purchase environmentally preferable electronics products	Increase procurement of sustainable products and services by 25%	Increase procurement of sustainable products and services by 50%	-Based on 2021 BoG Climate Action and Sustainabity Framework (see the more detailed notes on ideas of how to get here)	Campus wide opportunities can be discussed that identify ways to get to this but this is a district wide policy change.

8:20am - 9:00am

2035 Districtwide Updated Sustainability Goals

(Based on BOG 2021 Climate Action & Sustainability Framework)

CATEGORIES	GOALS BY 2025	GOALS BY 2030	GOALS BY 2035	NOTES	ASSIGNMENT
#7: Water	Develop local benchmarks for potable water usage Identify non-potable water resources Create landscape zoning map and irrigation metering strategy Adopt CCC Model Stormwater Management Program practices	Reduce potable water usage by 25% Install meters on all landscape irrigation systems of 2500 sq.ft. or more (unless using local or municipal reclaimed water) Landscape planting are 90% native Irrigated turf cannot exceed 50% of landscaped areas on campus Follow Municipal Separate Storm Sewer Systems (MS4) requirements	Reduce potable water usage by 50% Limit stormwater runoff and discharge to predevelopment levels for temperature, rate, volume and duration of flow through the use of green infrastructure and low impact development for the campus AND fo rnew buildings and major modifications	-Based on 2021 BoG Climate Action and Sustainabity Framework	District led with campus involvement.

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8:20am - 9:00am

2035 Districtwide Updated Sustainability Goals

(Based on BOG 2021 Climate Action & Sustainability Framework)

CATEGORIES	GOALS BY 2025	GOALS BY 2030	GOALS BY 2035	NOTES	ASSIGNMENT
#8: Curriculum	Included in the "Looking to the Future" section of 2021 BoG Climate Action and Sustainability Framework, which includes: Building Alignment to Campus Operations and Teaching & Learning through: - Environmental Justice: Aligning to Diversity, Equity and Inclusion Strategy - Vision for Success - More diverse and inclusive engagement and audiences in climate action and sustainability initiatives - changes in local policies and admin procedures with electred board to bolster climate/envriomental justice efforts - Develop eduation programs or annual events to underscore intersectional relationship of envrionment, climate and social equity issues - Planning and Administration: Coordination and Planning - **Advancing Climate Action Education & Engagement (most like what we had before for goals)**				Campus led with college local champions.
#9: Food Systems	Campus food service organizations track their sustainable food purchases. See Real Food Challenge (www.realfoodchallenge.org/resources/real-food-resources/) guidelines, or equivalent, with consideration to campus-requested improvements	Increase sustainable food purchases to 20% of total food budget	80% of food served on campus meets the goals of the Real Food Challenge or equivalent	-Based on 2021 BoG Climate Action and Sustainabity Framework	Campus led with college local champions?

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Districtwide Updates

9:00-9:15 (15 minutes)

- Zero Waste
- Student Videos – Thank you our interns and students for these!
  - What is Zero Waste: (1:38 min) – Developed by District Communications Intern - Iyan Godwin
    https://youtu.be/e4W-X-HFmVs
  - What are landfills: (1:53 min) - Developed by District Communications Intern - Iyan Godwin
    https://youtu.be/BTUkAAFm-5g
  - How can the college or district help: (2:23 min) - Developed by Student Trustee – Austin Greene and team
    https://email4cd-my.sharepoint.com/personal/studenttrustee_email_4cd_edu/_layouts/15/onedrive.aspx?id=%2Fpersonal%2Fstudenttrustee%5Femail%5F4cd%5Fedu%2FDocuments%2FSus%20ini%20asdvc%20interview%20final%20cut%204%2Emp4&parent=%2Fpersonal%2Fstudenttrustee%5Femail%5F4cd%5Fedu%2FDocuments&ga=1
- Facilities Planning Reorg
  - (New) Utility and Sustainability Coordinator position

Contra Costa Community College District
pathways to success

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Thank you & Next Steps

9:15-9:30 am (15minutes)

- Schedule next districtwide meeting
- Feedback

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APPENDIX B

POLICIES TOWARD ZERO NET ENERGY, CARBON NEUTRALITY AND ZERO WASTE

B. Policies Toward ZNE, Carbon Neutrality and Zero Waste

Several codes, standards, legislative actions and executive orders require California to become ZNE, Zero Carbon or Carbon Neutral and Zero Waste. ZNE is defined as the ability to produce as much energy as is consumed over the course of a year, when accounted for at the energy generation source. In other words, on-site renewable generation produced over the course of a year will be required to offset annual usage of electricity and gas. In the last few years, and as the new building codes start to take shape, there has been a shift toward Zero Carbon, rather than ZNE. People are beginning to realize that ZNE does not necessarily get us to the ultimate goal of large greenhouse gas reductions (e.g., carbon dioxide reductions) and this is causing codes and policies to shift.

In Title 24, California's energy code, all new residential buildings will be required to be ZNE buildings in 2020 and will be required to have enough solar Photovoltaic (PV) installed to offset their annual usage. The same ZNE requirement will occur in 2030 for all new commercial buildings. For state buildings, that requirement goes into effect in 2025.

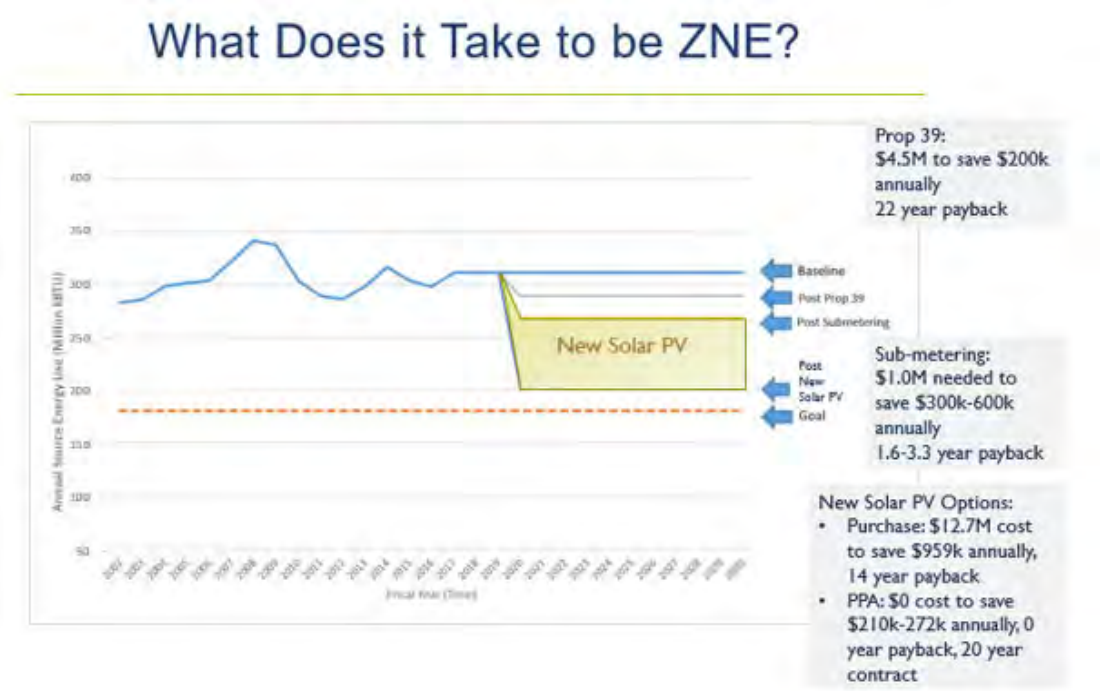
In 2012, Executive Order B-18-12 and the Green Building Action Plan established targets for achieving ZNE on new and existing state buildings as follows: "All new state buildings and major renovations beginning design after 2025 shall be constructed as ZNE facilities with an interim target for 50 percent of new facilities beginning design after 2020 to be ZNE. State agencies shall also take measures toward achieving ZNE for 50 percent of the square footage of existing state-owned building area by 2025.

There are similar mandates and executive orders in place for moving toward zero waste buildings as well, meaning everything is either recyclable or compostable, and nothing goes to landfill. Assembly Bills 341 and1826 created a statewide goal of 75% waste diversion from landfill by 2020; currently the statewide goal is 50%. Considering 4CD's 2017-18 diversion rates were below 50%, 4CD has considerable growth opportunities in this area.

Similar to many other California community colleges, 4CD is developing its goals related to energy, water and waste reduction goals, in addition to campus-based goals for improving student success, as related to energy and sustainability. 4CD also analyzed the value of its solar PV project that would add additional solar PV in order to achieve 50% ZNE by 2025. A combination of energy reduction through operations, energy reduction through retrofits and adding additional on-site renewable energy have to occur in order to come close to meeting the target 50% ZNE by 2025.

In summary, in order to reach the 50% ZNE target, 4CD needs to implement a combination of energy efficiency projects to reduce its usage as well as add

additional onsite solar PV to offset more of its usage. To plan for the future, 50% ZNE targets our existing buildings, the following analysis and graph were created as a first pass plan to show some of the methods that might be employed to help 4CD achieve its target. The reductions shown in the graph represent the 4CD Proposition 39 projects from the previous five years, installing sub metering at 4CD for it to determine how much energy each building uses, rather than only measuring the usage at the campus level, and installing additional solar PV.



The blue line shows the overall Annual Source Energy Use (in millions of kBTU). It combines gas usage and electric usage into source energy. Source energy traces the fuel requirements back to the power plant, and accounts for all the inefficiencies to get power to 4CD's buildings. The graph shows 4CD's historical source energy usage, with the 2017 usage at 317 million kBTU. The target/goal, represented by the orange dashed line, is set at 50% of this value, which is 156 million kBTU. In this analysis, it is assumed the usage at the campuses remains constant but is offset by various energy conservation measures and additional on-site renewable solar PV. The Baseline, "or do-nothing case" would place 4CD at continuing to use 317 million kBTU annually and would result in the straight blue line shown in the graph between 2017 and 2030. A straight blue line assumes the same type of weather each year, the same operating schedules, same square footage, and so on.

While PVs unfortunately were not included in the early bond budgets and were going to require local funds as well as 4CD funds to design and install, we are actively reducing our energy usage intensity of all new bond buildings

in the design phase to lower usage and allow them to become ZNE more easily with the additional PV. The new Brentwood Center was one of the projects where significant consideration was given to a solar PV system and batteries. While alternative funding strategies were explored in detail, such as a power purchase agreement (PPA), preference was given to purchase and own a solar PV system and batteries. Because of the fast-changing budgeting concerns, the pandemic brought upon us, we have had to table these projects and discussions. They will, however, most certainly need to be part of a new bond, as all new projects beginning in 2025 will need to be built to be ZNE from the start and will require additional PV to get our existing buildings to the ZNE targets.

APPENDIX C

CALIFORNIA COMMUNITY COLLEGE BOARD OF GOVERNORS (BOARD OF GOVERNORS) CLIMATE CHANGE AND SUSTAINABILITY POLICY – MAY 2019

C. 2019 & 2021 BOG Climate Change/Action and Sustainability Policy/Framework

The State Chancellor's Office BOG also adopted a new California Community College BOG Climate Change and Sustainability Policy in May 2019, which sets sustainability goals for 2030 with intermediate targets in 2025. These goals cover greenhouse gas reductions, renewable energy, transportation, ZNE, Leadership in Energy and Environmental Design (LEED), Procurement and Waste Reduction. The table below is from the adopted plan, which provides an overview of the goals. Similar to the University of California and California State University, it covers a diverse range of sustainability topics, but has less aggressive goals in comparison.

Table 1. California Community Colleges Goals for Addressing Climate Change and Furthering Environmental Sustainability.

Goals by 2025	Goals by 2030
1. Reduce greenhouse gas emission to 30 percent below 1990 levels.	Reduce greenhouse gas emission to 40 percent below 1990 levels.
2. Increase renewable energy consumption to 25 percent.	Increase renewable energy consumption to 50 percent.
3. 25 percent of fleet vehicles are zero-emission vehicles.	50 percent of fleet vehicles are zero-emission vehicles.
4. 50 percent of all new buildings and major renovations will be constructed as Zero Net Energy.	100 percent of all new buildings and major renovations will be constructed as Zero Net Energy.
5. 50 percent of all new buildings and major renovations will achieve at least a Leadership in Energy and Environmental Design (LEED) "Silver" or equivalent rating.	100 percent of all new buildings and major renovations will achieve at least a Leadership in Energy and Environmental Design (LEED) "Silver" or equivalent rating.
6. Increase procurement of sustainable products and services by 20 percent compared to current levels.	Increase procurement of sustainable products and services by 25 percent compared to current levels.
7. Reduce municipal solid waste by 25 percent compared to current levels.	Reduce municipal solid waste by 50 percent compared to current levels.

"*In a continued effort to align with California's Climate Change Strategy Pillars, the Board of Governors developed a resolution to align with the vision and goals of the California Climate Change Scoping Plan,* ***and requests that each district in the California Community Colleges also adopt a local resolution****. District resolutions may also include commitments to implement the Climate Change and Sustainability Policy goals and guidance, offer environmental sciences degrees and certificates with an emphasis on climate change, and other significant local climate change strategies and environmental sustainability measures*."

In 2021, the BOG adopted the Climate Action and Sustainability Framework which provides updates to the goals and recommendations for community college districts. This updated framework is more comprehensive and

inclusive of all areas of the campus community. The Climate Action and Sustainability Framework aims to create environmental, social, and educational benefits for the communities we serve. Since 2019, the BOG has charged community college districts with developing local climate action and sustainability resolutions.

For this work and efforts to advance, it was important for this climate change and sustainability policy to reflect the needs of colleges and the perspective of a diverse set of stakeholders. As a result, former Chancellor Oakley formed a Climate Action and Sustainability Steering Committee to help guide the BOG policy and framework. The committee was comprised of volunteers from the ten community colleges, the Student Senate of California Community Colleges (SSCCC), the Chancellor's Office, and the Foundation for California Community Colleges. Specifically, the expertise of colleges' representatives encompass environmental science, sustainability, facilities management, academics, and business operations. To date, the Committee provides advice to the California Community Colleges Chancellor's Office and community colleges focused on the climate crisis and sustainability policies and programs.

The Framework first asks California's community colleges to establish benchmarks. Next, the Climate Action and Sustainability Framework asks districts and colleges to track their progress towards the goals (in eight categories). Tracking will be included for 2025, 2030, and 2035, the target years for California to reduce greenhouse gas emissions by 100% below the baseline.

Adopting a local resolution or a similar policy will support 4CD institutionalize sustainability, and align it with other districts, such as San Mateo, San Bernardino, Santa Rosa, University of California and the California State University.

APPENDIX D

GLOSSARY OF TERMS

APPENDIX D

D. Glossary

BAAQMD

The Bay Area Air Quality Management District (BAAQMD) is a public agency that regulates the stationary sources of air pollution in the nine counties of California's San Francisco Bay Area: Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, southwestern Solano, and southern Sonoma.

Backcasting

Backcasting is central to the Framework for Strategic Sustainable Development, which is a framework that has helped hundreds of different organizations around the world integrate sustainable development into their strategic planning and create long lasting transformative change. Backcasting begins with the end goal in mind, moves backwards from the vision to the present state, and then moves step-by-step toward the vision, using sustainability principles.

Carbon dioxide (CO2)

Carbon dioxide enters the atmosphere through burning fossil fuels (coal, natural gas, and oil), solid waste, trees and other biological materials, and because of certain chemical reactions (e.g., manufacture of cement). Carbon dioxide is removed from the atmosphere (or "sequestered") when it is absorbed by plants as part of the biological carbon cycle. Carbon dioxide emissions are the primary driver of global climate change. It is widely recognized that in order to avoid the worst impacts of climate change, the world needs to urgently reduce emissions.

Carbon Neutral

Carbon Neutral is an emerging definition that relates to measuring, reducing and offsetting carbon energy used by either a building or an organization.

CCTA

The Contra Costa Transportation Authority (CCTA) works to plan, fund, and implement innovative transit programs that strengthen our diverse communities and improve the lives of residents

Compost

Compost is organic matter that has been decomposed in a process called composting. This process recycles various organic materials otherwise regarded as waste products and produces a soil conditioner. Compost is rich in nutrients.

Energy Usage Index (EUI)

EUI is a common performance factor that can be compared against benchmarks in the same climate and in the same type of usage (college/university, office buildings, and so on). EUI is expressed as energy per square foot per year. It is calculated by dividing the total energy consumed by the building in one year (measured in kBtu or GJ) by the total gross floor area of the building.

Environmental Justice

Environmental justice is the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income, with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies.

EV Charge Program

PG&E launched the EV Charge Network program to install 7,500 EV chargers at multi-unit dwellings and workplaces throughout its service territory, including sites in disadvantaged communities. This

program provides an opportunity to contribute to California's clean energy goals while also investing in your property.

GHG

Any of various gaseous compounds (such as carbon dioxide or methane) that absorb infrared radiation, trap heat in the atmosphere, and contribute to the greenhouse effect. In this report we are using it as a synonym for CO2 emissions.

LEED

LEED is the most widely used green building rating system in the world. Available for all building types, LEED provides a framework for healthy, highly efficient, and cost-saving green buildings.

Methane (CH4)

Methane is emitted during the production and transport of coal, natural gas, and oil. Methane emissions also result from livestock and other agricultural practices and by the decay of organic waste in municipal solid waste landfills.

PV

Solar cells, also called PV cells, convert sunlight directly into electricity. PVs get their name from the process of converting light (photons) to electricity (voltage), which is called the photovoltaic effect. Solar PV has specific advantages as an energy source: once installed, its operation generates no pollution and no greenhouse gas emissions, it shows simple scalability in respect of power needs and silicon has large availability in the Earth's crust.

Renewable Energy

Renewable energy is energy that is collected from renewable resources, which are naturally replenished on a human time scale, including carbon neutral sources like sunlight, wind, rain, tides, waves, and geothermal heat. The term often also encompasses biomass as well, whose carbon neutral status is under debate.

Weather Normalized

This is a process that measures the impact of weather on energy consumption. Because weather patterns vary widely day-to-day and year-to-year, weather for a given season may be colder or warmer. Energy used in keeping warm is directly dependent on how cold it is. Comparing the weather or energy consumption from one year to the next would provide only the change between those years. However, when energy consumption is “Weather Normalized” you are comparing your energy consumption over a normal weather period. Weather normalization adjusts energy usage so it can be compared to energy usage in other years over a longer period.

ZNE

The State of California defines ZNE for state buildings as follows: ZNE Source – Energy Efficient building that produces as much clean renewable energy as it consumes over the course of a year, when accounted for at the energy generation source. Other terms used for this include: zero-energy building (ZE), net-zero energy building (NZEB), net zero building is a building with zero net energy consumption, meaning the total amount of energy used by the building on an annual basis is equal to the amount of renewable energy created on the site