SAN BERNARDINO COMMUNITY COLLEGE DISTRICT SUSTAINABILITY PLAN (DRAFT)

2021

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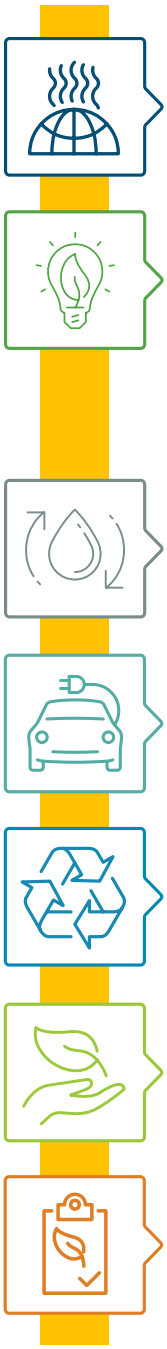
EXECUTIVE SUMMARY

San Bernardino Community College District (SBCCD) recognizes the need to take a leadership role on sustainability both within its local community as well as within the network of community colleges. SBCCD has undertaken a thorough strategic sustainability planning process to establish a set of sustainability goals to guide future operations at SBCCD. In alignment with State goals and the State Chancellor's Office, the 20 goals in carbon mitigation, energy, water, transportation, materials, curriculum, and ongoing engagement and transparency will provide a structure and direction for sustainable actions at SBCCD.



Carbon Mitigation

- Achieve carbon neutrality for scope 1 and 2 emissions by 2050. Manage scope 3 emissions through the implementation of a Sustainability Task Force

Energy

- Develop a retro-commissioning program focused on existing building energy efficiency
- Maximize the amount of on-site renewable energy generation
- Move towards an all-electric approach for new construction and major renovations
- Conduct a zero net energy (ZNE) campus feasibility study and implement initiatives to move towards a ZNE district, starting with Valley College
- Consider establishing a Community Resilience Hub on each campus
- Collaborate with local utilities and other organizations to maximize cost-effectiveness of energy initiatives

Water

- Improve indoor water efficiency for existing buildings and new construction
- Utilize native and adaptive vegetation to minimize irrigation water use
- Expand the use of alternative water supplies to reduce potable water use
- Reduce potable water use by 20% by 2025, and 25% by 2030

Transportation

- Establish a transportation demand management plan to encourage alternative modes of transport and reduce single-occupancy vehicles (SOVs) demand
- All new purchases of fleet vehicles shall be zero emissions by 2025, to achieve a full conversion of the fleet by 2040
- Install electric vehicle (EV) charging infrastructure to promote the use of EVs within the local community

Materials

- Reduce waste going to landfill by 25% compared to current levels by 2025, and 50% by 2030
- Increase procurement of sustainable products and services by 20% compared to current levels by 2025, and 25% by 2030, on a cost basis

[Content Redacted]

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Ongoing Engagement & Transparency

- Track and report ongoing sustainability performance against goals every five years starting in 2025
- For all new construction and major renovations over 30 ksqft, achieve CALGreen Tier 1 and LEED Gold at a minimum, and CALGreen Tier 2 and LEED Platinum where possible

SBCCD District Office, San Bernardino, CA

BACKGROUND

San Bernardino Community College District (SBCCD) is one of 72 community college districts within the California Community College system, the largest educational system in the world, which encompasses 112 community colleges. SBCCD serves 27,000 students at its Crafton Hills College and San Bernardino Valley College campuses. SBCCD has an 85-year history of providing its community and students with quality and affordable vocational certificates, associate degrees, and preparation for transfer to a four-year college or university through San Bernardino Valley College (SBVC) and Crafton Hills College (CHC). In addition, the Economic Development and Corporate Training Division (EDCT) and KVCR TV-FM provide professional development and cultural and educational information to the community at large.


Crafton Hills College, Yucaipa, CA


San Bernardino Valley College, San Bernardino, CA

HISTORY OF SUSTAINABILITY AT SBCCD

The District has a long-standing history in exhibiting sustainable innovation, and these efforts have only accelerated with recent years. In 2012, Board of Trustees approved our first sustainability plan which included seven goals.

SBCCD Sustainability Plan 2012 Goals:

1. Create a campus-wide culture of sustainability
2. Incorporate sustainability into the development of new and renovated facilities
3. Invest in renewable energy and energy efficiency programs
4. Develop a more sustainable transportation system
5. Develop a more sustainable system for the purchase of supplies and materials
6. Enhance curricular educational opportunities for sustainability
7. Establish a commitment to climate action

To meet the goals SBCCD installed a 1.3 MW concentrating solar power system at Crafton Hills College, offsetting 4 million pounds of carbon dioxide equivalent emissions and more than $500,000 annually in operational utility costs. As an ongoing effort spread over the last decade, SBCCD has conducted district-wide energy conservation measures like mechanical equipment upgrades and lighting retrofits. In 2012, Valley College launched a two-year project to construct a central plant equipped with thermal energy storage. In 2018, capitalizing on Prop 39 funds, SBCCD retrofitted its district headquarters office to be the first zero net energy (ZNE) community college building in all of California. That

SBVC Physical Sciences

Crafton Hills College - Canyon Hall LEED

CHC Canyon Hall

same year, SBCCD was awarded the Best Practices award in Large Scale Planning for sustainability at the California Higher Education Sustainability Conference. Included in the proposal that won SBCCD this recognition, was SBCCD's 10 LEED buildings including 2 LEED Platinum, 1 LEED Gold, 3 LEED Silver, and 4 LEED Certified buildings.

BEST PRACTICES AWARD

2 U.S. GREEN BUILDING COUNCIL LEED PLATINUM USGBC

1 U.S. GREEN BUILDING COUNCIL LEED GOLD USGBC

3 U.S. GREEN BUILDING COUNCIL LEED SILVER USGBC

4 U.S. GREEN BUILDING COUNCIL LEED CERTIFIED USGBC

The LEED® Certification trademark owned by the U.S. Green Building Council.


SBVC Library


SBVC construction site

SUSTAINABILITY PLANNING PROCESS

SBCCD contracted external consultants, Arup North America Ltd. (Arup), to lead the sustainability planning process. Arup has extensive experience in sustainability planning for numerous other community college districts, universities and municipalities. Arup acted as technical advisor for the City of LA's Green New Deal released in 2019, which set a bold pathway for the City to reach carbon neutrality by 2050. Furthermore, over the last 8 years, Arup has worked with SBCCD to create, define, plan and deliver energy projects across the District, including the design and implementation of SBCCD's zero-net energy training facility retrofit. Arup's long-standing relationship with SBCCD lends to a deep and pragmatic understanding of SBCCD's culture, infrastructure assets and long-term aspirations.

Going into this process, SBCCD aimed to create a comprehensive framework for sustainability initiatives that:

- Aligns with State and State Chancellor's Office ambitions
- Prepares SBCCD to be competitive for future funding
- Illustrates SBCCD's sustainability stewardship
- Provides a sustainability overlay for the Bond Measure CC

After kickoff in June, SBCCD formed the Sustainability Planning Committee comprised of facility directors and Bond Measure CC program managers. In August, the Sustainability Planning Committee met for two 2-hour long goal-setting workshops to establish goals in each of the 7 sustainability focus areas: carbon mitigation, energy, water, transportation, materials, curriculum and ongoing engagement and transparency.

Applied Technology Training Center, San Bernardino, CA


CHC construction site

Throughout this process, the team coordinated the sustainability planning process with ongoing efforts such as the district-wide building standards for Bond Measure CC and Owners Project Requirement (OPR) Template development. This integrative process allowed SBCCD to identify additional opportunities for sustainability initiatives, such as utilizing building standards to establish green building requirements, and piloting sustainable innovations with flagship Measure CC constructions.

After a thorough review process, the Board approved the plan in the month of July 2020.

Solar Panels & Vehicle Charging Stations

CHC Public Safety & Allied Health Complex

A VISION OF SUSTAINABILITY AT SBCCD

Sustainable development is defined as meeting the needs of the present without compromising the ability of future generations to meet their needs. There are three spheres of sustainability: environmental, social and economic. The environmental sphere, albeit the best known of the three spheres, will not lead to sustainable development alone. Maintaining its mission to transform lives through education, SBCCD's vision of sustainability is one that betters its education system over a long-term horizon in all three spheres. Cost implications of sustainability initiatives cannot be so great that it impedes SBCCDs commitment to affordable education for its diverse communities. Investments must have a sufficient return of investment to ensure economic responsibility over future operations at SBCCD. Commitments must improve equity issues, instead of further burdening those who are in challenging circumstances. SBCCD evaluated each goal in this plan for its benefits and impacts to all SBCCD stakeholders so as to maintain the course on SBCCD's vision for sustainability.

Return on Investment (ROI) Consideration

To gauge the economic aspect of SBCCD's sustainable development vision, a complete life-cycle cost analysis (LCCA) shall be performed for each sustainability measure. The intent of the LCCA is to determine if the return on investment (ROI) is reasonably lower than the expected useful life of the sustainability measure from cradle to grave. This cost-effectiveness test will allow SBCCD to prioritize programs by assessing both their co-benefits and cost-benefits. Even if the program is not cost-effective, SBCCD, on a case-by-case basis, will assess whether the co-benefits associated with a sustainability measure are worth the added costs. This ROI consideration process provides SBCCD with the information necessary to make strategic investment decisions that maximizes benefits to its stakeholders with efficient use of taxpayer dollars.

TRANSFORMING LIVES ONE AT A TIME!

USC Sustainability tour of Crafton Hills College

POLICY DRIVERS

The State of California is a nationwide leader in sustainability. The political environment in California encourages, and at times mandates, sustainable action through progressive and established regulations. Below are a few key pieces of legislations that informed and helped shape SBCCD's sustainability goals.

STATE POLICIES

1. California Global Warming Solutions Act of 2006: Emissions Limit, Senate Bill 32[1]

The bill designates the State Air Resources Board as the authority to monitor and regulate statewide greenhouse gas emissions such that State green house gas emissions are capped to 1990 levels by 2020, and 40% below 1990 levels by 2030, with a long-term policy goal (not mandated) of reaching 80% below 1990 levels by 2050.

2. Senate Bill 100[2]

Senate Bill 100 puts California on the path to a 100% clean grid by 2045. The bill mandates utilities to source 60% of its electricity from renewable sources by 2030, and 100% from carbon-free sources by 2045.

[1]"Bill Text - SB-32 California Global Warming Solutions Act of 2006: emissions limit." *California Legislative Information*, 2012, https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201520160SB32.
[2]"Bill Text - SB-100 California Renewables Portfolio Standard Program: emissions of greenhouse gases." *California Legislative Information*, 2012, https://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill_id=201720180SB100.


Garden club


SBCCD students

3. California Long-Term Energy Efficiency Strategic Plan[3]

In 2008, the California Public Utilities Commission (CPUC) adopted the Long-Term Energy Efficiency Strategic Plan. The California Energy Efficiency Strategic Plan sets forth ambitious policy goals for zero net energy (ZNE). It aims for all new commercial construction to be ZNE by 2030, and 50% of commercial buildings to be retrofitted to be ZNE by 2030.

4. Title 24, Part 11

Title 24, Part 11 is the California Green Building Code (i.e. CALGreen). Iterated on every three years, the building code sets progressively more stringent requirements on building energy and water efficiency for new buildings or major renovations. With the latest 2019 cycle that will become effective in January 2020, CALGreen enforces requirements for on-site renewable energy generation and EV-charging capability as well.

5. Water Conservation Act of 2009, SB X7-7[4]

The Water Conservation Act of 2009 signs in to law the requirement for the State to achieve a 20% reduction in urban water consumption per capita by the end of 2020. The bill also required water suppliers to increase their water efficiency – mandating urban retail water suppliers to develop urban water use targets, and agricultural water suppliers to implement water efficiency measures.

[3]Engage360. *CA Energy Efficiency Strategic Plan*. Jan. 2011, www.cpuc.ca.gov/WorkArea/DownloadAsset.aspx?id=5303 .
[4]"Bill Text - SB-7." *Water.CA.gov*, 2009, https://water.ca.gov/LegacyFiles/wateruseefficiency/sb7/docs/SB7-7-TheLaw.pdf.

Landscape at the campus

SBVC Physical Science building

6. Recycled Water Policy[5]

The State Water Board adopted the policy goal to increase the use of recycled municipal wastewater in California from 714,000 acre-feet per year (afy) in 2015 to 1.5 million afy by 2020, and to 2.5 million afy by 2030. The policy focuses on increasing recycled water use at the utility-level, and the recycled water is intended to supply non-potable demands such as irrigation and process water.

7. Sustainable Communities and Climate Protection Act of 2008, Senate Bill 375[6, 7]

Senate Bill 375 focuses on limiting greenhouse gas emissions by reducing vehicle miles traveled and urban sprawl. The bill designates the California Air Resource Board (CARB) the authority to set regional targets for green house gas emission reductions from passenger vehicle use. Under Senate Bill 150 – signed into effect in 2017 – CARB is required to report to legislature every four years to discuss regional emissions related to Senate Bill 375 implementation. For San Bernardino, which falls under the Southern California Association of Governments jurisdiction, CARB has outlined an 8% reduction in greenhouse gas emissions from passenger vehicles by 2020, and 19% reduction by 2035.

8. Low Carbon Fuel Standard[8]

The Low Carbon Fuel Standard, amended in 2019, is a market-based policy that requires refiners, blenders, producers and importers of transportation fuels to reduce the carbon intensity of the fuels they sell by 20% by 2030. Carbon intensity is a measure of the life-cycle greenhouse gas emissions associated with producing, distributing and consuming a fuel, calculated on a per megajoule of energy basis.

[5]State Water Resources Control Board. *Water Quality Control Policy for Recycled Water.* 2018, www.waterboards.ca.gov/board_decisions/adopted_orders/resolutions/2018/121118_7_final_amendment_oal.pdf.
[6]California Air Resource Board. *Appendix A of Updated Final Staff Report Proposed Update to the SB 375 Greenhouse Gas Emission Reduction Targets.* 2018, ww3.arb.ca.gov/cc/sb375/appendix_a_feb2018.pdf.
[7]California Air Resource Board. *SB 375 Regional Greenhouse Gas Emissions Reduction Targets.* 2018, ww3.arb.ca.gov/cc/sb375/finaltargets2018.pdf.
[8]California Air Resources Board. *CARB Amends Low Carbon Fuel Standard for Wider Impact.* Sept. 2018, ww2.arb.ca.gov/news/carb-amends-low-carbon-fuel-standard-wider-impact.

SBVC Campus


CHC - Learning Resource Center - LEED Certified

9. Innovative Clean Transit Regulation[9]

The Innovative Clean Transit Regulation requires all public transit agencies to achieve a full zero emission bus (ZEB) fleet transition by 2040. The regulation sets interim targets for a gradual transitioning to full ZEB con version, requiring 25% of new bus purchases to be zero emissions by 2023, and 100% of new purchases to be zero emission by 2029.

10. California 75 Percent Initiative[10, 11]

California has set a policy goal of achieving 75% recycling, composting and source reduction of solid waste by 2020. Two key laws were passed to help meet this goal. Released in 2011, Assembly Bill 341 requires all commercial businesses and public entities to establish a recycling program. Released in 2014, Assembly Bill 1826 mandates organic waste recycling for commercial facilities.

11. Buy Clean California Act[12]

The Buy Clean California Act applies to State agencies, University of California and California State University System. The Act requires these agencies and institutions to disclose the embodied emissions of select building materials used in new construction through submission of Environmental Product Declarations. Not only must they disclose the impacts of the materials, but the materials purchased cannot exceed lifecycle global warming potential limits set by the Department of General Services.

[9]California Air Resources Board. *Innovative Clean Transit (ICT) Regulation Fact Sheet.* May 2019, ww2.arb.ca.gov/resources/fact-sheets/innovative-clean-transit-ict-regulation-fact-sheet.
[10]"Bill Text - AB-341 Solid Waste: Diversion." *California Legislative Information*, 2012, leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201120120AB341.
[11]"Bill Text - AB-1826 Solid Waste: Organic Waste." *California Legislative Information*, 2012, http://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201320140AB1826&search_keywords.
[12]Department of General Services. *Buy Clean California Act.* www.dgs.ca.gov/PD/Resources/Page-Content/Procurement-Division-Resources-List-Folder/Buy-Clean-California-Act.

California Community Colleges Building

STATE CHANCELLOR OFFICE OF SUSTAINABILITY POLICIES

In January of 2020, the Board of Governors of the California Community Colleges proposed 7 model goals that align with the vision of the California Climate Change Scoping Plan – the plan to achieve the State-wide carbon emission reduction goals outlined in Assembly Bill 32. These 7 goals aim to provide alignment amongst Community Colleges, and stir concerted, collaborative initiative.

Below are the goals outlined by the State Chancellor's Office:

1. Reduce greenhouse gas emission levels below 1990 levels by 30% by 2025 and 40% by 2030.
2. Increase renewable energy consumption to 25% by 2025, and to 50% by 2030.
3. Ensure 25% of fleet vehicles are zero-emission vehicles by 2025, and 50% by 2030.
4. 50% of all new buildings and major renovations will be zero net energy (ZNE) by 2025, and 100% by 2030.
5. 50% of all new building and major renovation will achieve LEED Silver or equivalent rating by 2025, and 100% by 2030.
6. Increase procurement of sustainable products and services compared to current levels by 20% by 2025, and 25% by 2030.
7. Reduce municipal solid waste by 25% compared to current levels by 2025, and 50% by 2030.


Solar Farm

SBCCD SUSTAINABILITY PLAN 2020 GOALS

SBBCD's sustainability vision is woven around a number of sustainability focus areas, under which high-level goals have been defined.

SBCCD Sustainability Plan 2020 Focus Areas

- **Carbon Mitigation**
- **Materials**
- **Energy**
- **[Content Redacted]**
- **Water**
- **Ongoing Engagement and Transparency**
- **Transportation**

Projects or initiatives that will help partly achieve the goals have started to be identified and are listed within this section. This Sustainability Plan is expected to be updated every five years and the initiatives and projects listed will continue to grow and change to reflect market trends, District needs, policy drivers, and the general landscape of sustainability. Within each goal, a key performance indicator (KPI) has also been included. It is expected that the KPIs will be used to track progress towards goals in a consistent and transparent way.


CHC Crafton Center


SBVC

CARBON MITIGATION

The first goal set by SBCCD is to align itself with State of California climate change goals by targeting carbon neutrality by 2050 for scope 1 and scope 2 emissions. This includes direct emissions within the District – natural gas combustion and emissions associated with District owned vehicles – and indirect emissions associated with imported electricity. Scope 3 emissions – indirect emissions associated with employee travel, waste, commuting, leased buildings and goods will be tracked and performance targets will be set by a new Sustainability Task Force made up with representatives of key SBCCD stakeholder groups. The main mission of the Sustainability Task Force is to promote operational sustainability at SBCCD.

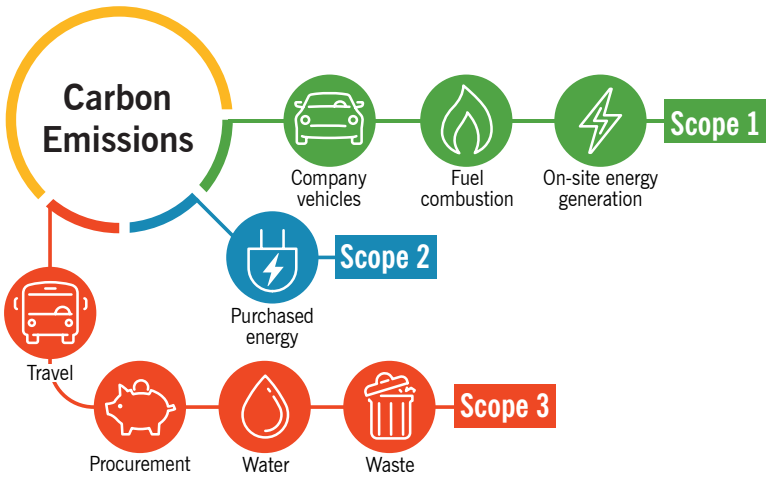
GOAL 1

Achieve carbon neutrality for scope 1 and 2 emissions by 2050.
Manage scope 3 emissions through the implementation of a Sustainability Task Force

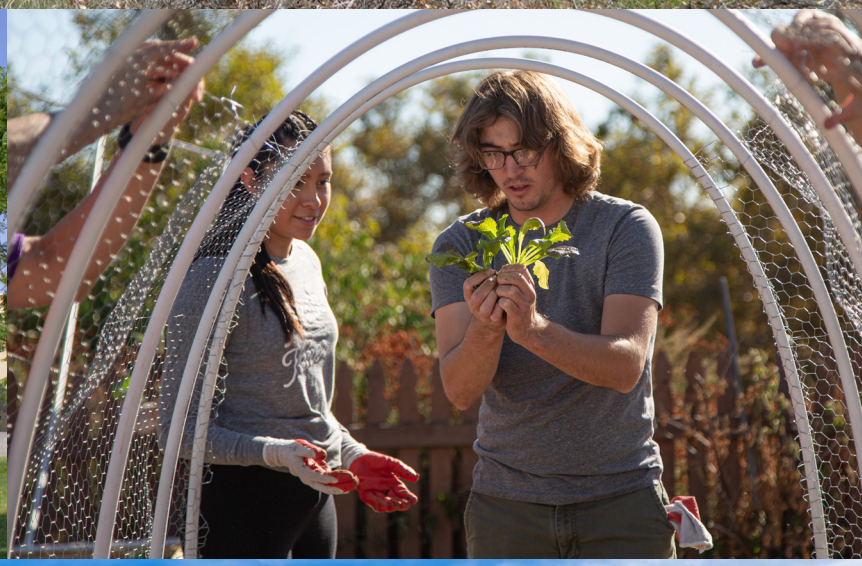
Key Performance Indicator: Greenhouse Gas Emissions (CO_2e/yr.)

Key Initiatives

- Complete a greenhouse gas inventory of all Scope 1, 2 and 3 emissions. Update every five years.
- Complete a Climate Action Plan (CAP) to meet or exceed goals and provide a roadmap for achieving them.
- See initiatives in other focus areas for additional cross-cutting goals related to energy and transportation.



REALIZED ENVIRONMENTAL BENEFITS FROM CHC SOLAR FARM ARE EQUIVALENT TO 1257 METRIC TON CO_2 EMISSIONS REDUCTION




Valley College central plant is equipped with thermal energy storage


CHC Clocktower

ENERGY

The operational energy use of buildings is responsible for almost a third of the global emissions.[13] Playing such a large role in the district's carbon footprint, SBCCD has already undertaken numerous efforts in energy efficiency and renewable energy generation, and has now pledged to 6 goals in pursuit of a clean and robust energy system. To eliminate emissions, reduce risk of supply cuts and rising energy costs, and maximize social benefits such as lower regional air pollution, SBCCD has tackled sustainable energy through a three-step approach:

1. **Energy Efficiency**
   Reduce the energy demand of the district through load reduction and building systems upgrades
2. **Renewables**
   Increase clean energy production on site
3. **Offsite**
   Increase the amount of off-site renewable energy generation used by the district

GOAL 1

Develop a retro-commissioning program focused on existing building energy efficiency

Key Performance Indicator: District-wide energy use intensity (kBtu/sq.ft.)

Key Initiatives

- Conduct equipment inventory and benchmark existing buildings
- Install building level electrical sub-meters
- Add sub-meters to measure major electrical loads (i.e. HVAC, lighting & plug loads) in new construction and major renovation projects

The first goal aims to reduce energy demands through increasing the energy efficiency of buildings throughout the district. This can be monitored with each iteration of the sustainability plan through measuring the district-wide energy use intensity, which is the amount of energy consumed by the district on a per square-foot basis. To cost-effectively strategize where to implement energy efficiency efforts, SBCCD plans to expand its already comprehensive energy metering network and to add a sub-meter at each building where possible. Data gathered from this initiative will allow SBCCD to benchmark energy efficiency and carbon mitigation efforts, and to inform future initiatives through retrospective assessment of what strategies have proven most useful.

[13] Architecture 2030. New Buildings: Embodied Carbon. 2018, architecture2030.org/new-buildings-embodied/.

Concentrating solar power system at Crafton Hills College

Garden club

GOAL 2
Maximize the amount of on-site renewable energy generation

Key Performance Indicator: Annual on-site renewable energy generation (kWh/yr.)

Key Initiatives

- Develop and implement a solar energy masterplan district-wide
- Perform feasibility analysis to add battery storage along with renewable power.

SBCCD has already taken large strides to increasing its on-site renewable energy generation, with a 1.3 MW concentrating solar power farm in Crafton Hills College. Efforts to capitalize on the solar potential of Valley College are already underway. SBCCD plans to develop a solar energy masterplan at Valley College that maximizes the amount of solar PV available given space constraints, while also assessing its structural and financial feasibility. As shown by the existing solar farm at Crafton Hills College, on-site solar generation not only reduces emissions from its fuel mix, but also offers an opportunity for reduced annual operational costs.

GOAL 3
Move towards an all-electric approach for new construction and major renovations

Key Performance Indicator: Number of all-electric buildings in SBCCD

Key Initiative

- Build on the district-wide electrification study and implement study findings

The California Public Utilities Commission requires electric utilities to integrate more renewables into their fuel mix for an increasingly cleaner grid. By 2045, the grid will be sourced from completely carbon-free sources. To capitalize on this trend, SBCCD is divesting in fossil-fuel-based assets and investing in an all-electric future. SBCCD will conduct a district-wide electrification study to assess the feasibility of integrating electrification into district building standards, and to understand its implications on utility costs and infrastructure upgrades.

CALFire map of Yucaipa is shown with Crafton Hills College in a Very High Fire Hazard Severity Zone (dark red areas)


Arial view of Crafton Hills College

GOAL 4
Conduct a zero-net-energy (ZNE) campus feasibility study and implement initiatives to move towards a ZNE district, starting with Valley College

Key Performance Indicator: Number of ZNE buildings in SBCCD

Key Initiative

- Design the new building to be ZNE Ready

Zero net energy means to produce an equal or greater amount of renewable energy than energy consumed over the year. Zero net energy buildings lend to lower operational costs and greater energy resilience. Strategies used in ZNE design – such as natural daylighting and ventilation – can improve student and faculty productivity, while also showcasing exemplar technologies.

SBCCD leads the region in ZNE design with the only ZNE building among community colleges in all of California. Retrofitted in 2018, the District Headquarters is a clear example of SBCCD's sustainable leadership and innovation.

GOAL 5
Consider establishing a Community Resilience Hub on each campus

Key Performance Indicator: Number of people served with protected supply of energy, water and other basic needs

Key Initiatives

- Consider feasibility of piloting microgrids and energy storage for increased energy resilience
- Consider ways to integrate reselience-focused design for new buildings

As evident in the scale and frequency of wildfires in California in recent years, the dangers of climate-related hazards are becoming more real and impactful, especially for SBCCD. Crafton Hills College falls into a very high fire hazard severity zone, and a fault line runs directly through the center of Valley College. In response to increasing climate risks, regulations on utilities have changed such that they are given more authority to preemptively shut off power. This poses a threat in itself to SBCCD and its greater community – disrupting education and increasing exposure of vulnerable population to heat stress. SBCCD shall assess the feasibility and benefits of establishing a community resilience hub on each campus that pilots a combination of microgrids, renewables and energy storage to ensure continuous operations of critical loads. During preemptive grid shutdowns or natural catastrophes, SBCCD could use these resilience hubs to safeguard its students, faculty, facility staff and surrounding community.

SBVC campus

Valley College map highlighting the fault line that runs through campus

GOAL 6

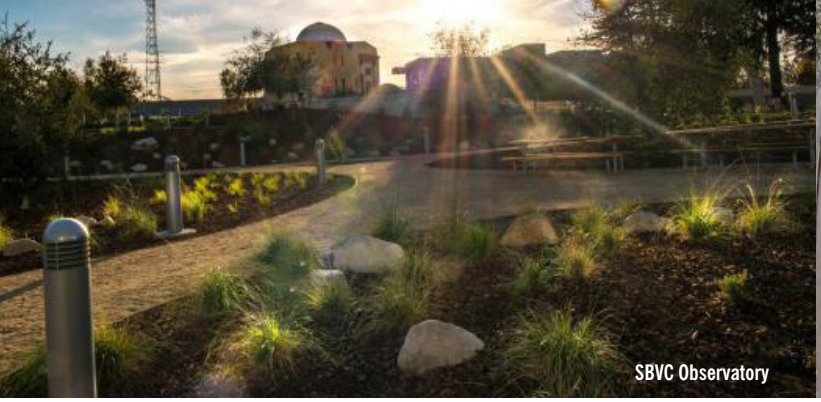
Collaborate with local utilities and other organization to maximize cost-effectiveness of energy initiatives

Key Performance Indicator: External funds used for sustainability initiatives ($)

Key Initiatives

- Collaborate with Southern California Edison (SCE) and other organizations to utilize incentives & grants for energy efficiency, zero net energy design and/or resilience hub piloting

SBCCD will continue to collaborate with local utilities and other organizations to identify funding opportunities for energy initiatives. The goals set forth in this plan align with many incentive programs already available, such as Southern California Edison's (SCE) Energy Savings by Design and Solar + Storage Resiliency Center Learning Pilot incentive programs. Additional outside grants, such as those offered by SoCalREN and the California Public Utilities Commission, will also be investigated to maximize the cost effectiveness of energy initiatives and protect taxpayer capital.


SBVC Observatory


SBCCD studetns

WATER

Water conservation is a particularly key issue for California due its climatic conditions and increasing stress from climate change. Groundwater, which supplies approximately 40% of the water used by Californians, is on a steady decline. Water is being pumped out of groundwater basins at a rate faster than they can be replenished. Unsustainable management of groundwater basins and climate-vulnerable surface water reservoirs have lead to historically uncertain water supplies. As was done in California's prior periods of drought, collective action from all of the public is needed to mitigate drought risk and secure a long-term source of water. SBCCD will systematically minimize the amount of water used by:

1. Reducing indoor potable water demand through building fixture efficiency and water conservation education
2. Reduce outdoor water demand through irrigation and landscape best practices
3. Investigate alternative supplies of water to offset potable water consumption

GOAL 1

Improve indoor water efficiency for existing buildings and new construction

Key Performance Indicator: Annual indoor water consumption (gal/yr.)

Key Initiatives

- Retrofit existing building indoor water fixtures and fittings to meet CALGreen
- For new construction and major renovations, achieve CALGreen Tier 1 at a minimum, and Tier 2 when possible

California's green building code, CALGreen, has some of the most stringent indoor water requirements in the country. CALGreen's minimum flowrates for water fixtures and fittings already meet the water efficiency prerequisite in LEED. However, CALGreen is only required for newly constructed or majorly renovated buildings. With increasing drought risk, SBCCD will fill in the gap by tackling its existing building stock as well. SBCCD will continue existing building retrofit efforts, upgrading indoor water fixtures and fittings district-wide to meet CALGreen standards.

Furthermore, as outlined in Ongoing Transparency and Engagement Goal 2, SBCCD plans to go beyond code for new construction. SBCCD aims to achieve the voluntary CALGreen Tier 1 for all new construction and major renovations, and Tier 2 when possible. To qualify for Tier 1, the building must meet Tier 1 prerequisites and a sufficient number of electives requirements. In the 2016 and 2019 code cycles, the key Tier 1 prerequisite for water conservation is achieving a 12% reduction in indoor water use against code minimums. A 12% reduction against an already leading-edge building standard nationwide is a strong move take leadership in reducing per capita water consumption to aid and abet long-term water supply concerns.

[148]"Groundwater in California." Public Policy Institute of California, May 2017, www.ppic.org/publication/groundwater-in-california/.

Purple pipe is typically used for distributing recycled municipal wastewater

Campus Garden

GOAL 2
Utilize native and adaptive vegetation to minimize irrigation water use

Key Performance Indicator: Annual outdoor water consumption (gal/yr.)

Key Initiatives

- Identify opportunities for native and adaptive vegetation

A simple and passive strategy of reducing outdoor water consumption is to reduce irrigation demand through the planting of native and adaptive vegetation as opposed water-intensive species such as turf grass. SBCCD will explore opportunities for native and adaptive vegetation with each new construction or major renovation in Bond Measure CC, such as the new Technical Building. SBCCD will also consider phased retrofitting of existing landscapes with native or adaptive species. For each potential project, SBCCD will assess the environmental and economic benefits of landscaping modifications, such as reducing the impact of heat islands and enhancing campus identities.

GOAL 3
Expand the use of alternative water supplies to reduce potable water use

Key Performance Indicator: Annual recycled water use (gal/yr.)

Key Initiatives

- Explore the opportunity for using non-potable well water for toilet flushing and potentially cooling tower make-up water
- Investigate the viability of bringing Purple Pipe to Valley College
- When recycled water is available, include dual piping in all new construction

Potable water consumption can be decreased by using alternative water supplies to meet non-potable water demands such as flushing toilets, irrigation and process water. One type of alternative water supply is recycled municipal wastewater. The State aims to double recycled municipal wastewater from 2015 levels by 2020, and more than triple 2015 levels by 2030. Distributing the recycled wastewater from wastewater treatment plants to a potential user requires long-term infrastructure upgrades for both parties as reclaimed non-potable water cannot be piped with potable water. SBCCD will coordinate with local municipal water suppliers to investigate the viability of bringing recycled water to Valley College. If and when recycled water becomes available, SBCCD will install dual piping in all new construction.

In addition to recycled municipal wastewater, other non-potable sources of water can be used to offset potable water consumption. Crafton Hills College already mitigates potable water consumption by using non-potable groundwater to irrigate a significant portion of its landscape. SBCCD will investigate other opportunities for reclaiming water, such as rainwater harvesting, grey water reuse and condensate catchment.

CHC campus

Purple pipes used for recycled water distribution

GOAL 4

Reduce potable water use by 20% by 2025, and 25% by 2030

Key Performance Indicator: Potable water use reduction (%)

Key Initiatives

- Completing initiatives of Goals 1 to 3 would help achieve the goal
- Provide all new construction and major renovations building with water sub-metering
- Install building-level water sub-meters for each building

In Executive Order B-29-2015, Governor Brown instated a mandatory 25% reduction in urban water use from 2013 levels by 2016. Similarly, the Water Conservation Act of 2009 required a 20% reduction in urban water use per capita from 2009 levels by 2020. To ensure SBCCD is taking measurable steps to a sustainable water system, SBCCD has set similar ambitions for potable water consumption in the coming decade. SBCCD aims to achieve a 20% reduction in potable water use by 2025, and a 25% reduction by 2030 from current levels. Similar to energy metering, SBCCD plans to expand its existing water metering network and submeter where possible in order to enable data collection for bench-marking, fault detection and opportunities for improvement.

TRANSFORMS LIVES THROUGH THE EDUCATION OF OUR STUDENTS FOR THE BENEFIT OF OUR DIVERSE COMMUNITIES

SBVC golfcart charging stations

Vehicle charging station parking lanes

TRANSPORTATION

Similar to the sustainable energy and water approaches, sustainable transportation should first prioritize reducing demands. Electric vehicles, although significantly better in comparison to its gasoline or diesel counterparts, do not emit 'zero' emissions. Electric vehicles emit more greenhouse gases than gasoline cars during the manufacturing process due to the rare metals needed to build batteries. However, over the entire lifecycle of the vehicles, electric vehicles emit, on average, half the greenhouse gas emissions of a gasoline car[15]. Therefore, although electric vehicles and other 'zero emission vehicles' of the like significantly reduce carbon emissions, reducing the need for them is the most cost- and carbon-effective approach.

GOAL 1

Establish a transportation demand management plan to encourage alternative modes of transport and reduce single-occupancy vehicle (SOVs) demand

Key Performance Indicator: Vehicle miles traveled

Key Initiatives

- Continue the transit subsidy program
- Install bike racks near existing facilities and provide bicycle racks at all new facilities

Due to low density in San Bernardino and a lack of a dense public transit network, many students and faculty drive to campus. SBCCD aims to establish a transportation demand management plan to offset these factors by incentivizing alternative modes of transport such as walking, public transit, micro-mobility and rideshare.

The plan will consider various transportation demand tactics such as carpool priority parking and micro-mobility incentives. The reduction in SOVs will be monitored through a reduction in total vehicle miles traveled. The plan will build on existing transportation demand management strategies, such as the transit subsidy program that allows students to ride buses for free.

[15]Union of Concerned Scientists. Cleaner Cars from Cradle to Grave. 29 Oct. 2015, www.ucsusa.org/resources/cleaner-cars-cradle-grave.

SBCCD vehicle charging stations

SBVC battery powered golfcart

GOAL 2

All new purchases of fleet vehicles shall be zero emissions by 2025, to achieve a full conversion of the fleet by 2040

Key Performance Indicator: Percent of SBCCD fleet vehicles that are zero emissions (%)

Key Initiative

- Begin with transitioning campus security to zero emission vehicles, then target conversion of forklifts, courier vehicles, maintenance vehicles and any other company vehicles

In alignment with the Innovative Clean Transit Regulation set by the State, SBCCD will ensure all fleet vehicles will be zero emission vehicles by 2025, working towards a full transition to a zero-emission fleet by 2040. SBCCD has already adopted the use of electric golf carts for facilities operations. Remaining gasoline or diesel vehicles, such as the campus security vehicles, will be phased out through end-of life replacements.

GOAL 3

Install electric vehicle (EV) charging infrastructure to promote the use of EV's within the local community

Key Performance Indicator: Number of EV chargers

Key Initiative

- Build out all EV-capable parking spaces required by Title 24 with EV charging infrastructure

To support the fleet change and to encourage the SBCCD community use electric vehicles, SBCCD will build out all EV-capable parking spaces required by code with EV charging infrastructure. SBCCD will again collaborate with SCE to utilize utility and/or state funding for these charging stations where possible.


Earth Day Celebrations


SBVC Campus Life

MATERIALS

Solid waste is one of the more tangible and visible sustainability issues. Students interact, and directly produce, waste on a day-to-day basis. Given this, in addition to optimizing facility waste operations, waste efforts need to also engage students with proactive education, and enable them with supportive infrastructure. In all sectors of the district, waste will be tackled by first reducing the amount produced through source reduction and reuse. Then, the district will focus on how to recycle waste to create new products, like composting to create fertilizer. Finally, if possible, the district will then see how to recover energy from the waste produced before or after it is sent to the landfill.

GOAL 1

Reduce waste going to the landfill by 25% compared to current levels by 2025, and 50% by 2030

Key Performance Indicator: Landfill diversion percentage (%)

Key Initiatives

- Track waste diversion percentages
- Task the Sustainable Task Force with reviewing annual waste audits and evaluating strategies to improve waste diversion percentages

SBCCD will align with the State Chancellors Office to strive for a 25% reduction in waste going to the landfill by 2025, and a 50% reduction by 2030. To achieve this reduction, SBCCD will employ source reduction, recycling and composting efforts where possible. To benchmark and measure progress to this goal, it is crucial that SBCCD begin tracking waste diversion percentages. The Sustainable Task Force will conduct annual waste audits to understand what the waste stream is currently comprised of and evaluate opportunities for operational waste improvements.


Student Life at Campus


Environment & Nature

GOAL 2

Increase procurement of sustainable products and services by 20% compared to current levels by 2025, and 25% by 2030, on a cost basis

Key Performance Indicator: Percentage of sustainable products procured by costs (%)

Key Initiatives

- Establish a district-wide procurement guideline that includes sustainable alignment on vendor procurement practices

In alignment with the State Chancellor's Office goals, SBCCD shall increase the procurement of sustainability products and services by 20% by 2025, and 25% by 2030, as measured on a cost basis. To achieve this, SBCCD will establish a district-wide procurement guideline that provides direction to those involved in the procurement process on how to make sustainable procurement decisions. SBCCD will also explore the feasibility of centralizing procurement and/or developing an online procurement platform, to better regulate and encourage sustainable procurement across the district.

SBCCD graduates

CHC Concentrated Photovoltaic Panels with Tracking

ONGOING ENGAGEMENT AND TRANSPARENCY

GOAL 1

Track and report ongoing sustainability performance against goals

Key Initiatives

- Benchmark and monitor carbon mitigation, energy, water, transport, materials and curriculum KPIs
- Implementation of a Sustainable Task Force that strives to address operational sustainability, including campus engagement, waste auditing, and scope 3 carbon emissions

To lead in the realm of sustainability, SBCCD will demonstrate honest and measurable progress to its goals. SBCCD will update its sustainability plan every five years, tracking progress through the stated key performance indicators and adjusting course where needed depending on external trends. SBCCD will also engage its student and faculty population through the formation of a Sustainable Task Force. The Sustainable Task Force will be comprised of student, faculty and facility ambassadors. They will spearhead initiatives that cannot be solved from operational changes alone, such as scope 3 carbon mitigation and community waste patterns. The Sustainable Task Force will be the voice for ensuring SBCCD is on track to achieving its vision for sustainability.

GOAL 2

For all new construction and major renovations over 30 ksqft, achieve CALGreen Tier 1 and LEED Gold at a minimum, and CALGreen Tier 2 and LEED Platinum where possible

Key Initiatives

- Incorporate this goal into buildings standards for a transparent, holistic and systematic approach to integrating sustainability into SBCCD's infrastructure

SBCCD is at an opportune point of time where operational facilities documents such as the district-wide building standards and establishing an Owners Project Requirement (OPR) template, which are being developed in parallel to this plan. Integration of whole-building sustainable requirements, such as LEED Gold and CALGreen Tier 1, into the district-wide building standards and the OPR sets up a protocol for consistent and ambitious steps towards sustainability.

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SBCCD

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