FOOTHILL-DE ANZA
Community College District

Foothill-De Anza Community College District

ENERGY MASTER PLAN

FINAL DRAFT Version 4
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Produced by the
Energy and Sustainability Advisory Committee (ESAC)

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SECTION 1. EXECUTIVE SUMMARY

As with many public sector agencies, the Foothill-De Anza Community College District recognizes the environmental, economic, and social equity benefits of resource efficiency and sustainability. The passage of the California Global Warming Solutions Act (AB-32), subsequent legislation and Executive Orders requiring carbon reduction, and the adoption of the 2019 California Community Colleges Board of Governors' Climate Change and Sustainability Policy have made it imperative for California community colleges to act. Additionally, the UN Intergovernmental Panel on Climate Change (IPCC) Sixth Assessment Report issued Aug. 9, 2021 could not be clearer about the use of fossil fuels, climate change, and the narrow window of one decade to take action. This Energy Master Plan is an organized and comprehensive approach that incorporates energy efficiency and sustainability elements, addresses state regulations, and leverages available resources and complementary programs. It also prepares the district for significant decarbonization during the decade of 2020-2030.

Sustainability can be defined as "meeting the needs of the present without compromising the ability of future generations to meet their own needs." This plan aims to prepare the Foothill-De Anza district for the environmental and regulatory challenges of the 21st century, guide the district toward a more sustainable future, and prepare students for a green economy.

The Foothill-De Anza district includes Foothill College in Los Altos Hills, De Anza College in Cupertino, and the Foothill College Sunnyvale Center. The district has prepared this plan to encompass the entire district's goals and priorities.

The following plan articulates the district's mission, goals, and objectives for energy sustainability and the implementation strategies to meet these goals. The Foothill-De Anza district's Energy and Sustainability Advisory Committee (ESAC), with a membership of students, faculty members, administrators and classified professionals, has developed the plan in coordination with the many different campus stakeholders using a shared governance approach to ensure that the plan meets the diverse needs of the various campus communities.

Energy Master Plan
Mission Statement

The Mission of the Energy and Sustainability Advisory Committee (ESAC) is to encourage energy efficiency, reduce greenhouse gas (GHG) emissions, and collaboratively advance sustainability across the Foothill-De Anza Community College District, with a commitment for educational opportunities and inclusion of students, staff, and faculty in our solutions for environmental, economic, and social sustainability.

SECTION 2. BACKGROUND

2.1 HISTORY OF ENERGY AND SUSTAINABILITY EFFORTS TO DATE

The Foothill-De Anza Community College District has been proactive in energy efficiency and sustainability for many years. Starting in 2007 and 2008, Foothill and De Anza College campuses established Sustainability Committees to plan and implement various energy and sustainability programs and projects. The Board of Trustees has established policies for district sustainability that have been incorporated into the 2010 District Sustainability Plan, the 2016 Facilities Master Plan, the 2017-2023 District Strategic Plan, and the 2018 Foothill College Sustainability Management Plan. In addition, the district has been active in recycling efforts, encourages public transit use for students and employees, implements energy and water-saving projects, and pursues efficient new construction of campus facilities, cogeneration, and solar photovoltaic power generation. Students have also been very active through the De Anza Student Government (formerly the De Anza Associated Student Body) Environmental Sustainability Committee, the Foothill College Sustainability Committee, and the current district-wide Energy and Sustainability Advisory Committee. The district was one of the earliest institutions to divest from fossil fuel investments in 2013.

The district also took full advantage of the funding provided by Proposition 39, the California Clean Energy Jobs Act of 2012, to plan and install $2,386,191 of energy projects between 2013 and 2019. These projects save 418,726 kWh and 82,886 therms annually, with energy cost savings to the district of $108,444 each year. These energy savings also translate to over 1.6 million pounds of avoided CO_2 emissions annually. Proposition 39 was a very successful program for the district. Details of projects installed, Proposition 39 funding, project costs, and energy savings are listed in Appendix A.

While the district has made significant progress on the path to sustainability, it is poised to accomplish much more with the passage of the 2020 Measure G $898 million bond program and implementation of this Energy Master Plan.

2.2 CREATION OF THE ENERGY MASTER PLAN

To create this Energy Master Plan, the Energy and Sustainability Advisory Committee followed the California Community Colleges Sustainability Planning Template process. The template was created by a collaboration of the state Chancellor's Office, Citrus Community College District, the California Energy Commission, and consulting firm Newcomb Anderson McCormick. It was developed in 2011 and successfully used in early 2012 at Citrus College to develop a campus-specific Sustainability Plan. Since that time, many other community college districts have used the same template to establish energy and sustainability plans. It is designed to assist colleges

with setting goals, objectives, timelines and criteria for success. It highlights the best practices of other community colleges to develop robust, yet flexible plans tailored to each district and campus. Districts and campuses can use the template to prioritize their efforts based on college-specific goals and objectives, areas of interest, capabilities and available resources. In addition, the template provides tools for the development of action plans to achieve sustainability and measure program implementation results. Above all, the process is intended to be inclusive and collaborative and involve college students, faculty and staff in its implementation. The previous flow chart illustrates the template planning process.

2.3 ENERGY AND SUSTAINABILITY ADVISORY COMMITTEE

The Energy and Sustainability Advisory Committee (ESAC) was established to share timely, relevant, and accurate local and state energy and sustainability information with constituency representatives and provide a forum for identifying opportunities to promote environmental sustainability. The committee consists of students, faculty members, classified professionals and administrators, representing various district stakeholder groups. The plan was developed using the district shared governance process and the committee regularly updated various student, faculty and facilities committees to describe the progress and gain feedback during the planning process.

The acknowledgements page of the Energy Master Plan lists the ESAC membership. The Committee's co-chairs are Joel Cadiz, Executive Director of Facilities and Operations and Robert Cormia, Instructor, Chemistry at Foothill College.

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2.4 THE POLICY CONTEXT OF ENERGY AND SUSTAINABILITY PLANNING

Sustainability can provide environmental, economic, and social benefits to campuses. However, there are other motivations for the district to pursue these practices. The state of California has been at the forefront of efforts to establish aggressive policies and standards for environmental protection and reduce greenhouse gas (GHG) emissions that contribute to global warming. In 1970, the state adopted the California Environmental Quality Act (CEQA), intending to inform governments and the public about the potential environmental impacts of projects. Since that time, the state has accelerated these policies through several executive orders and legislation to decarbonize the energy system. From 2005 onward, legislation has been passed to directly regulate GHG emissions by utilizing incentive mechanisms, cap-and-trade programs, and mandatory reporting while encouraging voluntary activities such as purchasing emissions offsets and offering renewable energy certificates (RECs). Compliance with state policies and regulations regarding these issues is an essential factor for consideration by the district.

The following paragraphs describe the numerous policy and regulatory drivers that led to the creation of this plan.

2.4.1 2019 Board of Governors Climate Change and Sustainability Policy

In June of 2019, the California Community Colleges Board of Governors adopted a Climate Change and Sustainability Policy to guide the community college system to comply with the various California regulations related to environmental protection. It sets goals for reducing GHG emissions, renewable energy, zero-emissions vehicles, Zero Net Energy (ZNE) buildings, green building standards, sustainable purchasing practices, and solid

waste reduction. A ZNE building is an energy-efficient building where, on a source energy basis, the actual annual delivered energy is less than or equal to the on-site renewable exported energy.

In early 2020, the State Chancellor's Office established a Climate Change Steering Committee made up of district and Chancellor's Office personnel to guide districts on complying with the policy. An updated policy framework was developed in mid-2021 by the Steering Committee strengthening sustainability targets and incorporating social justice and student learning goals. The Board of Governors will review the updated policy framework in fall 2021, and if adopted, the district will review the Energy Master Plan and update accordingly

2.4.2 California State Climate Regulations

The State of California has been very aggressive over the past 40 years in establishing legislation and executive orders to improve energy efficiency and reduce GHG emissions. These efforts have accelerated in the past 10 years as the effects of climate change have become more prevalent resulting in the need to mitigate the impact on future generations. The following is a summary of the most critical recent state actions.

2.4.2.1 Global Warming Solutions Act of 2006 (AB 32)

The Global Warming Solutions Act, or Assembly Bill 32 (AB 32), was adopted in 2006 by the California Legislature, establishing two critical requirements regarding climate change reduction. The first requires that California GHG emissions are capped at 1990 levels by 2020. The second establishes an enforcement mechanism for the GHG emissions reduction program with monitoring and reporting implemented by the California Air Resources Board (CARB). In 2008, the CARB released the AB 32 Scoping Plan, which describes measures to implement the requirements set by the legislation. In addition to partnering with local governments to encourage the establishment of regional emission reduction goals and community regulations, the scoping plan uses various mechanisms to reduce emissions statewide, including incentives, direct regulation, and compliance mechanisms.

In 2017, CARB updated the scoping plan to reflect state policy of reducing GHG emissions by 40% below 1990 levels by 2030. The 2017 Scoping Plan Update was the basis for the 2019 CCC Board of Governors Climate Change and Sustainability Policy. CARB is currently working on a 2022 Scoping Plan Update, which will assess progress towards achieving the 2030 target and lay out a path to achieve carbon neutrality by mid-century.

2.4.2.2 Clean Energy and Pollution Reduction Act of 2015 (SB 350)

This bill required that the amount of electricity generated and sold to retail customers per year from eligible renewable energy resources (known as the Renewable Portfolio Standard (RPS) be increased from 33% to 50% by December 31, 2030. It also required the California Energy Commission (CEC) to establish annual targets for statewide energy efficiency savings and demand reduction to achieve a cumulative doubling of statewide energy efficiency savings in electricity and natural gas by January 1, 2030. This bill was authored by State Senator Kevin De León and enacted in 2015.

2.4.2.3 Executive Order B-18-12

Executive Order B-18-12, signed by Governor Brown on April 25, 2012, required 50% of new state buildings beginning design after 2020 be Zero Net Energy (ZNE) and that all new buildings and major renovations beginning

design after 2025 be constructed ZNE. It also required state agencies to achieve ZNE for 50% of the square footage of the existing state-owned building area by 2025.

2.4.2.4 Executive Order B-55-18 (Carbon Neutrality by 2045)

Executive Order B-55-18, signed by Governor Brown on September 10, 2018, established a new statewide goal to achieve carbon neutrality as soon as possible, but no later than 2045, and achieve and maintain net negative emissions after that. This goal was in addition to then-existing statewide goals for the reduction of greenhouse gas emissions.

2.4.2.5 100% Carbon-Free Energy by 2045 (SB 100)

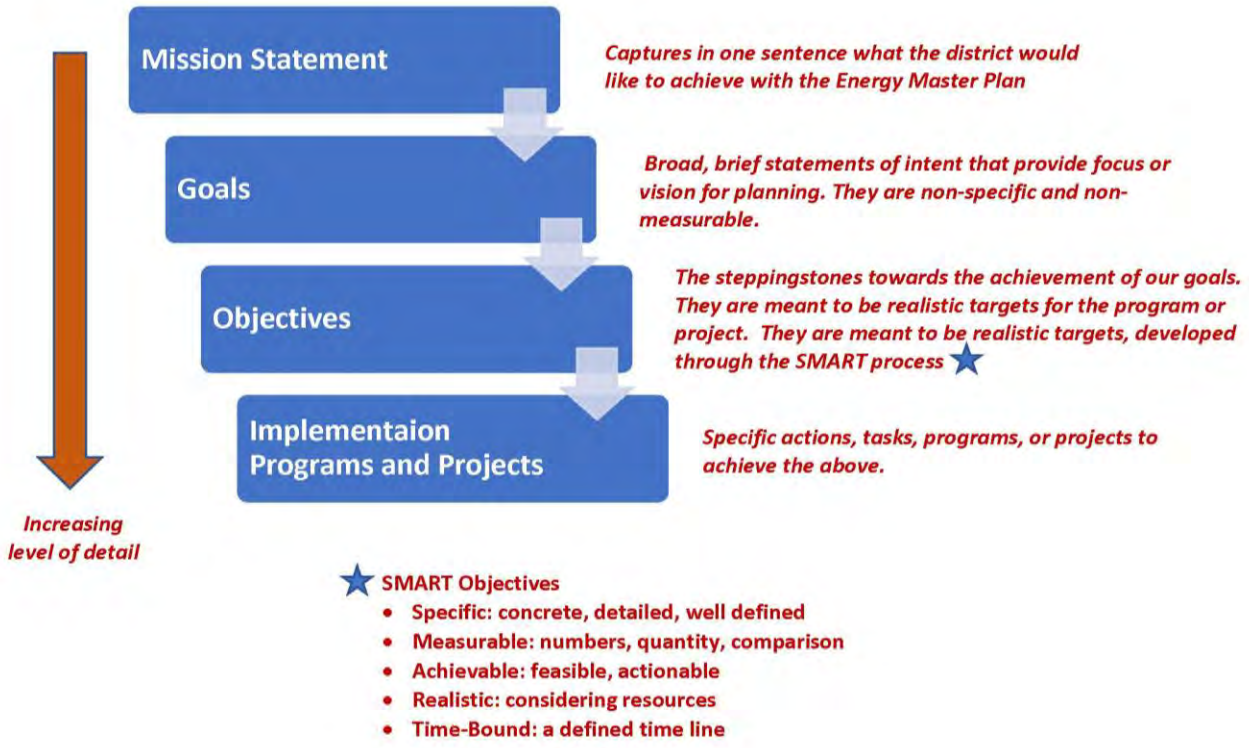
SB 100 set a 2045 goal of powering all retail electricity sold in California and state agency electricity needs with renewable and zero-carbon resources — those such as solar and wind energy that do not emit climate-altering greenhouse gases. It updated the state's Renewables Portfolio Standard (RPS) goal to ensure that by 2030 at least 60% of California's electricity is generated from renewable sources. It required the California Energy Commission (CEC), the California Public Utilities Commission (CPUC), and California Air Resources Board (CARB) to use programs under existing laws to achieve 100% clean electricity and issue a joint policy report on SB 100 by 2021 and every four years after that. The legislation was authored by State Senator Kevin De León and enacted in 2018.

SECTION 3. MISSION STATEMENT, GOALS, AND OBJECTIVES

The Foothill-De Anza Community College District Energy and Sustainability Advisory Committee, utilizing the California Community Colleges Sustainability Planning Template process, established the mission, goals and objectives for the Energy Master Plan. This was accomplished through facilitated committee workshops and shared governance presentations to obtain maximum stakeholder input. After their adoption, the ESAC identified the implementation programs and projects to make the mission, goals and objectives a reality. It should be noted that while the Energy Master Plan is focused on facility energy usage the district plans to address broader sustainability issues with a follow up comprehensive Sustainability Plan in 2022.

3.1 EMP PLANNING STRUCTURE

The ESAC developed a planning structure designed as an inclusive, logical, comprehensive, and streamlined approach for creating the Energy Master Plan (EMP). The illustration below details this process.



The approach taken starts with a broad mission statement that captures in one sentence what the district would like to achieve with the Energy Master Plan. The next level of planning detail was articulating goals that provide broad, brief statements of intent that provide focus for planning. Next are objectives that are the "steppingstones" toward achieving the goals using the SMART process: Specific, Measurable, Achievable, Realistic, and Time-Bound. Finally, detailed implementation programs and projects were developed as the specific actions to be taken to implement the plan.

3.2 MISSION STATEMENT

The ESAC developed the following mission statement to guide the district in its Energy Master Planning efforts.

The mission of the Energy and Sustainability Advisory Committee (ESAC) is to encourage energy efficiency, reduce greenhouse gas (GHG) emissions, and collaboratively advance sustainability across the Foothill-De Anza Community College District, with a commitment for educational opportunities and inclusion of students, staff, and faculty in our solutions for environmental, economic, and social sustainability.

3.3 ENERGY MASTER PLAN GOALS

To realize the mission statement, the ESAC then defined the following energy and sustainability goals for the EMP.

Table 1 – Energy Master Plan Goals

Goal No.	Description
1	Develop an Energy and Sustainability Master Plan to identify measures to improve energy performance, facilitate a path to reduce greenhouse gas (GHG) emissions, and strengthen campus resilience employing all appropriate funding sources and integrating projects from the Measure G Bond program.
2	Establish an inclusionary process where students, faculty, and staff play a meaningful role in district sustainability efforts and understand the environmental, societal, and economic impacts of energy use while integrating these activities as learning opportunities to fulfill our responsibility as a higher education institution.
3	Establish objectives, criteria, and implementation plans to achieve carbon neutrality and monitor progress over time to ensure they are achieved.
4	Support state and federal energy policies and greenhouse gas (GHG) reduction goals, including the 2019 California Community Colleges Board of Governors Climate Change and Sustainability Policy.
5	Establish the Foothill-De Anza Community College District as a model of sustainability to face the challenges of the 21st century.

3.4 OBJECTIVES

Based on the mission and goals, the ESAC developed the following Energy Master Plan SMART Objectives providing specific, measurable, achievable, realistic, and time-bound priorities for completing the Energy Master Plan. The objectives for the EMP also reflect district needs, interests, and available resources.

Table 2 – Energy Master Plan Objectives

Objective	Description	Timeline
1	District Carbon Reduction Goals (1) • Reduce GHG emissions 50% from 2005 levels by 2030 • Transition to natural gas-free by 2035 • Purchased electricity will be 100% renewable by 2045 (SB 100) • Carbon Neutrality by 2045 (EO B-55-18)	2025-2045
2	Deploy EV charging infrastructure consistent with state of California goals and timelines for electrification of transportation	2025-2030
3	Reduce Vehicle Miles Traveled (VMT) for students, faculty and staff by 25-50% by 2035 by coordinating with other ongoing district programs	2035
4	Evaluate campus resiliency opportunities	2022-2025
5	Investigate most effective ways to institutionalize energy and sustainability management in district operations	2022-2025
6	Develop processes to engage students, faculty and staff in energy and sustainability activities in a meaningful way	2021
7	Encourage and facilitate student learning activities related to energy and carbon reduction	2022
8	Enhance campus and community engagement	2022
9	Ensure activities consider broader economic and environmental impacts	Ongoing

(1) Scope 1 and Scope 2 emissions only. See Appendix G, Glossary, for definitions

The objectives described on the previous page will apply to all district facilities, including Foothill College, De Anza College, the Sunnyvale Center, and the district office facilities. The objectives are not necessarily listed by priority. The ESAC will monitor progress toward achieving the objectives during plan implementation as described in Section 5, "Measure and Report Performance."

SECTION 4. PROGRAMS AND PROJECTS FOR IMPLEMENTATION

Based on the goals and objectives described earlier, the Energy and Sustainability Advisory Committee has identified the following programs and projects to actively improve campus energy efficiency, sustainability and reduce GHG emissions. These programs and projects are also reflected in the Implementation Programs and Plans Checklist, located in Appendix B, which outlines program details, priorities, responsibility for implementation, and the timeline for completion. In addition, a detailed Gantt Chart Schedule was developed to illustrate the task durations and relationships (predecessor/successor) as a straightforward planning tool for the implementation of the programs and projects. The Gantt Chart Schedule can be seen in Appendix C of the EMP. The ESAC will use the checklist and schedule to manage the implementation process.

Programs and projects are also listed in the Implementation Programs and Plans Checklist (Appendix B), which outlines program details, priorities, responsibility for implementation, and the timeline for completion. In addition, a detailed Gantt Chart Schedule (Appendix C) has been developed that illustrates task durations and relationships (predecessor/successor) as a straightforward planning tool for the implementation of the programs and projects.

4.1 MANAGEMENT AND ORGANIZATIONAL STRUCTURE

To effectively implement the Energy Master Plan, it will be necessary for the Foothill-De Anza district to have a policy mandate for energy efficiency and sustainability, the institutional structure required to manage the process, the financial resources, and programmatic expertise to accomplish plan goals. The district has or plans to implement the following programs to meet this requirement.

4.1.1 Adopt a District Sustainability Policy

As described earlier, the Foothill-De Anza Community College District has been proactive in energy efficiency and sustainability policy for many years. The Board of Trustees has established policies for district sustainability that have been incorporated into the 2010 District Sustainability Plan, the 2016 Facilities Master Plan, the 2017-2023 District Strategic Plan, and the 2018 Foothill College Sustainability Management Plan. In addition, the board endorsed the creation of this Energy Master Plan, which addresses districtwide and site-specific needs for each college in terms of energy and sustainability.

4.1.2 Appoint a District Energy and Sustainability Committee

The Board of Trustees established the district Energy and Sustainability Advisory Committee (ESAC) to share timely, relevant and accurate local and state energy and sustainability information with constituency representatives, and to provide a forum for participation in defining opportunities to promote environmental sustainability. The ESAC is an advisory body and part of the district shared governance process. The role and responsibilities of the ESAC include:

- Review and make recommendations to promote environmental sustainability
- Review and make recommendations on energy and emissions resources
- Look outward/forward on strategic planning to promote environmental sustainability
- Communicate and disseminate reports and updates to respective constituency groups and the community through Board of Trustees meetings

In addition, the ESAC has been tasked by the board to manage the Energy Master Plan development and implementation.

4.1.3 Investigate the Most Effective ways to Institutionalize Energy and Sustainability Management

The district recognizes that it is essential to institutionalize energy and sustainability into planning activities and everyday operations. Temporary, one-off efforts to manage sustainability activities will result in short-term solutions that make it difficult to maintain progress into the future. To avoid these common downfalls, the ESAC will investigate the most effective ways and best practices to incorporate sustainability into the organization and foster a culture of sustainability in district operations.

4.1.4 Participate in CCC Systemwide Energy and Sustainability Committees

The California Community Colleges system, led by the state Chancellor's Office, has established several shared governance committees to develop and implement best practice energy and sustainability policies and programs and integrate them into district operations statewide. These committees generally consist of Chancellor's Office and district personnel who participate in regular meetings and workshops that focus on college facility and finance issues, including energy efficiency and sustainability. These committees include the Chancellor's Office Climate Policy Steering Committee, the Association of Chief Business Officers (ACBO) Facilities Task Force, and the Community Colleges Facilities Coalition (CCFC) Board of Directors.

The Foothill-De Anza district already participates in the ACBO Facilities Task Force but will broaden its activities and membership to the other committees to help evaluate and implement policy and to bring its own experiences and expertise to help influence future energy and sustainability efforts at systemwide level.

4.2 CARBON REDUCTION GOALS

One of the district's highest priorities is to reduce greenhouse gas (GHG) emissions from operations, with an ultimate goal of achieving carbon neutrality to mitigate climate change. The district will undertake the following activities to achieve its carbon reduction goals. These efforts will support state of California policy goals for GHG reduction and will establish the Foothill-De Anza Community College District as a leader in energy efficiency and

sustainability among community colleges statewide.

4.2.1 Implement Measure G Bond Projects

On March 3, 2020, voters in the Foothill-De Anza Community College District's service area approved by a 58.88% margin an $898 million general obligation measure (Measure G) to upgrade facilities preparing veterans and other for university transfer and careers in fields such as health care, nursing, technology, engineering and sciences; to upgrade and repair aging classrooms as well as labs for science, technology, engineering and math-related fields of instruction; and to acquire, construct, repair facilities, equipment and sites. The Measure G implementation plan includes many energy-saving and GHG reduction projects at each district location. The projects include new facility construction, major renovations of existing facilities, and energy-saving retrofits for existing lighting, HVAC, and central plant systems. They will significantly improve energy performance in the district and be an essential element in achieving carbon neutrality goals.

The complete list of Measure G energy-saving projects is included in Appendix D of the Energy Master Plan.

4.2.2 Perform Feasibility Study for District Electrification

As one of its first steps in implementing the EMP, the committee recommends engaging a qualified energy consultant and conducting a feasibility study to electrify facilities operations to eliminate natural gas systems, such as HVAC and hot water equipment, to achieve carbon neutrality. This study would evaluate the most effective technologies to replace existing natural gas equipment with electrically powered equipment, such as electric heat pumps and thermal energy storage. The study would also assess the necessary campus electric infrastructure upgrades to support electrification and any PG&E service changes needed. An analysis of electrification costs, potential funding sources (including Measure G funds), energy savings, emissions reductions, and return on district investment and a set of recommendations would become a road map for the district to achieve carbon neutrality.

4.2.3 Quantify FY 2020-2021 FHDA energy usage and GHG emissions (Scope 1 and Scope 2)

The COVID-19 pandemic resulted in the virtual shutdown of district campuses, and with essentially no students or staff present, there was a significant reduction of energy use at the facilities. The ESAC decided that a more appropriate baseline for energy and emissions reduction measurement would be the calendar years 2018 and 2019. However, the district will evaluate and quantify energy usage and Scope 1 and Scope 2 GHG emissions from fiscal year 2020-2021 as a reference point in the future. It will compare this to emissions in 2022 and beyond.

4.2.4 TOTEM Analysis of Building 7400 (Central Energy Facility) at Foothill College

In 2019, Foothill College partnered with utility Électricité de France (EDF) Innovation Labs in Los Altos, California and San Francisco State University to evaluate the replacement of natural gas hot water boilers with a thermal microgrid (electric heat pumps and heat recovery systems) at the Central Energy Facility on campus. This analysis, using TOTEM (Tool for Optimization of Thermal and Electric Microgrids), will model the campus combined electric (power and energy) and thermal (HVAC) system to understand and evaluate thermal microgrid replacement of the natural gas uses. A TOTEM Analysis White Paper describing this project in detail can found in Appendix E of the EMP.

The project follows in the footsteps of the Stanford Energy Systems Innovation (SESI) program, which began at Stanford University in 2009-2011 and was the first large-scale heat recovery system of its kind on a large academic campus. The SESI system replaces a complex natural gas thermal system comprising a 25-year-old combined-cyde cogeneration system and traditional thermal boilers and mechanical HVAC systems. SESI is a centralized heat recovery system with a direct substation connection to the power grid. The SESI system provides energy to the entire Stanford campus, has reduced carbon emissions by two-thirds since 2017, and will reduce more than 80% by 2025. As an early adopter of a thermal microgrid, these transformative projects can be a model for the California Community Colleges system and help form the collective leadership in deep decarbonization.

The district plans to perform the TOTEM analysis of Foothill College in parallel with the Electrification Feasibility Study. A thermal microgrid may be employed at both campuses to reduce carbon emissions and this analysis will likely inform its electrification recommendations.

4.3 ENERGY EFFICIENCY

Energy efficiency is the most cost-effective way to reduce campus energy use and its carbon footprint. When appropriately implemented, efficiency measures can decrease energy use without compromising comfort, improve indoor air quality, and enhance student, faculty, and staff performance. Energy efficiency will be a higher priority than renewable or other on-site energy generation due to more favorable economics and the need to avoid over-sizing renewable energy systems.

The following energy efficiency programs and projects either have already or are anticipated to be implemented at the district. This would include the energy efficiency projects projected for funding by Measure G and identified in Appendix D.

4.3.1 Set Energy Efficiency Goals

Planning for energy conservation is a district priority. It is essential to set goals for the reduction of any resource to define success. As such, the district performed an energy benchmarking study in 2021 employing the US EPA Portfolio Manager software to establish energy usage and GHG emission baselines. Using this data, the district can develop annual energy use and GHG emission reduction goals and plan appropriate energy-efficiency, demand reduction, or clean self-generation measures to achieve these goals. The results of the benchmarking study can be found in Appendix F of the Energy Master Plan.

4.3.2 Evaluate Mechanisms for the Implementation of Energy Efficiency Projects

The district can evaluate various mechanisms for identifying and implementing energy efficiency projects and programs, including the use of in-house staff, engineering consultants, design-build contractors, and energy service companies (ESCOs). The district has extensive experience with these various mechanisms for energy project delivery and can leverage this knowledge to implement the Energy Master Plan. In addition, the district will evaluate best practices provided by other California community college districts for delivering energy projects.

4.3.3 Conduct Facility Prioritization Surveys

Conducting a Facility Prioritization Survey to identify and prioritize buildings for efficiency measures is a suggested first step. Priorities are typically based on energy use intensity (EUI) - electricity and natural gas use per gross square foot per year - with buildings with the highest energy use intensity given the highest priority. The district is planning on installing meters at the building level, which can be used to benchmark energy use. Where metered data does not exist, those buildings that are determined to be high energy users based on experience by college staff will be targeted first.

4.3.4 Conduct Comprehensive Facility Energy Audits

Based on the Facility Prioritization Survey, the committee suggests the district engage an energy consultant to conduct ASHRAE Level 3 Energy Audits (Investment Grade Audit) at those facilities to identify projects, project costs, energy savings, and return on investment. The consultant would develop an audit report with recommendations for which projects best meet the goals of the district. Energy audits can also be enhanced by using energy models that forecast the energy performance of retrofitted or renovated facilities to provide more certainty of project outcomes.

4.3.5 Implement New and Existing Audit Recommendations

Based upon the audits and available resources, the district should initiate implementation of the audit recommendations. Priorities will be determined by potential energy savings, return on investment, and available resources.

4.3.6 Participate in Demand Response Programs

The district should evaluate participating in utility demand response programs to voluntarily reduce campus loads during high usage peak periods and receive incentives as a result. The district will meet with PG&E to explore the program to determine if participating is in the colleges' best interest.

4.3.7 Perform a Project Funding Study

The district should evaluate the best mechanisms to fund and finance energy projects identified in the Energy Master Plan. The study will include an analysis of the Measure G bond program to determine what funding is allowable for energy projects.

4.3.8 Install Energy Efficient Equipment

All equipment replacements identified in the EMP should be as energy efficient as feasible and will be included as performance specifications in procurement documents. This includes lighting, HVAC (including electrification measures), pumping, motors, and other equipment and systems.

4.3.9 Manage Plug Loads

Plug loads refer to energy used by equipment that is plugged into an electrical outlet. In a typical office, plug loads include computers, monitors, printers and copiers. Plug loads can average approximately 30% of electricity use in office settings, much of which can be attributed to parasitic loads (or the power draw of a plug-load that is not performing useful work). Reducing or managing plug loads is often overlooked when planning energy efficiency measures in facilities. The district should evaluate plug load management strategies, including manual control, automatic controllers, timers, occupancy sensors, load sensing controllers, and other measures.

4.4 FACILITIES OPERATION

In addition to installing energy-efficient equipment, the district will strive to operate high-performing facilities, buildings, and energy infrastructure systems that are optimized for inhabitant comfort, productivity, and energy and resource efficiency. The following programs and projects either have already or will be evaluated for implementation at the district.

4.4.1 Encourage and Support Energy Efficiency Training of Staff

The engineering, maintenance, and operations staff at Foothill and De Anza colleges have been trained to operate energy-consuming equipment and systems efficiently. Further, ongoing training programs should be developed and implemented to ensure that the staff is up-to-date on equipment, mechanical and electrical systems, and operational changes in the facilities. This will be especially important as the district transitions to a carbon-free operating environment with the associated sophisticated systems in place to enable this.

4.4.2 Evaluate Existing Energy Management Systems

The district has contracted with Gridium to use the Snapmeter Energy Information System (EIS) at both college campuses and the Sunnyvale Center to monitor and track energy usage, evaluate trends in use over time, and develop analytic metrics to assist in managing and reducing energy usage. Currently, the system monitors both electricity and natural gas through 34 meters installed across all three sites connected to campus load, solar photovoltaic net generation output meters (NGOM), cogeneration systems, and a few distinct buildings on the campuses. One of the district's goals is to install whole-building meters at all campuses facilities to benchmark individual buildings and troubleshoot high energy users for mitigation strategies to reduce usage. In addition,

many of the existing meters are currently nonfunctional and will need to be repaired or replaced to provide accurate data for analysis.

The district employs Pordis Consulting and Design Services to analyze energy usage data obtained through a network of NGOMs (Net Generation Output Meters) and other submetering equipment. Gridium monitors energy consumption and provides recommendations for changes in operations and equipment to improve energy performance and reduce costs. This has been a helpful service to the district and should be evaluated for future needs, especially creating an integrated energy dashboard.

The purpose of this task will be to evaluate the effectiveness of the existing Gridium Energy Information System and whether a more sophisticated EIS/EMS system should be installed to manage energy use more effectively.

4.4.3 Adjust Temperature Set Points and Schedule Operating Times

The district can avoid overcooling and overheating by raising cooling temperature set points and lowering heating temperature set points. For the campus Central Plants, implementing hot water reset controls with setpoint changes would help avoid wasting energy during milder weather.

A good guideline is to heat buildings at or below 68°F and cool buildings at or above 72°F to avoid excessive heating and cooling. To avoid unnecessary heat loss, domestic hot water temperatures should not be set above 120°F. These limits will not apply in areas where other temperature settings are required by law, specialized equipment, or scientific experimentation needs.

4.4.4 Optimize Building Occupancy Scheduling

Scheduling of building and facility usage should be optimized to be consistent with the approved academic and nonacademic programs and to reduce the number of buildings operating at partial or low occupancy. To the extent possible, academic and nonacademic (community) programs should be consolidated to achieve the highest building utilization. Furthermore, facilities should be scheduled to allow HVAC systems to be shut down to the greatest extent possible during the weekend and other holiday periods. In addition, campus and district staff should make all attempts to change or update building operating schedules to match the changes in the academic programs continuingly. Making significant changes in this area will require a concerted education process for building users by district facilities staff.

The district will also consider scheduling changes and the possibility of remote learning opportunities post-COVID-19. This opportunity to re-think traditional learning environments and schedules may lead to energy use and GHG emission reduction.

4.4.5 Optimize HVAC Equipment Scheduling

All air conditioning equipment, including supply and return air fans, should be shut off on weekends, holidays, and for varying periods each night, except where it would adversely affect instruction, electronic data processing installations, or other scientifically critical or 24-hour operations. The district should avoid cooling and heating spaces when unnecessary. This would be accomplished by scheduling HVAC systems off during unoccupied times while implementing a pre-cooling strategy to cool the building in the early hours of the morning before outside

temperatures heat up. For central plant systems scheduling lockouts for chillers and boilers could be employed to avoid running this equipment when unneeded. It's important to note that some facilities are used late into the evening and on weekends, and accommodations will be made to ensure these operational needs are supported.

4.4.6 Install Meters and Benchmark at the Building and System Level

As described above, in March and April 2021, the district performed a benchmarking study of energy usage at the master metered campus level for Foothill College, De Anza College, and the Sunnyvale Center. The results established Energy Use Intensity (EUI) for each site in kBtu/square-feet compared to other similar uses and community college campuses as a starting point for energy planning. The results of the campus wide benchmarking can be found in Appendix F.

Benchmarking energy use at the campus level is an essential first step in identifying high energy use facilities. However, to better isolate excess usage and investigate mitigation measures, the district plans to install electric, natural gas, and BTU meters (to measure central plant hot water energy) at every building and central plant system on the campuses. The district could then connect the individual building meters to both the Gridium EIS and EPA Portfolio Manager, to understand usage trends, benchmark them to similar higher education uses, and target measures to improve energy performance at the building level.

4.4.7 Pursue Monitoring-Based Commissioning (MBCx)/Retro-commissioning (RCx)

For buildings or central plant systems determined to be high energy users through the benchmarking process, the district would implement a Monitoring-Based Commissioning (MBCx) or Retro-Commissioning (RCx) process to reduce energy usage at those facilities. MBCx is a process that optimizes building performance for comfort and energy use by using meters and analyzing system performance. RCx is a process that identifies individual energy efficiency projects to improve the control of the system to reduce energy use. For more information about MBCx and RCx, go to: http://www.cccutilitypartnership.com

The district has successfully employed the MBCx/RCx process in recent years as part of the Proposition 39 program. In 2016 two MBCx projects were completed successfully at the De Anza cogeneration system and the S-Quad building complex. These projects save 18,000 kWh and 8,000 therms annually with an avoided energy cost of $9,812 every year.

4.4.8 Perform Regular Maintenance on Equipment

Effective preventive and regular maintenance programs keep equipment and systems operating optimally and reduce excess energy use. The district will continue routine maintenance schedules to ensure proper maintenance is performed and revise practices necessary to optimize energy performance.

4.4.9 Prepare a Climate Adaptation and Resiliency Plan

As the effects of climate change become more evident each day, it will be vital for the district to develop a Climate Adaptation and Resiliency Plan to prepare the campuses for current and future emergencies. Emergency preparedness programs will be important in the face of increased wildfires and drought. Due to the instability of the electric grid and ongoing PG&E Public Safety Power Shutoffs (PSPS), the district plans to evaluate power

resiliency options. These could include Solar PV/Battery Energy Storage Microgrid systems which can "island" a campus from the electric grid and allow facilities to continue to operate during a power outage. These islanded facilities can provide a community service by providing a refuge or gathering place during prolonged outages or serve as cooling centers in the case of extreme heatwaves.

4.5 SUSTAINABLE BUILDING PRACTICES

Construction and renovation of new and existing facilities provide a significant opportunity to reduce the environmental impacts of the built environment through sustainable building practices which also can lead to increased well-being of building users. Where possible, the district will continue to incorporate energy- and resource-efficient "green building" practices in the design and construction of all new and renovated facilities.

4.5.1 Establish a Green Building Standard

It is important for the district to adopt appropriate green building standards for new construction and major renovation projects as part of implementing the Measure G Bond program. This will ensure that projects will be energy-efficient and help the district achieve its carbon reduction goals. Minimum standards are mandated by state building codes such as CALGreen. CALGreen is California's first green building code and first in the nation state-mandated green building code. It is formally known as the California Green Building Standards Code, Title 24, Part 11, of the California Code of Regulations https://codes.iccsafe.org/content/CAGBSC2019/cover). CALGreen aims to improve public health, safety, and general welfare through enhanced design and construction of buildings using concepts that reduce negative impacts and promote those principles that have a positive environmental impact and encourage sustainable construction practices.

While state building codes provide high levels of construction energy efficiency, the path to decarbonization will require advanced strategies beyond those required by state code. These requirements will be evaluated and adopted based on best practices, industry standards, professional organizations, or other institutions of higher education, including the CCC Board of Governors Climate Change and Sustainability Policy.

Well-known standards include the US Green Building Council LEED rating system (https://www.usgbc.org/leed), which is the leading program for green buildings and communities worldwide. The district already has constructed several LEED equivalent buildings. In addition, the Association for the Advancement of Sustainability in Higher Education (https://www.aashe.org/) provides resources and guidelines for the sustainable construction of higher

education facilities. The UC Berkeley Carbon Initiative provides guidelines to achieve carbon neutrality for the UC system by 2025 (https://www.ucop.edu/sustainability/policy-areas/green-building/index.html). Finally, the High-Performance Building Standards (https://secondnature.org/solutions-center/high-performance-building-standards/) developed by Second Nature are standards and procedures that promote best sustainability practices in higher education building design and construction.

The district does employ LEED equivalent standards as a practice but will consider adopting these as policy as part of this task. It is important to note that the Foothill College Sunnyvale Center has been awarded LEED Platinum certification and can be a model for future building construction at the district.

4.5.2 Implement Sustainable Design Practices

New green building standards will require that new construction, renovation, maintenance, and repair projects be designed to consider optimum energy utilization, low life cycle operating costs, and compliance with the district's goals and applicable energy codes and regulations. The district will address energy-efficient and sustainable design early in the project planning and design phases to maximize cost-effectiveness.

The following elements will be considered in the design of all buildings for the district:

- Siting and design considerations that optimize local geographic features to improve the sustainability of the project, such as proximity to public transportation, consideration of microclimates, and passive or active solar energy opportunities
- Durable systems and finishes with long life cycles that minimize maintenance and replacement
- Use of recycled building materials
- Optimization of layout and design of spaces to accommodate reconfiguration, with the expectation that the facility should be renovated and reused (versus demolished)
- Optimization of indoor environmental quality for occupants
- Utilization of environmentally preferable products and processes, such as recycled content materials and recyclable materials
- Systems that monitor, trend, and report operational performance
- Support of an active program for recycling and reuse of materials in each building
- Outdoor spaces designed to use permeable pavement and provide shade through the planting of trees to prevent the heat island effect
- Sustainable landscaping practices
- ENERGY STAR® rated or equivalent equipment in new or renovated buildings whenever possible
- Construction and demolition Recycling Program for all new construction and major renovations

4.5.3 Use an Integrated Systems Approach in Building Design

Sustainable building strategies should be evaluated to identify economic and environmental performance criteria, evaluate life cycle savings, and adopt an integrated systems approach. Such an approach treats the entire building as one system. It recognizes that individual building features, such as lighting, windows, heating, and cooling systems should be evaluated and designed as interactive systems. In addition, the true economic, social, and environmental impacts of energy and sustainability projects will also be considered (see Section 4.8.2).

4.5.4 Hire Sustainable Building Design Professionals

The district should implement policies to utilize architectural firms, consultants, and energy engineers experienced in all phases of the sustainable building design process to construct energy and resource-efficient buildings. The district should also take advantage of the utility-provided energy efficiency new construction design programs, such as PG&E's Savings by Design (https://www.pge.com/en_US/large-business/save-energy-and-money/facility-improvement/savings-by-design.page?WT.mc_id=Vanity_savingsbydesign) and Silicon Valley Clean Energy Building Electrification Technical assistance (https://www.svcleanenergy.org/building-tech-assist/).

4.5.5 Commission New Buildings

All new buildings are commissioned after construction or after major renovations to ensure that systems were installed and operating as designed. Individual systems are also commissioned to ensure that they run as efficiently as possible. This will be especially important based on the significant construction and renovations from the Measure G Bond program. At a minimum, the district will comply with the State of California Non-Residential Commissioning Requirements in the 2019 Energy Code (https://www.energy.ca.gov/sites/default/files/2021-04/2019%20Commissioning_ada.pdf).

4.6 ON-SITE GENERATION AND RENEWABLE ENERGY

The district has implemented many on-site solar PV and cogeneration projects on both the Foothill and De Anza campuses. In addition, the district has taken advantage of utility programs for the purchase of renewable and carbon-free offsite grid energy. Despite these renewable energy accomplishments, more will need to be done to achieve the carbon reduction goals of the district, especially electrification of HVAC and EV charging.

4.6.1 Evaluate Load Shifting Technologies

A prerequisite for installing renewable energy systems is to maximize energy efficiency at facilities and reduce peak loads to prevent oversizing generation equipment and the resulting unnecessary costs. Section 4.3 of the Energy Master Plan addresses the energy efficiency component of this equation. Reducing peak electricity loads and utility demand charges can be accomplished by participation in utility Demand Response programs (see Section 4.3.6). In addition, Battery Energy Storage (BES) technologies can use excess solar generation to supply loads in the afternoon and evening peak periods (4 to 9 p.m.). Thermal Energy Storage (TES) can provide chilled and hot water during the same period to offset electric usage. The district will evaluate both these technologies as a part of the district Electrification Feasibility Study described in Section 4.2.2 of the EMP as well as the TOTEM specification for thermal energy microgrids described in Section 4.2.4.

4.6.2 Minimize Greenhouse Gas Intensity of Purchased Electricity

Another way to increase the percentage of renewable or carbon-free energy at district facilities is through utility-purchased offsite grid energy. The Sunnyvale Center already receives 100% renewable electricity through its electric utility Silicon Valley Clean Energy. Both Foothill and De Anza colleges purchase grid electricity through Constellation New Energy, delivered through PG&E transmission and distribution networks, with a renewable power content of 27%.

The district will explore opportunities to improve the renewable content of purchased electricity for Foothill and De Anza through PG&E or third-party programs. In addition, the district will evaluate the feasibility and potential benefits of investing in offsite renewable generation through project ownership or power purchase agreements (PPAs) with a goal of 100% renewable energy at the campuses. The district will not pursue renewable energy through the purchase of renewable energy credits (RECs).

4.6.3 Perform Feasibility Study for additional Solar PV at Campuses

As described above, the district has already installed significant solar photovoltaic (PV) systems at the Foothill and De Anza campuses. To achieve their carbon reduction goals, additional solar capability will likely need to be installed. This evaluation will be part of the proposed Electrification Feasibility Study as described in Section 4.2.2.

4.6.4 Evaluate Campus Resiliency Options

As part of the Climate Adaptation and Resiliency Plan (Section 4.4.9), the district can evaluate several options to improve energy supply resiliency. This will include combining existing and new solar PV generation with battery energy storage (BES) as a means of offsetting peak loads during the late afternoon and early evening when solar generation winds down. The district also intends to evaluate resilience-focused microgrid applications for emergency response and mitigate the impacts of PG&E's Public Safety Power Shutoff (PSPS) events. Microgrids consist of solar PV generation, battery energy storage, and sophisticated controls that permit "islanded" operation of certain campus facilities and systems in the event of a utility power outage. These facilities could serve as emergency community centers or serve as cooling centers during extreme heat events. Power outages are becoming more common due to climate change and wildfire risk, and microgrids with significant electric energy storage can provide resiliency of operations for both the campuses and the larger community.

4.7 TRANSPORTATION, COMMUTING, CAMPUS FLEET AND TRAVEL

The ESAC will participate in existing district activities to improve vehicle transportation efficiency and defer evaluation of public transportation programs pending a comprehensive Sustainability Plan developed in 2022. The district will strive to reduce vehicle miles traveled (VMT) for both students and employees commuting to the campus to reduce greenhouse gas emissions and minimize the infrastructure costs related to parking. The district will also evaluate the expansion of existing infrastructure for electric vehicle (EV) charging to meet the state of California and the state Chancellor's Office goals for accomodating EV chargers on the campuses.

4.7.1 Participate in District Transportation Surveys and Analysis

The district anticipates conducting post-COVID transportation surveys for students and employees to better understand VMT to and from campuses, commuting patterns, and carpooling behaviors as a baseline for improvement. In addition, an analysis of continued remote learning and working is being evaluated as a means of VMT reduction. The ESAC will engage with students to participate in this project as a both a learning opportunity, and foundation for engagement of solutions.

4.7.2 Analyze and Install Electric Vehicle (EV) Charging using On-Site Solar PV Electricity

The district has installed significant electric vehicle (EV) charging infrastructure in the past, including 10 Level 2 chargers on the De Anza campus and 13 installed at Foothill. As described above, through the energy code and the state Chancellor's Office, the state of California is developing guidance on the percentage and type of chargers required based on total parking spaces. The district will apply this guidance in planning for additional charging stations. In addition, the district will evaluate technologies and install autonomous vehicle fast-charging stations anticipating their future deployment on the roads.

4.8 STUDENT AND CURRICULUM DEVELOPMENT

The primary purpose of the California Community Colleges system is to educate students and foster their success by preparing them to be engaged members of society and to be prepared for the careers of tomorrow. As economic, environmental, and social sustainability becomes increasingly important in all facets of society, the California Community Colleges system has a responsibility for moving the current and future generations toward a sustainable future.

Greening educational curriculum – using campus wide infrastructure as a pedagogical tool to inform students about systems thinking and develop a holistic view of education for sustainable development – is a priority in achieving this goal. By embedding social responsibility and sustainable development strategies into existing courses and encouraging new curricula with an environmental and sustainability focus, the community college system can play a crucial role in developing an environmentally sustainable future.

The district will strive to create opportunities for student involvement, so that on-campus sustainability initiatives are transparent, accessible, and have a visible focus. Through this process, faculty, staff, administrators and students would be able to work together to become effective agents for positive change.

4.8.1 Training Opportunities for Students

Through engaging and recruiting students for participation in energy and sustainability projects, the district can provide a critical training opportunity. For example, students could assist in data gathering, analysis, project scoping, and following projects through design, installation, startup, and commissioning. Students would be able to augment their classroom learning with hands-on experience by applying what they have learned to the real world. Students already participate in selected energy programs and projects, such as the preliminary stages of the TOTEM analysis.

4.8.2 Curriculum Development

The ESAC will reach out to the faculty and the district Academic Senate to explore learning opportunities for students related to energy and sustainability activities. One option could be to invite a member of each college Academic Senate to participate in ESAC meetings for this discussion and for them to report back to the full senate for consideration. This strategy and possibly others will be evaluated and will require leadership from the faculty for adoption.

4.8.3 Research True Economic, Social, and Environmental Impacts of Energy and Sustainability Activities

Many energy efficiency and sustainability projects have some negative impacts that are often overlooked when making plans and decisions designed to improve sustainability. While the life cycle environmental benefits of these technologies outweigh the status quo fossil fuel energy system, the tradeoffs should be understood so informed decisions can be made.

The district will work to ensure energy and sustainability activities consider economic constraints, actual environmental and social impacts (including material, manufacturing, and disposal impacts), equipment maintenance considerations, and lifecycle analysis. This should be an evaluated, quality control process, using data and information as a basis for decisions. Students will be engaged as a resource for research and reporting findings to the ESAC and district administration and this will continue on an ongoing basis.

4.9 CAMPUS AND COMMUNITY OUTREACH & AWARENESS

The sustainability of a college campus is highly dependent on individual members of the student body, faculty, and staff. While having energy-efficient equipment, installing low flow water devices, and providing separate bins for source separation of waste can make a district more sustainable, behavioral changes can significantly impact

the effectiveness of these activities. Additionally, it is essential to maintain transparency and keep the campus and local community informed of the district's progress with sustainability planning and actions.

4.9.1 Enhance ESAC Website

The ESAC has established a website to communicate energy and sustainability planning and activities to students, faculty and staff at the district, as well as to the larger community.

While the existing webpage fulfills the primary goals of communicating sustainability activities, the ESAC intends to improve and enhance the site to provide a more detailed, comprehensive and up-to-date picture of energy and sustainability programs and projects for all campus stakeholders. The website can serve as a publicity tool for sustainability events and student groups and a coordination tool for conveying information to the local community. The website would be managed by the Director of Sustainability (when one is appointed) or a designated member of the ESAC. It should be kept up to date with the latest district and campus developments and link to any public reports about sustainability efforts described in Section 5 of the Energy Master Plan. The website can be found here: https://www.fhda.edu/_about-us/_participatorygovernance/D-Energy-and-Sustainability-Advisory-Committee.html

4.9.2 Inter-Campus Collaboration

It's vitally important that both Foothill and De Anza cooperate and collaborate on energy and sustainability programs and activities to ensure the best possible chance that common district goals are achieved. Unfortunately, many multi-campus community college districts operate in "silos" where each campus works independently on energy and sustainability, resulting in duplication of efforts, inefficient resource utilization, and little sharing of lessons learned (both good and bad) or the inclusion of best practices. As a districtwide committee, the ESAC will provide the opportunity for collaboration and allow a consistent approach for both campuses to meet their operational needs.

SECTION 5. MEASURE AND REPORT PERFORMANCE

As with any successful program, the ongoing progress and performance of Energy Master Plan activities should be monitored and compared to goals, objectives, and criteria. This will require continuous participation of the ESAC, college staff, and other participants in the process. The Energy Master Plan activities will be communicated to the larger campus community regularly to ensure transparency and accountability. The following section describes the process for measuring and reporting sustainability activities and achievements.

5.1 MEASURING PERFORMANCE

To monitor the district's progress towards its sustainability goals, the ESAC plans to collect information on key metrics associated with Energy Master Plan Objectives at regular intervals. This will provide a benchmark for progress over time and identify when corrective action is needed to ensure progress. Metrics are performance-based and reflect the outcomes of the energy and sustainability projects, such as GHG emissions reductions or VMTs reduced, rather than the number of projects implemented. However, a description of projects implemented should be included as part of the annual report to show what actions the district has taken to meet the goals. The report would measure any direct cost savings experienced as a result of sustainability projects

5.2 REPORTING PERFORMANCE

Measuring and reporting performance and progress is essential in maintaining transparency in energy and sustainability activities and assessing progress towards goals. The target audience of the reports will be the Board of Trustees, shared governance committees, and the district community at large.

Progress reports should include the following information:

- Recap of EMP mission, goals, and objectives
- How is the district performing compared to the goals and objectives?
- What was accomplished?
- Next steps and planned activities
- Key contributor acknowledgements and contact information

The details of the performance metrics and reporting protocols are described in the table on the next page.

Table 3 – Performance Measurement and Reporting Protocols

EMP Objective	Description	Performance Metrics	Measurement Frequency	Reporting Protocol	Responsibility
1	District Carbon Reduction Goals	Reduce GHG emissions 50% from 2005 levels by 2030	Annual	Annual Report to SGC/BOT in November; Posted on ESAC website.	Director of Sustainability
1	District Carbon Reduction Goals	Transition to natural gas free by 2035	Annual	Annual Report to SGC/BOT in November; Posted on ESAC website.	Director of Sustainability
1	District Carbon Reduction Goals	Purchased electricity will be 100% renewable by 2045 (SB 100)	Annual	Annual Report to SGC/BOT in November; Posted on ESAC website.	Director of Sustainability
1	District Carbon Reduction Goals	Carbon Neutrality by 2045 (EO B-55-18)	Annual	Annual Report to SGC/BOT in November; Posted on ESAC website.	Director of Sustainability
2	Electric Vehicle Charging (EV) Infrastructure	Deploy EV charging infrastructure consistent with state and CCCCO goals and timelines for electrification of transportation (2025-2030)	Annual	Annual Report to SGC/BOT in November; Posted on ESAC website.	Director of Sustainability
3	Reduce Vehicle Miles Traveled (VMT)	Reduce Vehicle Miles Traveled (VMT) for students, faculty and staff by 25-50% by 2035 by coordinating with other ongoing district programs	Annual	Annual Report to SGC/BOT in November; Posted on ESAC website.	Director of Sustainability
4	Campus Resiliency	Evaluate campus resiliency opportunities by 2022-2025	Annual 2022-2025	Report to SCG/BOT November 2025; Post on ESAC website.	Director of Sustainability
5	Institutionalize Energy and Sustainability Management	Investigate most effective ways to institutionalize energy and sustainability management in district operations. Completed by 2022-2025.	Annual 2022-2025	Report to SCG/BOT November of 2025; Post on ESAC website.	Director of Sustainability

EMP Objective	Description	Performance Metrics	Measurement Frequency	Reporting Protocol	Responsibility
6	Engage Students, Faculty, and Staff in Sustainability Activities	Develop processes to engage students, faculty, and staff in energy and sustainability activities in a meaningful way in 2021	November 2021	Report to SCG/BOT November of 2021; Post on ESAC website.	Director of Sustainability
7	Student Learning Activities	Encourage and facilitate student learning activities related to energy and carbon reduction by November 2022	November 2022	Report to SCG/BOT November of 2022; Post on ESAC website.	Director of Sustainability
8	Enhance Campus and Community Engagement	Enhance ESAC website to better communicate district energy and sustainability activities in 2022. Defer other program activities pending comprehensive Sustainability Plan in 2022.	Ongoing	Annual Report to SGC/BOT in November	Director of Sustainability
9	Consider Broader Economic and Environmental Impacts	Ensure energy and sustainability activities consider broader economic and environmental impacts	Ongoing	Annual Report to SGC/BOT in November; Posted on ESAC website.	Director of Sustainability

Notes:

(1) Carbon reduction goals for Scope 1 and Scope 2 GHG emissions.
(2) Dates are calendar years unless otherwise noted.
(3) SCG = Shared Governance Committees, BOT= Board of Trustees, ESAC = Energy and Sustainability Advisory Committee

SECTION 6. APPENDICES

APPENDIX A – District Proposition 39 Projects, 2013-2019
APPENDIX B -- Implementation Programs and Plans Checklist
APPENDIX C – EMP Gantt Chart Schedule
APPENDIX D – Measure G Bond Energy-Saving Projects
APPENDIX E – TOTEM Analysis White Paper
APPENDIX F -- 2021 Benchmarking Study Results
APPENDIX G – Glossary of Terms