Foothill–De Anza Community College District
Energy Master Plan Project
Kick-Off Meeting Agenda
March 25, 2021
10:30 AM – 12:00 PM

Via Zoom:

1. Introductions
    - Team Question - What does Sustainability mean to you?

2. Review of Project Scope

3. Review of CCC Sustainability Template and Planning Process

4. Review Work Plan, Schedule, and Meeting Frequency

5. Next Steps
    - Finalize District Team Membership and Roles – Are all stakeholders represented? Chair, Vice Chair, Secretary, etc.,
    - Brainstorm Vision Statement – see example
    - Review Draft BOG Policy Board Resolution – see example

Next Meeting: April 8, April 22, May 6, May 20

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Community College District

Foothill – De Anza Community College District
Energy Master Plan

Project Kick-Off Meeting

March 25, 2021

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ENERGY AND SUSTAINABILITY

Meeting Agenda

- Team Introductions

- Review of Project Scope

- Review of CCC Sustainability Template and Planning Process

- Work Plan, Schedule, and Meeting Frequency

- *Next Steps*

Team Introductions

- Campus and Role

Donut Economics

- Team Question
  - *What does Sustainability mean to me?*

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Review of Project Scope

- Develop an updated Energy Master Plan for the District working with the FHDA Energy and Sustainability Advisory Committee

- Incorporate the 2019 BOG Climate Change and Sustainability Policy goals, as well as other District priorities (Measure G, FMP, Sustainability Plan)

- Use the CCC Sustainability Template as the planning process

- Present recommendations to the District Board of Trustees

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4

Review of Project Scope

2019 BOG Policy Goals

Goals by 2025	Goals by 2030	Measurement
1. Reduce greenhouse gas emission to 30 percent below 1990 levels.	Reduce greenhouse gas emission to 40 percent below 1990 levels.	Existing annual report, modify to extend data back to 1990 and use GHG energy conversion tools from EPA
2. Increase renewable energy consumption to 25 percent.	Increase renewable energy consumption to 50 percent.	Existing annual report, modify to identify renewable consumption
3. 25 percent of fleet vehicles are zero-emission vehicles.	50 percent of fleet vehicles are zero-emission vehicles.	Required survey in 2025 & 2030
4. 50 percent of all new buildings and major renovations will be constructed as Zero Net Energy.	100 percent of all new buildings and major renovations will be constructed as Zero Net Energy.	Required through building code.
5. 50 percent of all new buildings and major renovations will achieve at least a Leadership in Energy and Environmental Design (LEED) "Silver" or equivalent rating.	100 percent of all new buildings and major renovations will achieve at least a Leadership in Energy and Environmental Design (LEED) "Silver" or equivalent rating.	Required through building code.
6. Increase procurement of sustainable products and services by 20 percent compared to current levels.	Increase procurement of sustainable products and services by 25 percent compared to current levels.	New annual report, tracking procurement of sustainable products and services
7. Reduce municipal solid waste by 25 percent compared to current levels.	Reduce municipal solid waste by 50 percent compared to current levels.	New annual report tracking municipal solid waste

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Guidance to be provided by Chancellors Office Sustainability Steering Committee

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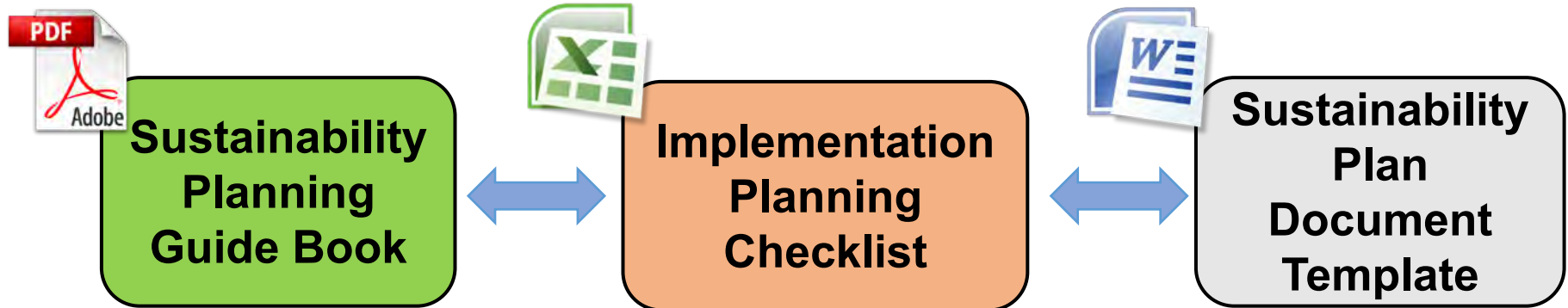ENERGY AND SUSTAINABILITY

CCC Sustainability Planning Template

- Created through a collaboration of the CCC Chancellors Office, Citrus College, CEC, and Newcomb Anderson McCormick in 2012

- Designed as a *Roadmap* **and** *Toolkit* help CCD's develop Sustainability Plans that are comprehensive and cost-effective

- Process is intended to be inclusive and involve students, faculty, and staff

- Successfully employed at many CCDs

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CCC Sustainability Template
Three Parts

Sustainability Planning Guide Book ⟷ **Implementation Planning Checklist** ⟷ **Sustainability Plan Document Template**

- Describes the start to finish implementation process

- Includes a menu of sustainability projects
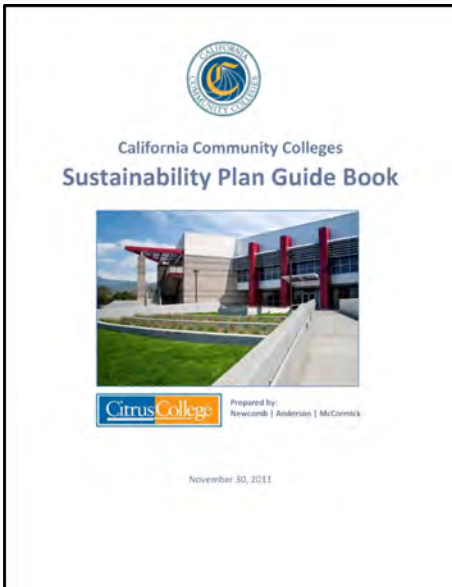
- **Utilize BOG Policy Addendum**

- *The key to success!*

- Used to select and track Sustainability Projects

- Matches the projects described in the Sustainability Guidebook

- Used to create the customized District/Campus Sustainability Plan

- Contains template language and fill-in-the-blanks

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The Process

Benchmark Energy Usage

Define Goals and Timelines

Select Implementaion Programs

Create an Action Plan

Establish Performance Metrics

Publish Draft Plan

Board of Trustees Presentations

From the

Sustainability Plan

Guidebook …

California Community Colleges
Sustainability Plan Guide Book

Citrus College
Prepared by:
Newcomb | Anderson | McCormick

November 30, 2011

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Work Plan

Task 1 – Kick-off Meeting

- Review Project Scope and Schedule

- Review and Refine Work Plan

- Confirm Meeting Process and Frequency

Work Plan

Task 2 – Benchmark Energy Usage at each Campus

- Gain a high-level understanding of energy performance as a starting point for planning

- Employ EPA Portfolio Manager already installed and measure Energy Use Intensity (EUI)

- Compare against other similar campuses

Work Plan

Task 3 - Define Goals, Criteria, and Timelines

- What is the campus Vision for Sustainability?

- What are the Goals and Objectives for the Plan?

- Include BOG Policy and other District Priorities

- What are the campus priorities and limitations?

- What are the criteria for success?

- What is the timeline for Plan implementation?

Guidebook Section 5

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Work Plan

Vision or Mission Statement Example

"By adopting this Energy Master Plan, Foothill – De Anza Community College District commits to Environmental and Fiscal Sustainability, reducing its Greenhouse Gas Emissions, complying with the BOG Climate Change Policy, and serving as a model of Sustainability to face the challenges of the 21st Century."

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Work Plan

Example Goals

- Reduce GHG emissions to 30% below 1990 levels by 2025

- 50% of all new buildings and major renovations will be constructed Zero Net Energy by 2025

- Increase renewable energy consumption to 50% by 2030

Use the SMART Goals Process

Specific, Measurable, Achievable, Relevant, Time-bound

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Work Plan

Task 4 - Select and Prioritize Implementation Programs

- Identify the different energy programs and projects that can be implemented to achieve Goals

- Use the Guidebook menu or possibilities from Section 7

- Prioritize actions based on achieving goals while budget and resource constraints of the campus.

- *This should be augmented for the BOG Policy goals using the Addendum developed by Sullivan Consulting*

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Guidebook Section 7

14

Work Plan

The programs and projects listed in Section 7 are grouped into the following categories:

7.1   Management and Organizational Structure
7.2   Energy Efficiency
7.3   Facilities Operation
7.4   Sustainable Building Practices
7.5   On-Site Generation and Renewable Energy
7.6   Transportation, Commuting, and Campus Fleet & Travel
7.7   Water, Wastewater, and Sustainable Landscaping
7.8   Solid Waste Reduction and Management
7.9   Green Purchasing
7.10   Student and Curriculum Development
7.11   Campus and Community Outreach & Awareness
7.12   Create a Climate Action Plan
7.13   Other Programs and Projects

We will focus on energy-related activities

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Work Plan

Select potential Programs and Projects from Section 7 to achieve the established Goals – *for example*

Goal: Reduce GHG emissions to 30% below 1990 levels by 2025
7.2.2.4 Conduct Comprehensive Energy Audits
7.2.2.6 Implement Ongoing Energy Monitoring
7.3.2.4 Optimize Building Occupancy Scheduling

Goal: Increase renewable energy consumption to 50% by 2030
7.5.2.1 Evaluate Renewable Energy Generation Strategies
7.5.2.2 Evaluate Load Shifting Technologies
7.5.2.3 Minimize Greenhouse Gas Intensity of Purchased Electricity
7.5.2.6 Evaluate Battery Energy Storage (BES) Systems

Note that selected Projects may come from more than one Category to achieve Goals

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Work Plan

Task 5 – Create an Action Plan

- Based on Programs and Projects from Task 4 develop an Action Plan for implementation

- Define specific tasks, responsibilities, ROM costs, deliverables, and timing

- Utilize the Implementation Planning Checklist (Appendix E) to facilitate Action Plan process

Guidebook Section 8

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Implementation Planning Checklist

Used with the Guide Book to help select and manage different sustainability projects

Macro-enabled MS Excel Workbook to create and track Action Plans

Implementation Planning Checklist

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Checklist Tool Fields – *to facilitate planning and tracking*

Checklist Field	Action Required
Action Items	Enter a brief description of the task(s) to be performed to implement the selected policy
Priority	Select High, Medium, or Low priority from the dropdown list
Status	Select Planned, In-Process, or Complete from the dropdown list
Relevant Goal	Enter the relevant plan Goal that the Project is design to fulfill
Cost ($)	Enter an estimate of the in-house or contracted costs in labor and materials
Outcomes	List the desired outcome that is to be achieved by implementing the selected policy
Target Completion Date	Enter the date that the policy's implementation is expected to be complete
Assigned To	Enter the name of the individual responsible for implementing the selected policy. This person may assign others to the role. However, the primary responsibility for the policy rests with this person
Email address	Enter the email address for the person referenced above in the "Assigned To" field

Work Plan

Task 6 – Measure and Report Performance

- Sustainability program progress measured against baselines and compared to goals and criteria

- Establish and track appropriate performance metrics

- Consider Sustainability Ranking Systems, e.g. AASHE STARS

- Communicate results to campus community to ensure transparency and accountability

Work Plan

Task 7 – Publish Draft Energy Master Plan

- Utilize the Sustainability Plan Document Template (Appendix F) to create Plan document

- Include Implementation Planning Checklist as an Appendix

- Submit Draft Plan for approval

- Prepare Final Energy Master Plan document incorporating comments from the draft review

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Sustainability Plan Document Template

- Used to efficiently create Energy or Sustainability Plans

- Includes all critical elements – *fill in the blanks*

- Reduces time spent writing and formatting

- Fully customizable

MS Word file containing Plan elements, organization, formatting, and instructions to assist in creating plan document

[College Name] Community College Sustainability Plan

[Reference to Further Information]

Produced by [Name of Campus Sustainability Committee]

[DATE]

Work Plan

Task 8 – Board of Trustees Presentations

- Present a progress update to the Board in June

- Final presentation to the Board after completion of the Energy Master Plan in early fall

Project Schedule

FHDA CCD Energy Master Plan Schedule
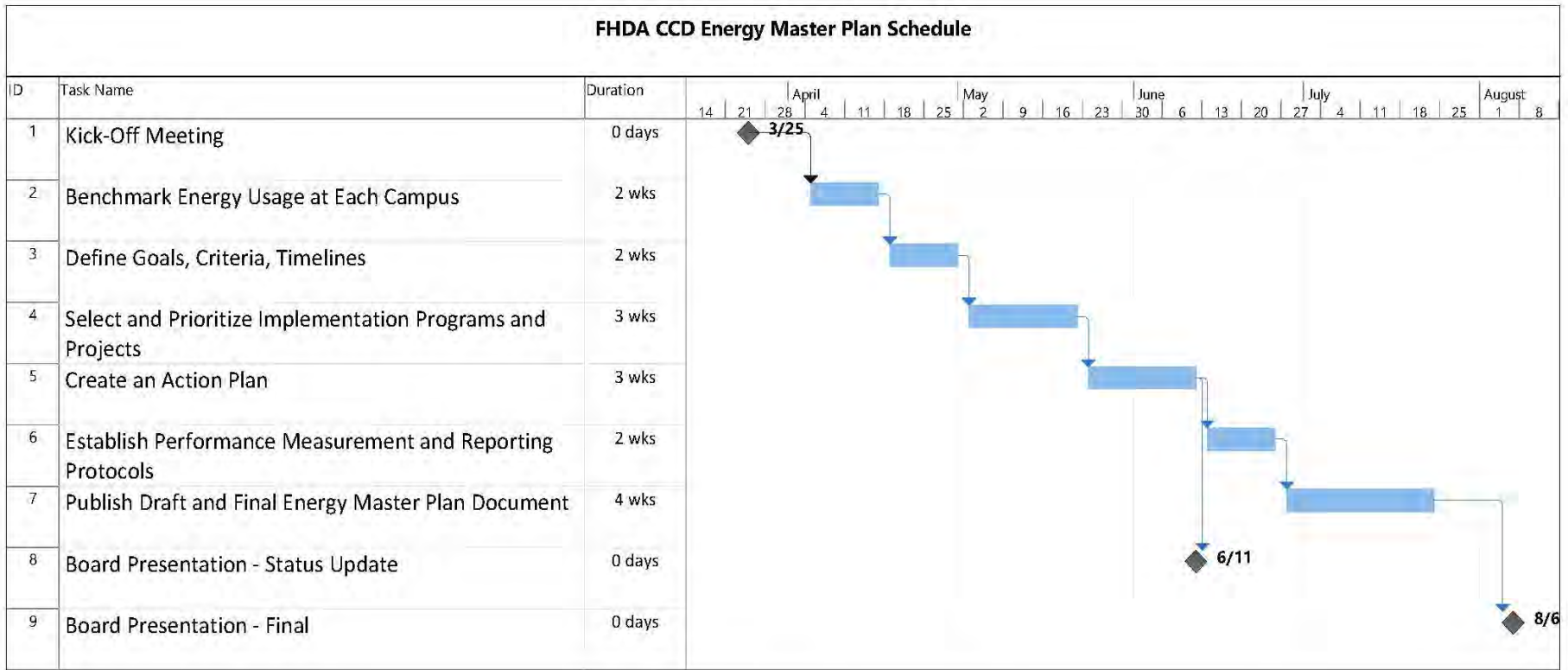
ESAC Meeting Frequency – suggest every two weeks initially. Can shift to 3 or 4 weeks as project progresses.

Next Steps

- Finalize District Team Membership and Roles

- Brainstorm Vision Statement

- Review Draft BOG Policy Board Resolution

- Start Energy Benchmarking Task

Next Meeting: April 8, April 22, May 6, May 20

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Questions and Open Discussion

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ENERGY AND SUSTAINABILITY

California Community Colleges
Sustainability Plan Guidebook

Citrus College

Prepared by:
Newcomb | Anderson | McCormick

July 2012

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Deeptika Patel – DEEP Intern Program Manager
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TABLE OF CONTENTS

SECTION 1.

EXECUTIVE SUMMARY

As with many public sector agencies, the California Community Colleges (CCCs) recognize the environmental, economic, and social benefits of resource efficiency and sustainability. However, the decentralized nature of the CCC Districts, disparate resources and expertise, and rapidly changing regulations and technologies make it challenging for the CCCs to work toward sustainability in a consistent and comprehensive way.   The passage of the California Global Warming Solutions Act (AB-32) adds confusion as well as urgency to meet these goals.   Recent legal challenges from the state based on inadequate plans to address Greenhouse Gas (GHG) emissions in land use planning have added uncertainty to these activities at campuses. In addition, the CCC Board of Governors have established an Energy and Sustainability Policy, and while it is incentive based, its goals may be difficult for many Districts to achieve absent coherent and effective implementation planning and resources.   Some Districts are well along the path to sustainability, but many are struggling with these efforts.

Based on these challenges, it has been deemed critical to develop an organized, comprehensive approach for the CCCs that incorporates the elements of sustainability, satisfies state regulations, takes advantage of available resources and complementary programs, and adopts the best practices of others who are further along this path.   To address this challenge, the Citrus Community College District has embarked on a partnership with the CCC Chancellor's Office, the California Energy Commission (CEC), and Southern California Edison (SCE) to create a Sustainability Plan "Template" that could be used by all CCC Districts and serve as a valuable resource for the community college system.

Sustainability

"Meeting the needs of the present without compromising the ability of future generations to meet their own needs."

-   **United Nations Bruntland Commission Report, 1987**

This Sustainability Plan Guidebook and Template is intended to serve as a roadmap and a toolkit to guide the CCC Districts toward a sustainable future. It can be deployed at either the District level, by creating a Sustainability Plan that would apply across each campus within the District, or at the campus level, thereby creating a plan that is more tailored to the specific conditions and needs at each campus. The best approach depends on local conditions, available resources, and management structure. There is no right or wrong way to implement sustainability planning. While the creation of this Template was developed in collaboration with the Citrus Community College District, it is designed to be used by any California Community College.

As described herein, the program is focused on broad, long-term sustainability planning, GHG reduction strategies, and programs to prepare students for careers in the "Green Economy".   It is designed to assist colleges in the *development of goals, objectives, timelines, and criteria for success,* and will highlight the *Best Practices* of other community colleges as a means to develop robust yet flexible plans tailored to each District and campus. Districts and campuses interested in this process should view this as a *menu of possibilities* and should *prioritize their efforts* based on college-specific goals and objectives, areas of interest, capabilities, and available resources. The Guidebook provides tools for the

development of *Action Plans* to achieve sustainability and to *measure results* of program implementation. Above all, this process is designed to be *inclusive and collaborative* and should involve college students, faculty, and staff in its implementation. This model will provide the broadest range of expertise, knowledge, energy, and enthusiasm for the creation of the plan and will ensure that its implementation will impact all parts of the campus community. Finally, campus master plans and sustainability planning should go hand in hand. All sustainability projects identified through this process should be incorporated in new facility master plans.

The following pages identify the *policy and regulatory drivers* that are behind many of these initiatives, outline the *recommended steps and the tools* to assist campuses with their planning efforts, identify *financial and technical resources*, and describe *Best Practice* examples to help campuses customize a Sustainability Planning approach to meet the needs of any California Community College.

It is intended that this Planning Guidebook and Sustainability Template be a valuable resource for the California Community College system in its quest for environmental, fiscal, and social sustainability!

HOW TO USE THIS GUIDEBOOK

The Sustainability Template is designed to be used by any of the California Community Colleges to create a campus-specific Sustainability Plan.   As a whole, the Template consists of three parts:

- *The Sustainability Plan Guidebook.* The Guidebook describes the "start to finish" planning and implementation process of creating a campus-specific Sustainability Plan, includes a list of potential sustainability programs and projects, and identifies resources to assist campuses with program implementation.

- *The Implementation Programs and Plans Checklist.* This is a MS Excel workbook that is used by the campus to select and track sustainability projects, and to manage and report progress to the campus community.

- *The Sustainability Action Plan Document Template.* This is a MS Word document file that is used by the campus to create a customized Sustainability Plan document as an outcome of the planning process.

The graphic below illustrates the relationship of the Template elements. Each of these elements or "tools" and how to use them are described in more detail in subsequent sections of the Guidebook.
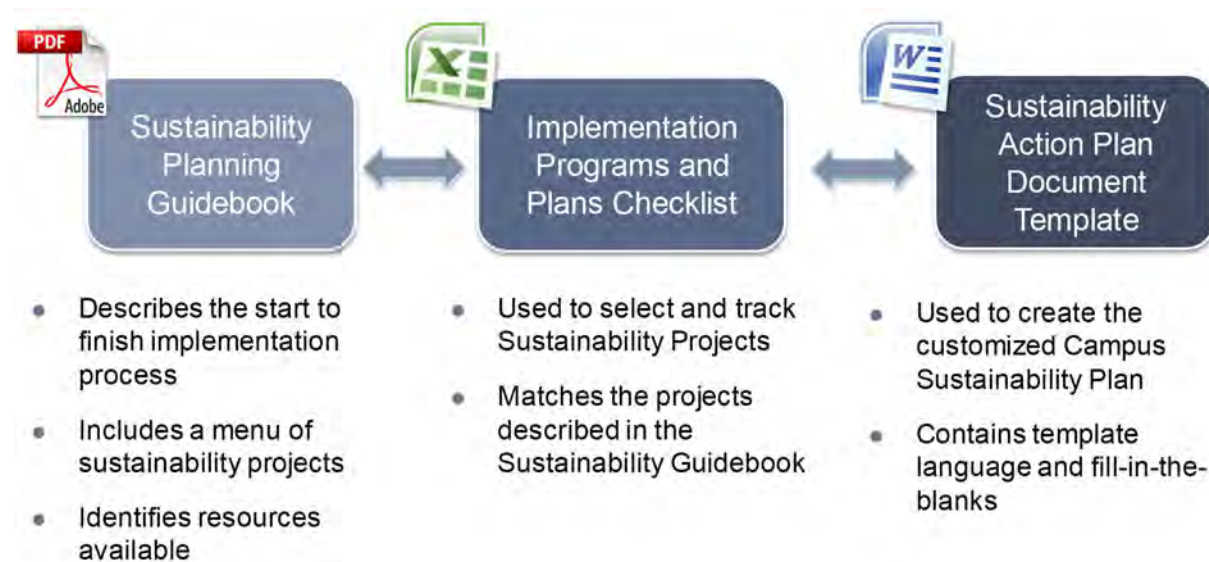
The following flow chart illustrates the recommended approach for sustainability planning as outlined in this Guidebook.

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┌─────────────────────────────────────────────┐
│     Commitment from Campus Administration     │
└─────────────────────────────────────────────┘
        ┌─────────────────────────────────────────────┐
        │   Establish a Campus Sustainability Committee  │
        └─────────────────────────────────────────────┘
            ┌─────────────────────────────────────────────┐
            │   Define Vision, Goals, Criteria, and Timelines │
            └─────────────────────────────────────────────┘
                ┌─────────────────────────────────────────────┐
                │  Select and Prioritize Implementation Programs │
                └─────────────────────────────────────────────┘
                    ┌─────────────────────────────────────────────┐
                    │       Create and Execute Action Plans        │
                    └─────────────────────────────────────────────┘
                        ┌─────────────────────────────────────────────┐
                        │  Monitor and Regularly Report Progress to the │
                        │  Campus                                      │
                        └─────────────────────────────────────────────┘
```

A brief summary of this process is described below. The details of each planning step are described in subsequent sections of the Guidebook.

A key prerequisite for this process is to *obtain commitment from the highest levels of campus administration* for the planning and execution of sustainability activities. Ideally this would come from the Board of Trustees or the College President or Chancellor, and should be supported by the key department heads on campus. Without this commitment, it will be very difficult, if not impossible, to successfully implement the programs and projects established.

After gaining the necessary commitment from the college administration, the next step in developing a Sustainability Plan is to *establish a Campus Sustainability Committee* to manage the planning and implementation process. Above all, this should be an inclusive, collaborative process which should include college staff, faculty, and students in its implementation. More information on how to establish a Campus Committee can be found in Section 4.

The next step is to define the *Goals and Priorities* for the development and implementation of the Sustainability Plan. This should define the campus vision and values for sustainability and should go to the heart of why the campus community desires to be "sustainable". As sustainability planning can be a difficult task, defining focused goals and objectives will help the campus prioritize the most important actions later in the process.   It will also be important to understand the *Desired Outcomes, Criteria for Success, and Timelines for Program Implementation* prior to beginning this process. This will set the bar for successful program implementation and allow measurement of activities against the plan. This task should also include an assessment of existing or current sustainability efforts to acknowledge past work and to build upon successes.   More information on how to define the goals, criteria, and timelines can be found in Section 5 of the Template.

A critical factor for consideration for this project or any new college endeavor in this time of budget constraints are the *Economics of Sustainability*. Each program or project will need an implementation budget, and it will be necessary for the campus to estimate costs and identify potential funding or financing sources. Project economics and funding options are explored in more detail in Section 6.

The heart of the sustainability planning process will be the selection of the *Implementation Programs and Projects* that will be undertaken by the college in the execution of this plan. These will fall under a variety of categories, including energy efficiency, transportation, and waste management, as well as curriculum development. A list and description of a wide variety of potential programs and projects is included in Section 7.

The next step in the sustainability plan implementation will be to *Create and Execute Action Plans* designed specifically for the District or campus. This will require significant effort on the part of the Campus Sustainability Committee to review the entire menu of possibilities, select programs and projects that best meet the goals and objectives established for the plan, and prioritize those which are realistic given the time, resources, and funding available for plan implementation. As described above, an *Implementation Programs and Plans Checklist* and a *Sustainability Plan Document Template* that will facilitate the creation of the campus-specific Sustainability Plan are included in the appendices, and the final Plan will include specific tasks, responsibilities, process changes, timelines, criteria, and estimated costs. Details for creating an Action Plan are included in Section 8.

As with any successful program, *performance should be monitored and compared to goals and criteria*. This will require ongoing participation of the Sustainability Committee and college staff. The results of the sustainability plan activities should also be reported and communicated to the larger campus community on a regular basis. The process for measuring program progress and reporting results is more fully described in Section 9.

The Guidebook contains additional information and identifies resources that can assist campuses in the development and implementation of their plans. Section 10 includes a series of *Best Practice Case Studies* that illustrate successful sustainability activities at a number of campuses. These provide examples that can be followed and can help to stimulate ideas for programs and projects. Section 11 contains a listing of technical and other support resources (including a consolidated list of all web links that appear in this Guidebook) that are available to community colleges and provide valuable information and services to assist in the implementation of projects.

SECTION 3.
POLICY AND REGULATORY DRIVERS

While becoming more sustainable can provide environmental, economic, and social equity benefits to campuses, there are other motivations for the Community Colleges to pursue these practices. The State of California has been on the forefront of efforts in establishing aggressive policies and standards for environmental protection and reducing GHG emissions that contribute to global warming. In 1970, the State adopted the California Environmental Quality Act (CEQA) with the goal to inform governments and the public about potential environmental impacts of projects. 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 emissions offset programs and offering renewable energy certificates (RECs). Compliance with state policies and regulations regarding these issues is an important factor for consideration by the colleges.

Policy and Regulatory Drivers

- *California is at the forefront of sustainability policy and regulations*
- *Local and regional environmental programs and requirements should be a consideration*
- *There are many challenges and opportunities for the CCCs in regard to satisfying these requirements*

While there are many global agreements focused on sustainability and while these may be a motivator for community colleges to take action, this Template is focused on the State of California and local regulations, which may have a direct effect on campuses.

The following outlines the CCC, state-wide policies and regional standards geared towards reducing GHGs and improving sustainability as of the publication of this document. Legislation and public policy is a constantly changing landscape and it will be important for Districts and campuses to stay abreast of these evolving issues.

3.1   CCC BOARD OF GOVENORS ENERGY AND SUSTAINABILITY POLICY

In order to guide the CCCs towards a more sustainable future, the CCC Board of Governors approved the Energy and Sustainability Policy in January 2008, which provides goals for each campus to reduce their energy consumption from its 2001-02 baseline by 15 percent by 2011-12. It also sets goals for minimum efficiency standards of new construction and renovation projects and provides incentives for Districts to achieve these goals. The policy also sets goals for energy independence through the purchase and generation of renewable power and energy conservation through the pursuit of energy efficiency projects, sustainable building practices, and physical plant management.

The CCC Board of Governors Energy and Sustainability Policy can be found here: http://extranet.cccco.edu/Portals/1/CFFP/Facilities/Cap_Outlay_Docs/3-1_energy_sustainability.pdf.

3.2   CALIFORNIA STATE CLIMATE REGULATIONS

3.2.1   STATE OF CALIFORNIA EXECUTIVE ORDER S-3-05

Executive Order S-3-05 was signed by the Governor of California in 2005, thereby identifying the California Environmental Protection Agency (Cal/EPA) as the primary state agency responsible for establishing climate change emission reduction targets throughout the state. The Climate Action Team, comprised of various state agencies, was formed to implement Executive Order S-3-05. Shortly thereafter in 2006, the team introduced GHG emission reduction strategies and practices to reduce global warming. These measures are aimed at meeting the Executive Order's long term goal of reducing GHG emissions to 80 percent below 1990 levels by 2050.

3.2.2   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 and establishes two key emissions reduction strategies. The first requires that California GHG emissions be capped at 1990 levels by 2020, and the second establishes an enforcement mechanism for the program, with monitoring and reporting implemented by the California Air Resources Board (CARB).

In 2008, the AB- 32 Scoping Plan was released by the CARB to describe the measures needed to meet the requirements set by AB-32. 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 state-wide, including incentives, direct regulation, and compliance mechanisms.

3.2.3   ASSEMBLY BILL 1493 (THE PAVLEY BILL)

Assembly Bill 1493, widely known as "The Pavley Bill", authorizes the CARB to establish regulations to reduce the GHG emissions from passenger cars and light trucks by 18 percent by 2020 and 27 percent by 2030 from 2002 levels. This aggressive bill was temporarily blocked by the US Environmental Protection Agency (EPA) in March 2008 but later received a waiver of approval for implementation throughout California in June 2009.

3.2.4   LOW CARBON FUEL STANDARD (LCFS)

The Low Carbon Fuel Standard (LCFS) was established in January 2007 by Executive Order S-01-07 and requires California fuel providers to decrease lifecycle fuel carbon intensity of transportation fuels by 10 percent from 2007 levels by 2020.

3.2.5   CALIFORNIA RENEWABLES PORTFOLIO STANDARD

The California Renewables Portfolio Standard (RPS) was established in 2002 under Senate Bill 1078 and mandated that electrical corporations increase their total procurement of eligible renewable resources by at least 1 percent annually to reach a goal of 20 percent electricity generation from renewable resources. These goals were accelerated in 2006 under Senate Bill 107, which mandated that at least 20 percent of total electricity sold be generated from renewable resources by the end of 2010. The RPS was further extended in 2008 by Executive Order S-14-08, which required that 33% of total electricity sales be generated from renewable resources by 2020. In April of 2011, this RPS standard of 33% renewable by 2020 was enacted into law through final passage of Senate Bill X 1-2 (Simitian) and extended to apply to both public and investor owned utilities.

3.2.6   SENATE BILL 97

Senate Bill 97, passed in 2007, required the Governor's Office of Planning and Research (OPR) to develop amendments to CEQA Guidelines for addressing GHG emissions related to land use planning. The amendments to CEQA became effective in March 2010, thereafter requiring all CEQA documentation to include and comply with the new amendments established for addressing greenhouse gas emissions.

3.2.7   SENATE BILL 375

Senate Bill 375 was passed in 2008 to reduce GHG emissions caused indirectly by urban sprawl throughout California. The bill offers incentives for local governments to execute planned growth and development patterns around public transportation in addition to revitalizing existing communities. Metropolitan Planning Organizations (MPOs) work with the CARB to reduce vehicle miles traveled by creating sustainable urban plans with a comprehensive focus on housing, transportation, and land use. Urban projects consistent with the MPO's Sustainable Community Strategy (SCS) can bypass the CEQA's GHG emission environmental review. This provides developers with an incentive to comply with local planning strategies which support the state's greater effort for overall emission reduction in the land use and transportation sector.

3.2.8   ASSEMBLY BILL 341

Starting July 1, 2012, businesses and public entities, including schools and school districts that generate four cubic yards or more of waste per week and multifamily units of five or more will be required to recycle, if they are not already doing so. AB 341 also establishes a statewide goal of 75% diversion of solid waste to landfills. The purpose of this new law is to reduce greenhouse gas emissions by diverting commercial solid waste to recycling efforts and expand opportunities for additional recycling services and recycling manufacturing facilities in California.

3.3   REGIONAL AIR POLLUTION CONTROL DISTRICTS (APCD) AND AIR QUALITY MANAGEMENT DISTRICTS (AQMD)

In 1947, the California Air Pollution Control Act was passed and authorized the creation of Air Pollution Control Districts (APCDs) and Air Quality Management Districts (AQMDs) in every county. APCDs and AQMDs are tasked with meeting federal and state air pollution requirements set by the Clean Air Act

and can develop regulations to achieve the necessary public health standards, though these regulations need approval from the CARB and the US EPA. APCDs and AQMDs have jurisdiction over businesses and stationary sources of emissions and can offer varying levels of outreach, grants, CEQA reviews, and technical assistance to interested public and private parties. The APCDs and AQMDs do not have the authority to regulate mobile air pollution sources, which is the responsibility of the CARB, and must defer to state or federal regulations provided by the California Air Resources Board and the U.S. Environmental Protection Agency. The following highlights the South Coast Air Quality Management District.

3.3.1 SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT (SCAQMD)

The South Coast Air Quality Management District (SCAQMD) encompasses one of the smoggiest regions in the United States, serving all of Orange County, western portions of Riverside and San Bernardino counties, and all of Los Angeles County with the exception of Antelope Valley. Citrus Community College District falls under the jurisdiction of the SCAQMD. With a primary responsibility to control emissions from stationary sources of air pollution, including power plants, gas stations, industrial processes and consumer products, the SCAQMD issues permits to businesses and industries that operate under its regulations. Stationary sources provide 25% of the SCAQMD area's ozone-forming air pollution, with the remaining 75% of pollution deriving from mobile sources such as transportation services, which include vehicles, planes, trains, and ships. Permits issued to businesses and ongoing inspections serve to ensure compliance with SCAQMD air quality requirements.

Despite the increase in population and car ownership in past decades, air quality control efforts have reduced the maximum levels of ozone to less than one quarter of what they were in the 1950s, when there were far fewer cars on the road and residents in the area. However, the South Coast Air Basin exceeded the federal 8-hour standard for ozone in 2009, with 113 days reported beyond the maximum standard levels. The SCAQMD anticipates meeting the 8-hour average ozone standard by 2023, though recent federal air quality standards for ozone and particulates have increased the amount of reductions that will need to be made beyond current emission reduction plans. The cleanup effort will take time, and the SCAQMD estimates it will reach the new 24-hour average particulate standard by 2020 and new ozone standard by 2030. Overall, the region has both the worst smog and the strictest pollution control requirements in the country.

A complete list of California Regional Air Quality Management Districts is included in Appendix D.

SECTION 4.

ESTABLISH A CAMPUS SUSTAINABILITY COMMITTEE

After gaining the necessary commitment from the college administration, the next step in developing a Sustainability Plan is to *Establish a Campus Sustainability Committee* to manage the planning and implementation process. Above all, this should be an *inclusive, collaborative process* which should include college staff, faculty, and students in its makeup. This collaborative model was successfully used to develop this document at Citrus College. A Campus Committee was established with broad representation from the campus community, as well as an Advisory Council made up from members of the CCC Chancellor's Office, other community college campuses, the Investor Owned Utilities, and other industry experts, who all contributed to the development of the Template.

Campus Sustainability Committee

- *Manage the Planning and Implementation Process*
- *Inclusive and Collaborative*
- *Include Students, Faculty, and Staff*
- *Campus Leaders and those with Technical Expertise*
- *Represent the interests of the larger campus community*
- *Will do the "heavy lifting" of creating and implementing the plan*

Members of the committee should be *campus leaders* who have an interest in sustainability. However, it is also important that the proper expertise be included from campus facilities, operations, and administration staff. The Campus Committee should be a standing committee with regular members that meet on a regular schedule, and meeting minutes and action items should be recorded and tracked. Roles and responsibilities should be defined for committee members, and a *governance structure should be established for running meetings, decision making, and reporting out to the campus*. This committee should have some level of authority and will be responsible for the development and implementation of the campus sustainability plan within the overall college shared governance and administrative structure. The Committee should also be responsible for establishing a schedule for the sustainability planning process and be responsible for its implementation within the timeframe and any established budget. *The Campus Committee will do the "heavy lifting" of creating the plan* and its members should have the required amount of available time, the commitment to attend meetings, and the ability to perform other tasks as necessary. Due to anticipated time commitments required by committee members, the college may wish to offer a stipend to committee members to compensate for the additional responsibilities. This allows for inclusion of highly sought after personnel who may otherwise be too busy to participate.

The Campus Committee must *represent the interests of the larger campus community* in the sustainability planning process. Outreach efforts to communicate the planning activities and solicit feedback from the campus population should be made at regular intervals. Periodic workshops and presentations should be conducted in venues that are convenient for participation by a wide campus audience, and a process should be employed to encourage meaningful participation by all interested students, faculty, and staff. To build support for the Sustainability Planning efforts both on and off campus, outreach activities should go beyond the campus and extend to the local community.

The graphic below illustrates the relationship between the Campus Committee and the larger community.

Community Members

District Personnel

College Staff, Faculty, and Students

Local Utilities

Chancellor's Office

Sustainability Committee

Industry Experts

RECOMMENDATIONS
- Receive input from all interested stakeholders
- Synthesize information for internal and external teams
- Develop concise statements of policy

COMMUNICATIONS
- Initiate and maintain communication with internal and external groups of key stakeholders
- Maintain and distribute issue log
- Conduct periodic meetings and workshops

IMPLEMENTATION
- Once the best ideas have been communicated, proceed with the deployment of plans in support of established goals
- Manage process to maintain schedule and vision

SECTION 5.
GOALS, OBJECTIVES, AND DESIRED OUTCOMES

Setting the goals, objectives, and priorities for the campus sustainability plan is one of the most important steps of the process. This should reflect the values of the college and go to the heart of why the campus community believes sustainability is important. Since true sustainability addresses *environmental protection, economic and fiscal issues, as well as social equity* – sometimes referred to as *"The Three E's"* – the Campus Committee should develop a vision statement that captures, in one sentence, what the college would like to achieve with the sustainability plan. An example of a Vision Statement is:

> **Goals, Objectives, and Desired Outcomes**
>
> - *What is the campus Vision for Sustainability?*
> - *What are the Goals and Objectives for the Plan?*
> - *What are the campus priorities and limitations?*
> - *What are the criteria for success?*
> - *What is the timeline for Plan implementation?*

> *By adopting this Sustainability Plan, the Community College District commits to Environmental and Fiscal Sustainability, reducing its Greenhouse Gas Emissions, and developing Green Curriculum to educate students for the challenges of the 21st Century.*

After establishing the Vision for the plan, it will be important to define specific goals and priorities and to quantify what success means to the campus. Since sustainability planning can be a daunting task, defining focused goals and objectives will help the campus prioritize the most important actions later in the process. This is especially important for campuses with limited resources and for team members with busy schedules. The committee should refrain from attempting to tackle all issues at once; rather, the more prudent approach is to focus the team's efforts on what is most important to the college. The development of specific goals, criteria, and priorities should be created through a brainstorming process of the Campus Committee. Ideas can come from Committee members or can be gleaned from the *Implementation Programs and Projects* listed in Section 7 of the Guidebook or the *Planning Checklist* found in Appendix E.

The process of prioritization should also consider the areas where there is the most potential for improvement. For example, the following chart shows a breakdown of the major emission sources for a typical community college. Many Districts will likely find that transportation and commuting is a large source of their GHG emissions and may want to prioritize projects in this category over smaller pieces of the pie.

Source: US EPA
http://www.presidentsclimatecommitment.org/files/documents/best_practices_cap.pdf

The chart above describes the greenhouse gas emissions breakdown for a typical community college:
- Scope 1 includes all direct emissions from sources owned and controlled by the college, such as carbon dioxide released by burning natural gas on site.
- Scope 2 includes indirect emissions from consumption of purchased energy utilities, such as electricity, heat, or steam.
- Scope 3 includes all indirect emissions not covered by Scopes 1 and 2 and includes emissions from student and staff commuting.

Setting specific criteria for success is important because without targets or benchmarks it will be difficult to assess whether the results achieved from executing the plan were the results that program stakeholders wanted or expected.   For campuses undertaking this for the first time, it may be difficult to know what reasonable targets or criteria are. Sometimes setting the bar too high can have the same effect as setting it too low – either can lead to an ineffective plan.   Fortunately, there are many examples of what has been successfully implemented at other colleges that can be reviewed for best practices and lessons learned. Setting appropriate goals also depends on the resources, funding, and student, staff, and faculty time available to implement projects.

Criteria assigned to a goal should contain both a target that can be measured and a timeframe by which to achieve the target. These are sometimes called SMART Goals (Specific, Measurable, Achievable, Relevant, Time-bound). A few examples of targets set by other colleges or as delineated by public policy include:

- *Energy Use (or cost) Reduction:* Reduce energy consumption from a 2001-2002 baseline by 15% by the end of 2011-2012 (Source: CCC Board of Governors Energy and Sustainability Policy)
- *Green Building Standards:* All major capital projects need to outperform Title 24 Standards by at least 15% and major renovation projects need to outperform Title 24 Standards by at least 10% (Source: CCC Board of Governors Energy and Sustainability Policy)
- *Renewable Energy:* Procure 20% of electricity from renewable sources by 2010 and 40% by 2014 (Source: CCC Board of Governors Energy and Sustainability Policy)
- *Water Use Reduction:* Reduce water use intensity 16% by 2015 (Source: Federal Executive Order 13423 for government agencies)

- ***Waste Diversion and Management:*** Divert 75% of solid waste from landfills by 2012 and zero waste by 2020 (Source: UC Sustainability Practices Policy)
- ***Greenhouse Gas Reductions:*** Reduce annual GHG emissions to 1990 levels by 2020 (Source: AB-32) and achieve climate neutrality as soon as possible (Source: American College and University Presidents' Climate Commitment)

In the process of creating goals, criteria, and a timeline, the District should also perform an ***assessment of existing or current sustainability efforts*** to acknowledge past work and to build upon successes. Take credit for what the District has already accomplished, and if current efforts can be improved, identify those improvements and make them a part of the plan. An important feature of the broad-based, multi-disciplined Campus Committee is that there may be many sustainability efforts going on at the campus that not everyone is aware of, and these isolated efforts can be brought together from a variety of sources that normally would not be communicating with each other.

It is important that both the Vision Statement and the Sustainability Goals receive support from the administration. Campuses should approach their Board of Trustees and their College President for approval of the Vision Statement and Sustainability Goals early on in the planning process.

SECTION 6.
ECONOMICS OF SUSTAINABILITY

In an environment of budget cuts and limited funding, Districts will need to carefully evaluate the economics of sustainability in the decision making process. This will mean balancing the different costs and benefits of each project, including those that are difficult to quantify. Often, sustainability projects that have an initial capital cost will result in annual operating cost savings that translate to reduced General Fund expenditures.

This section will describe approaches for analyzing the economic benefits of sustainability projects and to help identify funding sources. Other helpful resources for the execution of the projects, such as technical and program assistance, are addressed in Section 11 of the Template.

> ## Economics of Sustainability
>
> - *What are the Costs and Benefits of Sustainability?*
> - *What are the Campus Investment Criteria for programs and projects?*
> - *How to estimate the costs of sustainability projects*
> - *Consider the "cost of doing of nothing"*
> - *Resources for funding projects*
> - *Effects difficult to quantify*
> - *Risk management and mitigation*

6.1 PROJECT ECONOMICS

There are several economic factors to consider when evaluating which programs or projects to pursue. Several of these factors are listed below.

Consider the costs to develop and implement the Sustainability Plan. The campus will incur costs to both initially develop the Sustainability Plan and to implement its programs and projects. If the planning process is undertaken by means of a Campus Committee consisting of internal resources and student participation, the development costs could be minimal or already accounted for. If a consultant is used for plan development these costs would need to be budgeted. However, the expertise and efficiencies provided by a consultant could result in a more effective plan and additional cost savings that may offset consultant charges.

What is the District or campus investment criterion for sustainability projects? Investment criteria should be developed to help evaluate proposed projects. This could be a simple payback criterion, Return on Investment (ROI), or a life-cycle analysis utilizing a Net Present Value (NPV) calculation. Most Districts should have investment criteria and policies in place, and these may need to be reevaluated to account for the unique benefits of sustainability measures.

How much is the project capital or up-front cost, how much total capital is available, and when is it available? A District's ability to implement sustainability projects will be first limited by the amount of funding available and when it becomes available. It may be possible to enhance the amount of capital available by using a combination of internal and external funding resources (see Section 6.2).
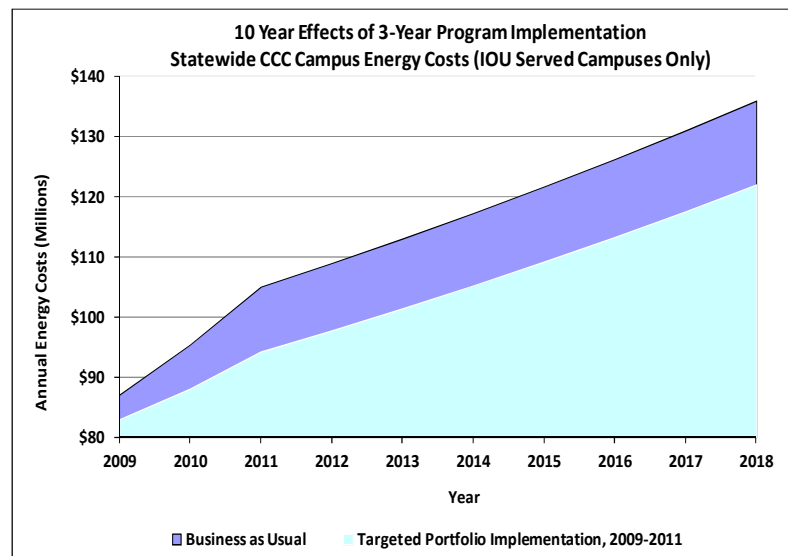
How much savings will the project generate compared to its cost? For example, this could be annual energy or water cost savings, or could be revenue generated from an on-campus recycling program. This can be evaluated by performing a simple cost-benefits analysis to compare first cost to annual savings over a project's life time.

Are there economies of scale with certain project types? Easily scalable projects, such as lighting upgrades, may be more cost-effective than more complex or stand-alone projects that are difficult to scale. Districts should also consider the ability to replicate or spread the projects to other campuses or to the local community.

Can sustainability project capital expenditures translate to campus General Fund and annual operating budget savings? Projects that result in annual cost savings (for example energy or water efficiency) can reduce operating budget expenditures and add to the General Fund to finance ongoing costs for teachers, supplies, or other educational needs. This could be especially attractive if a District has a capital improvement budget and is trying to evaluate the "best bang for its buck".

What are the project's lifecycle costs and benefits? In order to get an accurate picture of the impacts of a sustainability project, the District should quantify the lifecycle costs and benefits of a project. While performing a lifecycle cost analysis of a project requires more time and effort than a simple payback calculation, calculating lifecycle costs can have the added benefit of capturing maintenance costs and savings, reductions in operational and resource costs, increases in staff and student productivity, and impacts on the safety, health, and comfort of the campus. It can also take into account avoided costs of future capital improvements that may have been otherwise required and potential fluctuations in the price of energy, water, and other necessary resources. For example, establishing a network for carpooling may carry an initial cost to the District, but the reduction in vehicles driven to the campus can help the District avoid the costly process of constructing new parking spaces or reduce air district fines. Lifecycle analysis should include an NPV analysis to evaluate the ability of the project to meet District financial criteria.

The adjacent graph illustrates the life-cycle benefits of energy efficiency projects for the 2009-2011 CCC/IOU Energy Efficiency Partnership portfolio of projects. In addition to achieving 10-year cumulative savings of over 725 million kWh and 23 million therms, the graph also illustrates how on average $1 worth of investment in sustainable facilities yields $2 in energy savings. The result is that capital outlay investments now can provide continuing relief to District support budgets.

**10 Year Effects of 3-Year Program Implementation
Statewide CCC Campus Energy Costs (IOU Served Campuses Only)**

Annual Energy Costs (Millions) — Year

■ Business as Usual   ■ Targeted Portfolio Implementation, 2009-2011

Consider "the cost of doing nothing". The cost of energy, water, sewage, waste disposal, and other services will continue to increase while college budgets stagnate or are cut. Many sustainability projects will save money for the campus over the project's life-cycle and can serve as a hedge against increasing utility or other costs. The adjacent graphs indicate the increases in electricity and natural gas prices since 1980, and clearly illustrate "the cost of doing nothing". Most importantly, they reinforce the fact that dollars spent on energy are dollars taken out of the classroom.

When energy or resource efficiency measures result in a reduction in capital cost expenditures it is often referred to as ***tunneling through the cost barrier***[1]. For example, reductions in cooling loads through energy efficiency projects can reduce costs if HVAC equipment is able to be downsized. Such avoided capital costs and opportunities to "tunnel through the cost barrier" should not be overlooked and should be considered in the decision making process.

Retail Price of Electricity in California

Source: California Energy Commission

Retail Price of Natural Gas in California

Source: U.S. Energy Information Administration
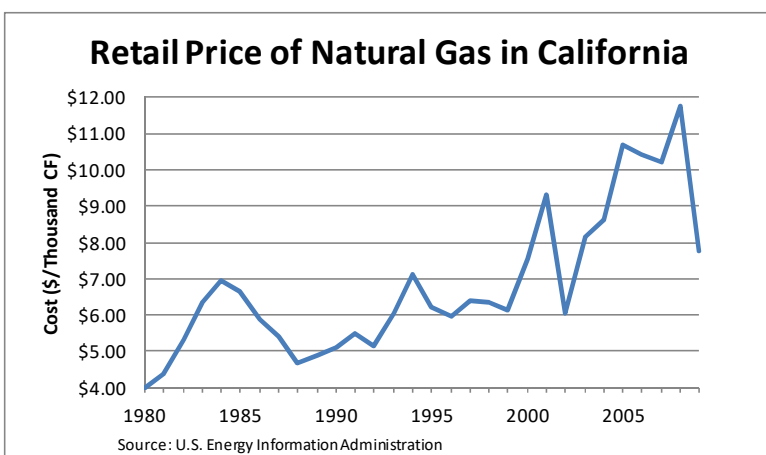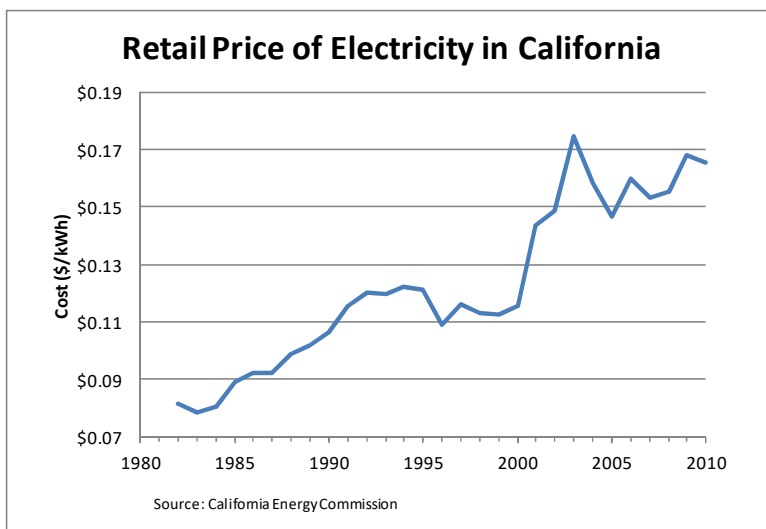
6.1.1 ESTIMATING COSTS

All sustainability projects will incur some cost, either in time, money, or both. Apart from the cost of any equipment purchased, successful execution of sustainability projects will require a certain amount of staff time to oversee the implementation and the ongoing operation and maintenance (O&M) costs. Some projects will be more time intensive and require the attention of campus staff than others. Districts should consider their capacity to successfully undertake and continually manage sustainability projects before pursuing them.

Districts can begin their cost estimating process by using industry aggregate data, such as RSMeans. While final costs will depend on the specific needs of the project, industry averages can provide a reasonable ballpark estimate for District decision making.

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[1] "Natural Capitalism", by Paul Hawken, Amory B. Lovins, L. Hunter Lovins

In certain cases, it may be necessary to hire specialists or consultants to assist in parts of or all of a sustainability project. Districts are recommended to hire specialists for projects that fall outside of the existing expertise of the staff in order to ensure systems are designed to fit District needs and are up to industry standards. In addition, the efficiencies and expertise provided by consultants could result in additional savings that may offset consultant charges.

Cost estimates should be confirmed by issuing Requests for Proposals (RFPs) and receiving vendor or contractor quotes for equipment and services.

6.1.2   THE COST OF "GOING GREEN"

There is a perception that green building practices are too cost prohibitive to pursue. There have been several studies and demonstration projects that have shown these concerns to be unfounded. The seminal work on this subject is *The Costs and Financial Benefits of Green Buildings,* written for the California Green Building Task Force in 2003, found that minimal upfront investments of about two percent of construction costs typically yields life cycle savings of over ten times the initial investment. Since then, green technology costs have steadily decreased and green building practices have become more widespread, making the financial analyses of green projects increasingly attractive.

The Costs and Financial Benefits of Green Buildings report can be found on the US Green Building Council website at http://www.usgbc.org/Docs/News/News477.pdf

6.1.3   LIFE CYCLE COST ANALYSIS TOOLS

A good resource for estimating and evaluating the costs and benefits of sustainability activities is the *Accelerating Campus Climate Initiatives* guide by the Rocky Mountain Institute. It also contains a Decision Making Matrix tool to assist campuses with the process of selecting and prioritizing projects. The guide can be found at:
 http://www.aashe.org/files/documents/resources/RMI_AcceleratingCampusClimateInitiatives.pdf

Below are three of the many different tools and resources that are available to assist Districts for conducting a Life Cycle Cost Assessment of projects:

California's Green Building Initiative has created a Life Cycle Cost Assessment spreadsheet tool, available online at http://www.green.ca.gov/LCCA/default.htm

The Building Life-Cycle Cost (BLCC) Program is an economic analysis tool developed by the National Institute of Standards and Technology for the U.S. Department of Energy Federal Energy Management Program (FEMP). The program can be downloaded for free at:
http://www.eere.energy.gov/femp/information/download_blcc.html

The U.S. Army Corps of Engineers has developed the ECONPACK for Windows program, which is an economic analysis tool that has been developed in support of DOD funding requests. The ECONPACK program can be downloaded at http://www.hnd.usace.army.mil/paxspt/econ/features.aspx

6.2   RESOURCES FOR FUNDING PROJECTS

The following is a list of examples and resources for project funding. The list is broken into two general categories: funds that can be raised by the District and funds that come from external grants and incentives.   Successful financing of a large sustainability project may require a combination of these different funding mechanisms.

6.2.1   FUNDING THROUGH DISTRICT ACTION

There are several opportunities and approaches that Districts and campuses can use to fund projects from internal sources. Some of these are listed below.

6.2.1.1   *District Capital Improvement Programs*

Some Districts and campuses may have an existing Capital Improvement Program with budgets available for infrastructure projects. Many times the funds are earmarked for specific projects such as building renovations or utility upgrades. Planned and budgeted projects should be evaluated to determine if efficiency upgrades can be incorporated in the design phase of the project.   Funding that is discretionary should be considered for unfunded sustainability projects.

6.2.1.2   *District Bond Election*

Districts can raise funds through issuing bonds by holding a District Bond Election. The ability to issue bonds and the availability of these funds will be contingent on voter approval. Projects that raise capital through this method need to begin planning early on, possibly years before the bond election is held. Bond funding for infrastructure projects is a widespread practice in the community college system.

6.2.1.3   *Green Revolving Fund*

A Green Revolving Fund is a revolving loan program operated by the District which issues loans to individual campuses, departments, or groups. These loans help fund projects that reduce resource use or provide other "green" benefits. When combined with projects that have significant cost savings a Green Revolving Fund can help support innovative or outreach projects that have less attractive or no financial payback.

Green Revolving Funds are gaining favor among academic institutions. In a survey conducted by the Sustainable Endowments Institute in 2011, fifty-two institutions have a combined $66 million invested through Green Revolving Funds to support the development of sustainable practices on campuses. For more information on Green Revolving Funds, see *Greening the Bottom Line* by the Sustainable Endowments Institute at:
http://www.greeningthebottomline.org/

6.2.1.4 Energy Performance Contracts (EPCs)

Energy Performance Contracts (EPCs) are structured so that energy efficiency projects can be installed with little or no up-front costs to the customer.   A portion of the revenue from energy savings go directly to an Energy Service Company (ESCO), who finances and constructs the project. ESCOs can take on the debt associated with the projects done through the EPC, allowing Districts to keep the debt off of their books.

The American College and University's Climate Commitment and the Clinton Foundation's Climate Initiative have created a Best Practices Toolkit for energy performance contracting. The toolkit can be found at:
http://www.presidentsclimatecommitment.org/resources/eebrp/toolkit

6.2.1.5 Power Purchase Agreements (PPA)

A Power Purchase Agreement (PPA) is a mechanism for an end-use customer to purchase clean energy from a power producer for on-site projects. In the case of solar photovoltaic electricity, Districts can opt to purchase solar energy from a system installed on-site through a PPA at a negotiated rate instead of purchasing, installing, and maintaining the operations of solar photovoltaic panels themselves. In addition, while California Community Colleges are nonprofit entities, Districts can still take advantage of tax benefits by entering into a PPA. These benefits can be reflected in the contract pricing structure. While the solar panels may be installed on the campus, a District will not own the system. However, ownership of any renewable energy certificates (RECs) and carbon offset credits generated will need to be negotiated as part of the PPA. A major advantage of a PPA is that no up-front investment or ongoing maintenance costs are required from the college while the solar PV energy is often guaranteed by the PV provider. However, the risk of the negotiated electricity rate is usually placed on the buyer.

6.2.1.6 Recycling Revenue

Districts can take advantage of the value of recyclable items to create a revenue stream to support recycling operations, which could include the scrap value of the paper, cardboard, metal, plastic, glass, or other recyclables, or the California Redemption Value (CRV) for bottles and cans.

Orange Coast College's recycling program is an example of how this has successfully worked. See Section 10: Best Practice Case Studies for a description of Orange Coast College's recycling program.

Visit http://recyclemania.com or http://stopwaste.org for helpful tips on recycling.

6.2.1.7   Renewable Energy Certificates (RECs)

Renewable Energy Certificates (RECs), also known as Renewable Energy Credits, Green Tags, or Tradable Renewable Certificates (TRCs), represent the environmental benefits of one megawatt-hour electricity generated from renewable sources. The credits should not be confused with tax credits for renewable energy projects. A REC is a tradable commodity and can be sold as a source of revenue to the District. RECs can also be retained so that the owner has claim to the renewable attributes of the electricity.

California's Renewable Portfolio Standard (RPS) mandates that utilities provide 33% of their generation portfolio with renewable energy by 2020, and created a compliance market in California where utilities can purchase RECs in order to meet the RPS goal. There is currently a price cap of $50/megawatt-hour for RECs, and the market value can fluctuate below this level. While the above describes the state of the REC market at the time of this Guidebook's publication, this is constantly evolving and Districts should perform their own due-diligence before making decisions on REC transactions.

For more information about RECs in California, see the California Public Utilities Commission REC website at:
 http://www.cpuc.ca.gov/PUC/energy/Renewables/FAQs/05REcertificates.htm

6.2.1.8   Carbon Offset Credits

Projects that offset or reduce greenhouse gas emissions can be certified by the Climate Action Reserve and traded as a Climate Reserve Tonne (CRT) credit, which is the equivalent of one metric ton of carbon dioxide equivalent emissions reduced. At the time of the publication of this Guidebook, the CARB has adopted the California Carbon Cap-and-Trade program regulations. However, the Cap-and-Trade program still faces legal challenges raised by parties who believe that the program will not result in sufficient GHG reductions. The regulation of emissions is expected to become enforceable in 2012.   In addition to the cap-and-trade market, there are other marketplaces where CRTs can be purchased and sold, though similar to RECs, Districts that sell CRTs lose the GHG "offset" attributes and cannot count the reductions towards their goals.

CRTs are not applicable for on-site energy efficiency projects as the benefits occur at the power generation facility where the environmental and carbon reductions are already accounted for in Renewable Energy Credits.

For more information about CRTs and the CRT marketplace, see the Climate Action Reserve website at: http://www.climateactionreserve.org/

For more information about the Cap-and-Trade program, see the California Air Resource Board website at: http://arb.ca.gov/cc/capandtrade/capandtrade.htm

6.2.2   EXTERNAL GRANTS AND INCENTIVES

6.2.2.1   *CCC Board of Governors Energy and Sustainability Policy*

The California Community Colleges Board of Governors has adopted an Energy and Sustainability Policy which encourages local Districts to be more energy efficient.   The policy has set goals for campuses to reduce energy consumption from its 2001-02 baseline consumption by 15% by the end of fiscal year 2011-12. To assist Districts in achieving the goals, the Community College Chancellor's Office will provide an incentive of 2% of construction costs for new construction and 3% for modernization projects.

To learn more about the CCC Board of Governors Energy and Sustainability Policy, visit http://extranet.cccco.edu/Portals/1/CFFP/Facilities/Cap_Outlay_Docs/3-1_energy_sustainability.pdf

6.2.2.2   *Electric and Gas Utility Incentives*

Districts can give their energy efficiency project economics a boost by applying for incentives through the California Community College/Investor Owned Utility (CCC/IOU) Energy Efficiency Partnership. For the 2010-2012 program cycle, Districts receive incentives for reducing annual energy use and are paid $0.24 per kWh and $1.00 per therm saved and can recover up to 80% of the project capital cost. Qualifying projects include energy efficiency retrofits, Monitoring Based Commissioning (MBCx), and energy efficient new construction (formerly known as Savings by Design). However, these incentive rates are only good for the current program cycle, which is scheduled to finish at the end of 2012 at the time of this Guidebook's publication. The CPUC and the utilities are currently evaluating the renewal of these incentive rates in the next program cycle planned for 2013-2014.

Outside of the CCC-IOU Partnership the IOUs also offer incentives through their "core" programs, and commercial and institutional customers can receive $0.09/kWh, $1/therm, and $100/peak kW reduced for up to 50% of the project cost of energy efficiency measures.

Learn more about the CCC/IOU Partnership at: http://cccutilitypartnership.com/ or contact the District's PG&E, SCE, SDG&E, or SCG Account Manager for more information.

6.2.2.3   *On-Bill Financing (OBF)*

On-Bill Financing is an IOU mechanism that enables colleges to finance energy efficiency projects with loans that are repaid through their utility bill. On-Bill Financing availability and terms vary between utilities, and colleges interested in On-Bill Financing should contact their IOU Account Manager to learn more.

6.2.2.4   Local Government Energy Efficiency Partnership

If an energy efficiency project reaches beyond the boundaries of the campus, Districts may be able to partner with local government to receive incentives through a Local Government Energy Efficiency Partnership with the IOUs, which are similar to the CCC/IOU Partnership.

6.2.2.5   Sustainable Communities Program

The IOUs also offer a Sustainable Communities program that provides technical services and other resources to assist local governments with the preparation of Climate Action Plans and GHG reduction efforts. In addition, the Statewide Energy Efficiency Collaborative (SEEC) is a partnership between the IOUs, the Local Government Commission (LGC), the Institute for Local Government (ILG), and ICLEI-Local Governments for Sustainability that also provides technical training and other resources for local governments to improve energy efficiency, reduce costs, and reduce GHG emissions. More information on the SEEC program can be found here: http://californiaseec.org/

6.2.2.6   Water and Wastewater Utility Incentives

Districts may be able to receive monetary incentives or other assistance for reducing water use and waste water disposal through their local water utility and waste water district. Districts should contact the appropriate agencies to find more information about the incentives and other resources locally available to them.

6.2.2.7   Municipal Solid Waste Agency and CalRecycle

The local municipal solid waste agency or franchise waste hauler may be able to provide resources to assist in waste management, such as free composting, recycling collection bins, or other financial support. CalRecycle, the statewide Department of Resources Recycling and Recovery, provides free recycling starter kits with recycling bins to collect CRV beverage containers. To learn more about CalRecycle, see http://www.calrecycle.ca.gov/

6.2.2.8   Municipal Transit Agency

Where available, the local Municipal Transit Agency (MTA) may be able to provide financial or implementation assistance for programs that reduce single passenger vehicle ridership and reduce Vehicle Miles Traveled (VMTs) through public transportation, alternative transportation, and carpooling. Districts should contact their local MTA to find more information about resources locally available to them.

6.2.2.9   Government Grants

The availability of government grants is constantly changing. Districts can find more about federal and state grants available through the following websites, which consolidate the available grants from all government departments:

Federal Grants: http://grants.gov/
California State Grants: http://www.ca.gov/Grants.html

Districts may find it easier to handle grant paperwork when partnering with local governments or nearby colleges and universities.

6.2.2.10 State Energy Efficiency Loans

Colleges can also apply for other state and federal loans, such as the loans available through the California Energy Commission. At the time of this Guidebook's publication, the California Energy Commission was accepting applications for their 3% interest loan for energy efficiency and renewable energy projects. The repayment schedule is up to 15 years and will be based on the annual projected energy cost savings from the aggregated projects. Colleges are eligible to apply for this loan, and more information can be found on their website at: http://www.energy.ca.gov/efficiency/financing/index.html

Colleges can also explore options like Energy $mart, which is a financial marketplace opened by the California Department of General Services designed to make financing energy transactions easier. Through Energy $mart, participating lenders can offer financing options that meets all the requirements of a competitively bid process. At the time of publication, however, no lenders are participating due to the state budgetary crisis, though this may change in the future.

To learn more about Energy $mart, visit the California Department of General Services website at: http://www.dgs.ca.gov/pd/Programs/StateFinancialMarketplace/Energy.aspx

6.2.2.11 Certificate of Participation (COP)

Instead of issuing a bond, colleges can fund projects via Certificates of Participation (COPs), which allow would-be bond buyers to instead purchase a share of the ownership in the construction or capital improvement. The college would then lease the investor's ownership and may installment payments to the lease. When construction is finished, the college assumes full ownership of the completed project. This mechanism is mostly used by municipal governments or other government entities when there is a debt ceiling, though community colleges are also able to use COPs to fund large projects.

6.2.2.12 Student Fees or Financing

In some cases, the student body may wish to finance sustainability projects through fees imposed on students or through fundraising efforts. These would generally be smaller programs or projects but may be well suited to recycling efforts, on-campus food growing, or carpooling efforts, or other projects that directly benefit the student body.

6.2.2.13 Foundation for California Community Colleges (FCCC)

The Foundation for California Community Colleges (FCCC) supports the CCCs by developing programs and services available to all of the Districts. An example of the services provided by the FCCC is the system-wide FUSION database, which tracks information gathered from facilities assessment, scheduled maintenance, and new construction projects and is used for planning, reporting, and tracking. Current efforts are underway to combine the FUSION database, sophisticated Building Integrated Management (BIM) tools, and energy efficiency evaluations in a way to help Districts better plan for sustainability. For more information about the FCCC, visit http://www.foundationccc.org/

6.3   EFFECTS DIFFICULT TO QUANTIFY

In addition to the financial costs and benefits, Districts should evaluate the effects of sustainability projects that are difficult to quantify but can have significant benefits and make a difference in the desirability of a project.

Sustainability measures can *improve the local, regional, or global environment*. Certain actions, such as reducing vehicle idling, can help improve the air and water quality close to the campus, while carpooling and energy efficiency can improve the air and water quality on a regional scale by reducing highway traffic and power plant emissions, respectively. A District's actions can have global impacts when, for example, the campus reduces consumption from unsustainably harvested and manufactured materials, or sources materials and supplies locally rather than internationally to reduce transportation greenhouse gas emissions.

Improving air quality has *positive health effects* on the larger population. Ozone in the local environment is detrimental to human health, has been tied to increased asthma rates, and is created from tailpipe pollutants and power plants. More information on the health impacts of ozone and asthma can be found on the US EPA website here: http://www.epa.gov/apti/ozonehealth/effects.html

Sustainable practices can *create green jobs* by directly creating a need for skilled labor and specialists in the industry. As the green economy grows, costs for green technology will continue to decrease and further contribute to the growth of the industry and creation of additional green jobs. *Community Colleges are natural incubators for skilled employees for the green economy* and can create curriculum to fill this vital need.

Sustainability projects can often bring *good publicity* to the campus and can *increase a District's attractiveness* to potential students, new staff, and the surrounding community. Districts known for success in sustainability may also find it easier to secure external funding for future projects.

Finally, as an academic institution, Districts should consider the *impacts on classroom and research activities* while the projects are being implemented and explore any possible synergies with curriculum development. Additionally, improvements in the energy systems of a building, which can reduce noise and indoor air pollutants and increase thermal comfort, and increased daylight in a building *can improve comfort and productivity of students and employees*. More details on the impacts of green buildings on

productivity can be found in a report published by the National Academic Press and available at
http://www.nap.edu/catalog.php?record_id=11756

6.4 RISK MANAGEMENT AND MITIGATION

Implementing sustainability projects can also be an effective risk management strategy. For example, by taking early action on GHG reductions a District can *reduce litigation risk* associated with California Environmental Quality Act (CEQA) challenges to Master Planning activities and will be better poised to meet any future AB-32 regulatory requirements that arise. Several local governments have already experienced CEQA challenges from the State of California resulting from inadequate GHG reduction strategies associated with city General Plans.

Reducing energy consumption *reduces campus exposure to fluctuating electricity and natural gas prices,* which can be seen from the historical electricity and natural gas prices shown at the beginning of this section. Districts in areas that experience droughts and water shortages will be able to more easily adapt to mandated conservation requirements and reduce or avoid penalties imposed for excessive water use.

Finally, improved health and safety from sustainability projects may reduce litigation risk from student and faculty exposure to dangerous or unhealthy conditions.

IMPLEMENTATION PROGRAMS AND PROJECTS

This section of the Sustainability Plan Guidebook outlines the different programs and projects that can be implemented to achieve the District's sustainability goals. This list is intended to be a starting point for planning, and individual Districts are encouraged to select those elements that meet the goals and priorities established in Section 5. This list is not all-inclusive, and Districts are encouraged to think innovatively to identify projects that may not have been addressed here but suit the District's unique circumstances and needs. However, Districts should filter, prioritize, and select programs and projects for implementation that best meet their goals while taking into account the budget and resource constraints of the campus. The programs and projects listed in this section are grouped into the subsections indicated below:

    7.1   Management and Organizational Structure
    7.2   Energy Efficiency
    7.3   Facilities Operation
    7.4   Sustainable Building Practices
    7.5   On-Site Generation and Renewable Energy
    7.6   Transportation, Commuting, and Campus Fleet & Travel
    7.7   Water, Wastewater, and Sustainable Landscaping
    7.8   Solid Waste Reduction and Management
    7.9   Green Purchasing
    7.10 Student and Curriculum Development
    7.11 Campus and Community Outreach & Awareness
    7.12 Create a Climate Action Plan
    7.13 Other Programs and Projects

For each selected Program and Project, the District should prepare a Sustainability Action Plan that identifies specific steps, timing, responsibilities, and outcomes for implementation. An Implementation Programs and Plans Checklist and a Sustainability Plan Document Template that corresponds to the projects and programs in this section has been created to assist campuses with this effort and are described in Section 8.

7.1 MANAGEMENT AND ORGANIZATIONAL STRUCTURE

7.1.1 PROGRAM GOALS

In order to implement an effective Sustainability Plan, it is important for a District to have a policy mandate for sustainability, the institutional structure required to manage the process, and the financial and technical resources to accomplish the plan goals.

7.1.2 IMPLEMENTATION PROGRAMS AND PROJECTS

The following implementation programs should be considered by the District to meet this goal:

7.1.2.1   *Adopt a District Sustainability Policy*

The District should demonstrate its commitment to environmental, fiscal, and social sustainability by adopting a Board of Trustees policy that provides a mandate to develop and implement a Sustainability Plan.   This policy should articulate the mission, vision, and goals of the Board of Trustees and authorize the campus community to develop the necessary plans, programs, and actions necessary to achieve them.

7.1.2.2   *Appoint a Sustainability Coordinator and Establish an Office of Sustainability*

Implementation of a Sustainability Plan will require time, effort, continuity, and leadership. It is important to establish the management and support infrastructure to meet these needs. This can be fulfilled by appointing a Sustainability Coordinator to work with staff, faculty, students, and community organizations to identify, implement, and monitor the sustainability efforts at the District. Additional support for sustainability efforts on campus can be enhanced by establishing an Office of Sustainability. The duties of the Sustainability Coordinator and the Office of Sustainability should include the following:

7.1.2.2.1   *Manage the Process*

A comprehensive Sustainability Plan will require coordination of activities and action plans, meeting schedules and deliverables, delegating responsibility, and managing internal and external resources to accomplish the goals of the program. Appointing an individual with the responsibility, authority, and accountability to manage this process will be critical for its success.

7.1.2.2.2   *Champion for Sustainability Projects*

Large projects, particularly those that span a long period of time, require an enthusiastic individual to follow through with efforts. The Sustainability Coordinator should be passionate about sustainability and be excited about working towards District goals despite potential financial, political, and logistical difficulties.

7.1.2.2.3   Point of Contact

Sustainability often begins at the grassroots level, and sustainability efforts can often be sporadic and lack coordination without designated leadership. The Sustainability Coordinator can serve as a main point of contact for sustainability efforts at the campus and help grassroots projects gain the critical mass required for long term success.

7.1.2.2.4   Qualities and Credentials

When hiring a Sustainability Coordinator, Districts should look for candidates that have an environmental related undergraduate degree and relevant work experience. It is recommended that a Sustainability Coordinator have 3-5 years of relevant experience, while a more senior position, such as a Sustainability Director, have 5 or more years of experience.

The Sustainability Coordinator should be familiar with all aspects of sustainability but should be specialized in at least one aspect, such as energy efficiency. Project management skills are necessary since the District will be undertaking many projects to reach their goal. It is even better if the candidate has had experience with undertaking sustainability or climate action planning in the past.

Most importantly, the Sustainability Coordinator needs to be able to communicate effectively with different groups of people of different technical backgrounds and should have experience in managing stakeholder processes and expectations.

The Campus Consortium for Environmental Excellence published *A Practical Guide to Hiring a Sustainability Professional for Universities and Colleges*, which includes more information about desired qualities and includes case study job descriptions. The guide, which was created in 2006, can be found here:
http://www.c2e2.org/sustainability_guide.pdf

Current information on credentials, experience, and salaries of sustainability staff at colleges and universities can be found in the Association for the Advancement of Sustainability in Higher Education's *Higher Education Sustainability Staff Survey*, published in 2010. This survey can be found here:
http://www.aashe.org/files/2010_staffing_survey_final.pdf

7.1.2.3   Appoint a Campus Sustainability Committee

A Campus or District Sustainability Committee should consist of staff, students, faculty, and community members and should be designed to provide a broad perspective on sustainability programs and activities at the campus. The Committee may or may not have authority over plan implementation, but at a minimum should provide input and recommendations regarding performance of plan activities and play an advisory or management role in the process. More

information on the advantages of establishing a Sustainability Committee is provided in Section 4.

7.1.2.4   Funding and Resources to support Sustainability Activities

Develop a funding plan and budget for the implementation of sustainability plan activities. Sources of funding may be from internal District budgets or from grants, endowments, or other campus fundraising activities or revenue streams.

Additional funding and technical or programmatic resources may come from local or state agencies, the local government, the local water and wastewater agencies, local transportation planning agencies, and the IOUs.   More information on project funding can be found in Section 6.

7.1.2.5   Employ Sustainability Professionals as Required

Many of the projects identified in the plan may require a level of technical or programmatic expertise not available among District personnel. Where appropriate, specialists should be hired to assist in the design and implementation of energy projects to ensure project success.

Ensure that the individual or company being hired has past experience that is relevant to the project for which they are being hired. Experience working with other CCCs is also a plus.

7.1.2.6   Consider Sustainability in Endowment Investments

Districts with endowments should take into consideration the sustainability and social equity of campus investments. The District should also increase transparency in their endowments and make the list of investment holdings available and accessible to the school community. The District should provide ways for the school to exercise its shareholder rights and involve stakeholders in the investment advisory process. Proxy voting records should also be made available to the school community.

For more information on sustainability in endowments, see *Integrating Environmental, Social, and Governance Issues Into Institutional Investment* by the Responsible Endowments Coalition at http://www.endowmentethics.org/component/jdownloads/finish/3/5/0

7.1.2.7   Integrate Sustainability Planning into Campus Master Plan

Campus master plans and sustainability planning should go hand in hand. All sustainability projects identified through this process should be incorporated in new facility master plans.

7.2 ENERGY EFFICIENCY

7.2.1 PROGRAM GOALS

Energy efficiency is one of the most cost effective ways to reduce District energy use and its carbon footprint. When implemented properly, efficiency measures can decrease energy use without compromising comfort and can improve indoor air quality and enhance student, faculty, and staff performance. Energy efficiency should be a higher priority than renewable energy due to more favorable economics and to avoid over-sizing renewable energy systems.

The chart below illustrates a comparison of the cost effectiveness of energy efficiency to power generation.

U.S. Levelized Cost of Electricity (cents per kWh, 2011 $)

Technology	Cost
Energy Efficiency (EE)	2.5
Photovoltaics	14.0
Concentrating Solar Power	13.5
Biomass Combustion	9.5
Geothermal	7.5
Wind	6.0
Biomass Co-Firing	4.5
Landfill Gas	3.5
Hydropower	2.0
Nuclear	9.5
Coal	7.5
Natural Gas	6.0
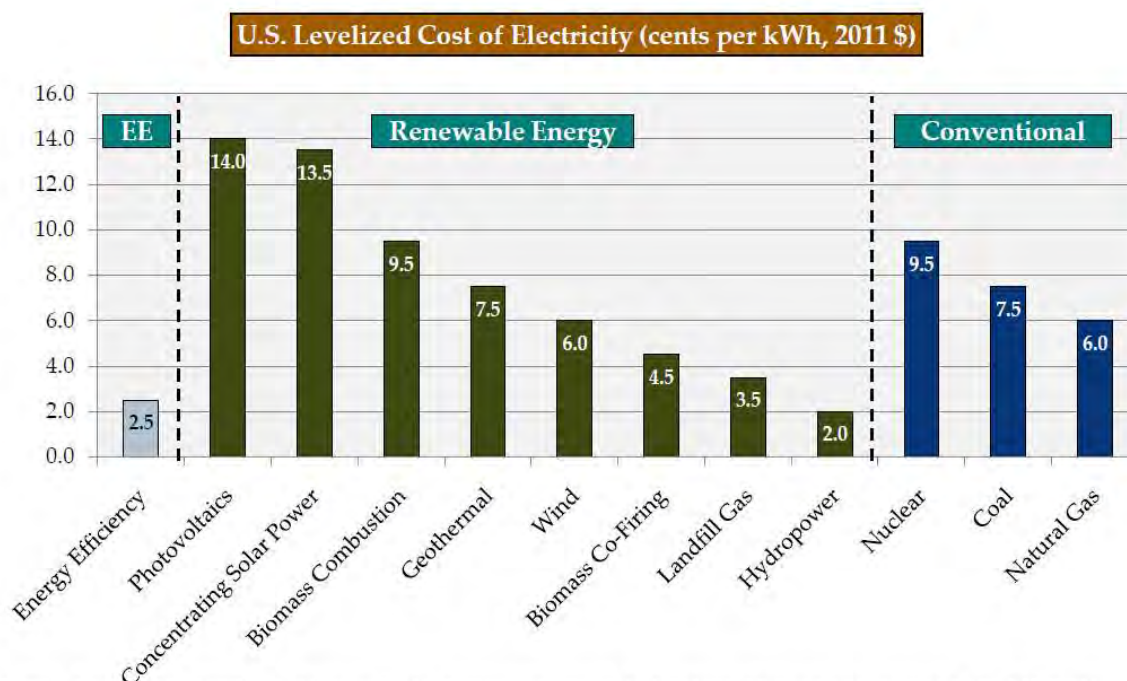
Notes: Assumes Federal incentives only. CSP assumes trough technology. Natural gas price of $4.57/MMBTU
Sources: Navigant Consulting, Inc. 2011; Geothermal: Installed Cost: $5/W, Capacity Factor: 80%, ITC: 10%

These costs do not account for externalities, such as health costs, pollution costs, and costs incurred from environmental damage and cleanup.

7.2.2   IMPLEMENTATION PROGRAMS AND PROJECTS

The following Energy Efficiency Implementation Programs and Projects should be considered by the District.

7.2.2.1   Set Energy Efficiency Goals

Establish energy use reduction goals for the District or campus. These goals should be to reduce energy use above and beyond what is required by the California Title 24 Energy Code and can be set by each campus based on their desires and capabilities. For example, goals could be set to exceed Title 24 by at least 20% for new construction projects. All major renovation projects could strive to reduce existing energy use by at least 10% or to exceed Title 24 Standards by at least 10%. See Section 5 for more details about setting appropriate goals.

7.2.2.2   Evaluate Mechanisms for the Implementation of Energy Efficiency Projects

Evaluate various mechanisms for the identification and implementation of energy efficiency projects and programs, including the use of in-house staff, engineering consultants, contractors, and performance contracting vehicles through Energy Service Companies (ESCOs).

7.2.2.3   Conduct a Facility Prioritization Survey

Conduct a prioritization survey of all facilities managed by the District. The surveys can be used to establish priorities for conducting comprehensive facility energy audits. Buildings should be prioritized based on energy use intensity (EUI) (i.e. electricity and natural gas use per gross square foot per year), with buildings with the highest energy use intensity given highest priority. Where metered data does not exist, those buildings that are believed to be high energy users by District staff should be targeted first. Complex buildings such as those with laboratory fume hoods are often good candidates for energy savings. The surveys should include leased facilities to the extent practicable and to the extent that the recommendations of such surveys and audits can be implemented under the terms of the lease.

7.2.2.4   Conduct Comprehensive Facility Energy Audits

An Energy Efficiency auditing plan should consist of the following elements:

1. The District should develop and begin implementing a long term plan to conduct or obtain comprehensive facility energy audits, which can be based on prioritization surveys.
2. The District should conduct energy audits for approximately 20% of their facilities each year, beginning within 6 months of the establishment of the District's Sustainability Plan. This can be carried out either independently using public agency resources, through Energy Savings Performance Contracts, state programs such as the California Energy Commission Technical Assistance program, or utility energy-efficiency service contracts.

3. Comprehensive audits of facilities performed within the last 3 years may be considered current for the purposes of implementation.
4. "No-cost" audits should be utilized to the extent practicable.
5. The level of details and energy savings calculations should be that of an ASHRAE Level II audit. An ASHRAE Level II audit includes an analysis of energy use at a facility and identifies no-cost, low-cost and capital improvement energy efficiency measures with detailed energy and financial calculations.

7.2.2.5   *Implement New and Existing Audit Recommendations*

Within 90 days of the completion of the comprehensive facility audit of each facility, the District should begin implementing cost-effective recommendations for installation of energy efficiency and renewable energy technologies. The District should also do the same for energy audits of facilities performed within the past 3 years. In making decisions about investments in energy efficiency and renewable energy projects, the District should use life-cycle cost analyses, targeting projects with low and no additional life cycle costs first. Savings from low and no-cost measures can be used to support projects requiring more capital investment. Where appropriate, the District should consider the life-cycle costs of combinations of projects, particularly to encourage the bundling of energy efficiency projects with renewable energy projects.

7.2.2.6   *Implement Ongoing Energy Monitoring*

For campus facilities believed to be major energy users, which are likely to be the larger buildings on campus or those with technical areas like laboratories and shops, the District should install permanent meters on all energy inputs (e.g. electricity, natural gas, chilled water, hot water) to allow for continuous energy monitoring and evaluation of the impact of efficiency projects. If a central plant system is installed at the campus, the District should include metering and monitoring of hot and chilled water circulation from the plant as appropriate. Metering should be connected to energy management systems (EMS) to aid in the monitoring and analysis of energy use.

7.2.2.7   *Participate in Demand Response (DR) Programs*

Participate in all utility offered Demand Response (DR) programs and pursue incentives offered by these programs, where appropriate. For more information on utility demand response programs go to: http://www.cpuc.ca.gov/PUC/energy/Demand+Response/ or contact your utility Account Manager.

7.2.2.8   *Identify and Take Advantage of Grant and Incentive Programs*

Identify and take advantage of all grant and incentive programs available for energy efficiency and conservation projects, including the Community College Energy and Sustainability Policy incentive of 2% for new construction and 3% for modernization projects. The District should strive to be an active participant in the CCC/IOU Energy Efficiency Partnership program, which

offers monetary incentives for energy savings. See Section 6 for more details on funding opportunities.

7.2.2.9   Energy Efficient Equipment

Purchase and utilize energy efficient equipment whenever possible. Employ the following strategies to accomplish this goal.

7.2.2.9.1   Establish an Energy Efficiency Purchasing Policy

Establish a District-wide policy for all purchases of energy-using equipment, stipulating where life-cycle cost-effective, energy efficient products will be selected. Products with an ENERGY STAR® label are certified to not only be energy efficient but to also have a reasonable payback period, and ENERGY STAR® labeled equipment should be purchased whenever available. For product groups where ENERGY STAR® labels are not yet available, the District should select products that are in the upper 25% of energy efficiency for their respective product categories. The District should incorporate energy efficient criteria consistent with ENERGY STAR® and other designated energy efficiency levels into all guide specifications and project specifications developed for new construction and renovation, as well as into product specification language developed for Basic Ordering Agreements, Blanket Purchasing Agreements, and all other purchasing procedures.

7.2.2.9.2   Efficient Lighting and Lighting Controls

Install current generation of energy efficient lighting and lighting controls for interior and exterior applications. Energy efficient lighting technologies include low-wattage linear fluorescent lights, compact fluorescent lights, LEDs, and induction lighting. Examples of lighting controls include occupancy sensors, photocell installations for turning off lights when there is enough daylight, and time clocks for scheduling lights on and off automatically.

7.2.2.9.3   Install Energy Efficient HVAC Systems

In addition to buying energy efficient air conditioners, chillers, and boilers, the District should further increase the energy efficiency of their HVAC systems by pursuing the following measures.

Install Economizers

Air-side economizers can be added to allow the use of "free cooling", which is to use outside air to ventilate the building when outside air temperatures are favorable. Air-side economizers can be installed on both package units and buildings with central plants. While most Districts do not have central plants, those that do can install waterside economizers to further reduce chiller use.

Enhance Control of Equipment

Installing variable frequency drives (VFDs), also known as variable speed drives (VSDs), on HVAC fans and pumps can save a significant amount of energy, as fans and pumps use more energy at higher speeds. VFDs are most effective when incorporated into an EMS for better control but can also be locally controlled if needed.

Managing Plug Loads

"Plug Loads" are energy consuming equipment that draws electricity from a wall socket. Examples of plug loads include computers, printers, refrigerators, and space heaters. Manage plug loads by activating any energy saving features on your plug load equipment and by using occupancy sensor plug load shut-off devices, such as occupancy sensed power strips.

Appropriately Size Equipment

Oversized equipment can waste energy by using more power than needed to meet the need. Ensure that all equipment is sized appropriately for its load or has the ability to ramp down through controls instead of cycling on and off repeatedly when loads are low.

Reduce Unnecessary Heat Gain and Loss

Avoid unnecessary cooling and heating by reducing unwanted heat gain or loss. Examples of unwanted heat gains in buildings can be prevented by shading south and west facing windows or by "cool roofing" strategies and painting roofs white. Prevent unwanted heat loss in pools by using pool covers to reduce heat loss from pools, thereby reducing boiler usage.

Perform Regular Maintenance on Equipment

Effective preventive and regular maintenance programs keep equipment and systems operating optimally and reduce excess energy use. Set up a routine maintenance schedule to ensure proper maintenance is performed.

Replace equipment with energy efficient models

As old equipment is taken offline, replace it with energy efficient models. See Program 7.2.2.9.1: Establish a Purchasing Policy, above, for more guidelines.

7.3 FACILITIES OPERATION

7.3.1 PROGRAM GOALS

In addition to installing energy efficient equipment, Districts should strive to operate high-performing facilities, buildings, and energy infrastructure systems that are optimized for inhabitant comfort, productivity, and energy and resource efficiency.

7.3.2 IMPLEMENTATION PROGRAMS AND PROJECTS

The following implementation programs should be considered by the District to meet this goal:

7.3.2.1 *Encourage and Support Energy Efficiency Training of Staff*

Districts should encourage campus staff to become trained in energy efficiency and offer support by paying for certification and class fees. Staff can take classes at the IOU energy centers or go through Building Operator certification, a nationally recognized program. For more information, visit: http://www.theboc.info

7.3.2.2 *Install Energy Management Systems*

Maximize use of computerized EMS to provide centralized reporting and control of campus energy related activities. The campus staff should strive to achieve optimum efficiency in the use of natural gas, electricity, or other energy resources to meet the heating, cooling, and lighting needs of the buildings and/or facilities. Except for areas requiring special operating conditions, such as electronic data processing facilities, or other scientifically critical areas, where rigid temperature controls are required, building and/or facility temperatures should be controlled to fluctuate between the limits stated below.

7.3.2.3 *Adjust Temperature Set Points and Schedule Operating Times*

Avoid overcooling and overheating by raising cooling temperature set points and lowering heating temperature set points. If there is a central plant on campus to meet the heating and cooling needs, implementing supply air temperature resets, chilled water and hot water resets, and chilled water and hot water set point changes can help avoid wasting energy during milder weather.

Districts should heat buildings at or below 68°F and cool facilities at or above 78°F in order to avoid excess heating and cooling. In order 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 or by specialized needs of equipment or scientific experimentation.

7.3.2.4 Optimize Building Occupancy Scheduling

Scheduling of building and/or facility usage should be optimized consistent with the approved academic and non-academic programs to reduce the number of buildings operating at partial or low occupancy. To the extent possible, academic and non-academic programs should be consolidated in a manner to achieve the highest building utilization. Furthermore, the scheduling of buildings should be implemented in a manner to promote individual building air conditioning system shutdown to the greatest extent possible during the weekend and other holiday periods. If possible, four day workweeks and class schedules can also be utilized to reduce energy use in buildings. Campus staff should make all attempts to change or update building operating schedules to match the changes in the academic programs on a continuing basis.

7.3.2.5 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.

Avoid cooling and heating spaces when unnecessary. This can be done 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. If there is a central plant on campus, scheduling lockouts for chillers and boilers can be used to avoid running this equipment when unneeded.

7.3.2.6 Activate Energy-saving Features for Appliances and Computers

Activate energy-saving features on all appliances and computer equipment, for example, power-saving modes on PCs, copiers, printers, and other office equipment. Install server and desktop virtualization and PC power management systems to reduce computer energy use.

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

For buildings or central plant systems that are determined to be high energy users, the District should install whole-building energy metering and a Monitoring-based Commissioning (MBCx) process should be implemented. Monitoring-based Commissioning is a process that optimizes building performance for comfort and energy use. Retrocommissioning (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

7.4   SUSTAINABLE BUILDING PRACTICES

7.4.1   PROGRAM GOALS

Construction and renovation of new and existing facilities provides a significant opportunity to reduce the environmental impacts of the built environment through sustainable building practices. The District should incorporate energy and resource efficient "Green Building" practices in the design and construction of all new and renovated facilities.

7.4.2   IMPLEMENTATION PROGRAMS AND PROJECTS

The following implementation programs should be considered by the District to meet this goal:

7.4.2.1   *Establish a Green Building Standard*

Green Building Standards for new construction and renovation projects should be adopted based on Best Practices, industry standards, professional organizations, or other institutions of higher learning (UC, CSU, or CCC). All new construction and major remodeling projects should be designed to achieve at least a U.S. Green Building Council Leadership in Energy and Environmental Design (LEED) Silver rating or equivalent performance. For more information about LEED ratings, visit http://www.usgbc.org/DisplayPage.aspx?CMSPageID=222

7.4.2.2   *Implement Sustainable Design Practices*

All District new construction, renovation, maintenance, and repair projects should be designed with consideration of optimum energy utilization, low life cycle operating costs, and compliance with the District's goals and all applicable energy codes and regulations. Energy efficient and sustainable design should be addressed early in the project planning and design phases to maximize cost effectiveness and should be considered in balance with the academic program needs of the project. The following elements should be considered in the design of all buildings for the District:

- Siting and design considerations that optimize local geographic features to improve 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
- Optimization of layout and design of spaces to accommodate reconfiguration, with the expectation that the facility should be renovated and re-used (versus demolished)
- Systems designed for optimization of energy, water, and other natural resources
- Designed to maximize natural daylighting and ventilation
- Optimization of indoor environmental quality for occupants
- Utilization of environmentally preferable products and processes, such as recycled content materials and recyclable materials
- Procedures that monitor, trend, and report operational performance

- Space should be provided in each building to support an active program for recycling and reuse of materials
- Design outdoor spaces to minimize parking lots, use permeable pavement, and avoid blacktopping pavement and plant trees to shade parking lots to prevent the heat island effect. Utilize sustainable landscaping practices
- Any energy-using equipment acquired for the furnishing of new and renovated buildings should be ENERGY STAR® rated or equivalent in accordance with the purchasing policy adopted by the District

For more green building resources, visit http://campusgreenbuilder.org

7.4.2.3   *Use an Integrated Systems Approach in Building Design*

Sustainable building goals should be evaluated in a cost effective manner by identifying economic and environmental performance criteria, evaluating life cycle savings, and adopting an integrated systems approach. Such an approach treats the entire building as one system and recognizes that individual building features, such as lighting, windows, heating and cooling systems, should be evaluated and designed as interactive systems.

7.4.2.4   *Hire Sustainable Building Design Professionals*

The District should consider utilizing architectural firms, consultants, and energy engineers experienced in all phases of the sustainable building design process to assist in constructing energy and resource efficient buildings. The District should take advantage of the IOU-provided energy efficiency new construction design programs, such as Savings by Design.

7.4.2.5   *Commission New Buildings*

All new buildings should be commissioned after construction to ensure that systems were installed and operating as designed. Individual systems should also be commissioned to ensure that they run as efficiently as possible.

7.5   ON-SITE GENERATION AND RENEWABLE ENERGY

7.5.1   PROGRAM GOALS

The District should develop a strategic plan for the reduction of demand on the electricity grid via the installation of economically feasible renewable and on-site power generation, as well as the procurement of electricity from renewable sources. Renewable generation implementation should occur only after significant efficiency and conservation plans have been implemented to ensure that any self-generation or demand response programs or projects are sized appropriately.

7.5.2   IMPLEMENTATION PROGRAMS AND PROJECTS

The following implementation programs should be considered by the District to meet this goal:

7.5.2.1   *Evaluate Clean Cogeneration and Renewable Energy Generation*

Evaluate and implement cogeneration projects, such as cogeneration powered by renewable resources like biomass and landfill gas, and renewable energy generation technologies in order to reduce greenhouse gas emissions and to improve campus energy efficiency, utility reliability, and service diversity. Evaluate the feasibility of solar photovoltaic (PV) systems, wind power, solar thermal water heating for pools and domestic use, biomass and biogas generation, fuel cells, wind energy, and geothermal heat pumping applications.

7.5.2.2   *Evaluate Load Shifting Technologies*

Evaluate load shifting technologies, such as Thermal Energy Storage (TES), to reduce HVAC energy and power consumption during peak hours. Participate in IOU-provided Demand Response (DR) programs. For more information about DR programs, see section 7.2.2.7.

7.5.2.3   *Minimize Greenhouse Gas Intensity of Purchased Electricity*

Where direct access to energy providers is permitted by law, the District should consider the source of the electricity and strive to minimize the greenhouse gas intensity of purchased electricity. The District should include provisions for the purchase of electricity from renewable energy sources as a component of their requests for bids whenever procuring electricity and evaluate any climate change mitigation programs offered by providers. The District should strive to exceed the State of California RPS in procuring energy. The District should set more aggressive renewable energy purchasing goals than the statewide RPS and set a long term goal to only use and purchase renewable energy.

7.5.2.4   *Evaluate Participation in Community Choice Aggregation*

Evaluate participation in Community Choice Aggregation (CCA) efforts if available with the District's local city and/or county. CCA permits public agencies to aggregate the electric loads of residents, businesses, and facilities to facilitate the purchase and sale of electrical energy. CCA Programs usually have higher RPS than the investor owned utilities. For example, CleanPowerSF, the San Francisco CCA Program, aims to be 51% renewable energy by 2017, which is almost double the statewide RPS of 33% renewable energy generation.

For the CCA Programs currently available, visit:
http://www.cpuc.ca.gov/PUC/energy/Retail+Electric+Markets+and+Finance/070430_ccaggregation.htm

Many other cities and counties are currently evaluating the feasibility of a CCA program.

7.5.2.5   *Identify and Take Advantage of Grant and Incentive Programs*

Identify and take advantage of all grant and incentive programs available for self generation or renewable energy through the local utilities. See Section 6: Economics of Sustainability for more details.

7.6   TRANSPORTATION, COMMUTING, AND CAMPUS FLEET & TRAVEL

7.6.1   PROGRAM GOALS

The District should strive to reduce Vehicle Miles Traveled (VMT) for both students and employees commuting to the campus in an effort to reduce greenhouse gas emissions and minimize the infrastructure costs related to parking. The District should also work to improve the efficiency of its vehicle fleet both in areas of technology and fuels.

7.6.2   IMPLEMENTATION PROGRAMS AND PROJECTS

The following implementation programs should be considered by the District to meet this goal:

7.6.2.1   *Understand Commute and Travel Patterns*

A first step for improving commute and travel patterns is to get a better understanding of how students, faculty, and staff get to the campus. This can be done through commuter surveys, which should be made to be quick and easy to fill out online in order to maximize the number of responses received. Small prizes can also help incentivize filling out commuter surveys. Data can also be collected from existing databases of addresses of those who have purchased parking passes, though certain assumptions will need to be made about how often people carpool or take alternative transportation, which can be approximated with feedback from the commuter survey.

For more information on commuter and travel data collection and some example commuter surveys, visit http://www.aashe.org/blog/guidance-scope-3-emissions-pt-1-commuting

7.6.2.2   *Encourage and Enhance Public Transportation and Ridesharing Options*

Public transportation and ridesharing are two options to reduce VMT's and resulting greenhouse gases. The District should employ the following strategies to accomplish this goal. Reducing single occupancy vehicles also offsets the need to build new parking, which is expensive.

7.6.2.2.1   *Utilize the local MTA Programs*

The local Metropolitan Transportation Authority (MTA) may offer programs and best practices to help encourage and enhance public transportation ridership and to facilitate carpooling and ridesharing with the public. Contact the local MTA to explore the programs available to the District.

7.6.2.2.2   *Increase Awareness*

The District should work to increase awareness of public transportation and ridesharing options with faculty, staff, and students. A prime time for introducing alternative commuting options is at the beginning of the year, when student ride habits have not yet been established.

7.6.2.2.3   *Facilitate Public Transit Use*

The District should provide links between transit hubs and campus. This can be done by setting up a shuttle system or working with the local bus service provider to create effective routes to encourage public transit use. The routes should be based on campus input on where links are most needed and an analysis of where commuters can make the most out of public transportation, which can be done through commuter surveys or by using existing data, such as home address zip codes.

7.6.2.2.4   *Incentivize Public Transportation and Carpooling*

The District should incentivize public transportation and carpooling through financial and other incentives. This can be done through subsidizing public transportation by paying for rider passes and providing free or premium parking spaces for carpools. In addition, Districts can discourage single vehicle ridership by charging more for single occupancy vehicle parking. Districts should also provide methods for employees to save on their commuting by offering programs like commuter checks, which allows commuters to use pre-tax salary dollars to purchase public transportation passes.

7.6.2.2.5   *Facilitate Ridesharing*

Provide a networking resource to assist in finding compatible carpoolers and vanpoolers. The District can also facilitate ridesharing by offering programs such as free emergency rides to assist carpoolers when personal emergencies arise for themselves or their ride. Districts can consider third-party ridesharing programs such as ZimRide to facilitate ridesharing options, which can increase safety and reliability by limiting the network to only students, faculty, and staff of the District and partner Districts. Parking pricing policies could also be considered, for example, providing free or discounted parking charges to carpools.

7.6.2.2.6   Facilitate Car Sharing

Work with car share providers, such as Zipcar, to explore potential demand for car sharing programs, which can reduce new vehicles purchased and encourage users to consider public transportation options.

7.6.2.2.7   Encourage Fuel Efficient Vehicles for Commuters

The District should encourage fuel efficiency for vehicles used for commuting by students, faculty, and staff by employing the following means.

Provide Priority or Discount Parking for Fuel Efficient Vehicles

The district should provide priority or discount parking to vehicles that meet a minimum fuel efficiency standard.

Provide Electric Vehicle Charging Stations

Electric vehicle charging stations should be installed in premium parking locations at the campus. Modern charging station systems can also become a revenue source for campus by charging fees for users.

7.6.2.3   Encourage and Enhance Bicycling Options

The District should work to improve bicycle commuting options at the campus as well as bicycle circulation throughout campus by employing the following strategies.

7.6.2.3.1   Install Bike Racks and Bathroom Facilities with Showers

Encourage bicycling by providing secure storage for bikes. Help bike commuters overcome obstacles related to bicycling. For example, provide bathroom facilities with showers and changing rooms for those who bike to campus.

7.6.2.3.2   Increase Campus Bike Friendliness

Create a safe environment for bicyclers and pedestrians by adding bike lanes, employing "traffic calming" techniques to slow down traffic and increase bike and pedestrian safety, and working with the local municipality on strategies outside the campus.

7.6.2.3.3   Facilitate Bike Sharing

Districts should consider starting a bike sharing program so individuals can easily bike around campus without having to buy their own bike. Districts can partner with the local community or other Districts to increase the success of bike sharing programs.

7.6.2.4   Improve Campus Fleet & Travel

The District should adopt programs to reduce emissions from the campus vehicle fleet and from campus business and education travel by implementing the following programs.

7.6.2.4.1   Reduce or Improve Petroleum Powered Vehicles and Equipment

Districts should adopt minimum fuel efficiency standards for new vehicles and retire the most inefficient vehicles first. Replace older fuel inefficient campus equipment, such as lawnmowers and leaf blowers, with more efficient models. Old and inefficient equipment should be retired permanently and recycled, not resold.

7.6.2.4.2   Purchase or Lease Alternative Fuel Vehicles

When adding or replacing vehicles in the campus fleet, purchase alternative fuel vehicles such as hybrid vehicles, electric vehicles, compressed natural gas, biodiesel, or purchase propane fueled equipment.

7.6.2.4.3   Facilitate Telecommuting & Virtual Meetings

Telecommuting can cut down carbon emissions by reducing the amount of travel to and from campus. Encourage employees to telecommute when appropriate. Additionally, the use of conference calls or video conferences avoids driving or flying to meetings. To make this successful, the District will need to provide the technology and technical support to assist adoption of this proven technology on campus.

7.6.2.5   Enhance Student Distance Learning

Districts should offer more distance learning classes via the internet, which cuts down travel to and from campus. It also increases accessibility of courses to more student demographics.

7.7 WATER, WASTEWATER, AND SUSTAINABLE LANDSCAPING

7.7.1 PROGRAM GOALS

Water conservation is an important component of sustainability and should be aggressively pursued by the District. The District should reduce water use as well as waste water discharges to both the sewer and storm water systems. In addition, the District should reduce waste water pollution by minimizing chemical fertilizers and pesticide use in association with landscaping practices.

7.7.2 IMPLEMENTATION PROGRAMS AND PROJECTS

The following implementation programs should be considered by the District to meet this goal:

7.7.2.1 *Establish Water Conservation Goals*

Much like energy efficiency goals, establish goals for the reduction of water consumption on campus.

7.7.2.2 *Implement Water Conservation Strategies*

The District should make water conservation a priority for environmental purposes as well as to avoid penalties for excessive water use from the local water and wastewater utilities by employing the following strategies.

7.7.2.2.1 *Utilize Water Conservation Programs from the local Water Utility*

The District should fully explore and implement appropriate conservation programs offered. Financial or technical assistance may be offered by the local water utility, especially in areas that suffer from regular water shortages.

7.7.2.2.2 *Rainwater Capture*

Rainwater capture and storage for non-potable use can be a viable water conservation strategy depending on local climate. There have been successful rainwater storage projects in arid zones such as southern California evidenced by the Los Angeles TreePeople Integrated Urban Watershed Management program. For more information on this program, see http://www.treepeople.org/how-capture-rainwater

7.7.2.2.3 *Connect to Reclaimed Water if Available*

Many sanitation and waste water agencies offer reclaimed or recycled water for non-potable uses. A major barrier to implementing this strategy is the lack of piping infrastructure to deliver reclaimed water to users. Districts should work with their local wastewater agencies and local governments to implement water reuse programs and infrastructure.

7.7.2.2.4   *Install Low Flow Water Equipment*

Install low flow water equipment such as toilets, sinks, showers, waterless urinals, or other low flow equipment to conserve water. Many local water agencies provide these devices for free to customers.

7.7.2.2.5   *Install Artificial Turf*

In dry areas where the reduction of water use is critical, install artificial turf on sports fields and other appropriate locations where water is used intensely to reduce water use and to eliminate the use of pesticides and chemical fertilizers.

7.7.2.3   *Reduce Storm Water, Sewer Discharges, and Water Pollution*

Storm water and sewer discharges are a prime source of pollutants entering the environment and place the campus at risk for fines or other regulatory penalties. The District should employ the following strategies to reduce these discharges.

7.7.2.3.1   *Raise Awareness to Reduce Discharges and Pollutants*

Ensure that staff, faculty, and students are aware of the detrimental effects of pollutants in storm water and sewer discharges. Reduce the level of chemicals, pharmaceuticals, and other hazardous substances that should not enter the sewage system. Use signage and work to educate the campus community that only rainwater should enter storm drains. Follow all regulations regarding sewer and storm drain discharges.

7.7.2.3.2   *Reduce Storm Water Runoff*

Utilize permeable paving, drainage swales, detainment ponds, and other methods as appropriate to minimize storm water discharges and soil erosion. If the soil is porous enough, the increased rainwater percolation can help recharge the local aquifer.

7.7.2.3.3   *Reduce Chemical Usage*

Avoid using chemical pesticides and fertilizers and adopt Integrated Pest Management practices (more information is provided under Sustainable Landscaping Practices).

7.7.2.4   Adopt Sustainable Landscaping Practices

Sustainable landscaping practices not only conserve water, but can contribute to achieving many other goals for sustainability. The District should employ the following sustainable landscaping strategies.

7.7.2.4.1   Adopt the "Bay Friendly Landscape Guidelines" or other sustainable landscaping guidelines

The Bay-Friendly Landscape Guidelines were developed by the Alameda County Waste Management Authority (www.stopwaste.org) for the professional landscape industry to offer an integrated approach to environmentally friendly landscape management. The guidelines are organized around seven principles for protection of the environment and are applicable statewide:

- Landscape locally
- Landscape for less to the landfill
- Nurture the soil
- Conserve water
- Conserve energy
- Protect water and air quality
- Create and protect wildlife habitat

The guidelines consist of 55 practices to fulfill these principles, which are applicable throughout the state. The program is comprehensive and may be used in total or selectively by the District to meet specific goals. The Bay Friendly Guidelines have been adopted by many of the jurisdictions in the San Francisco Bay Area and have proven to be effective and successful and can be found here: http://www.stopwaste.org/docs/bay-friendly_landscape_guidelines_-_all_chapters.pdf

7.8 SOLID WASTE REDUCTION AND MANAGEMENT

7.8.1 PROGRAM GOALS

The District should strive to minimize solid waste to reduce greenhouse gas emissions and landfill deposits. If designed effectively, minimizing solid waste can save the District money and create revenue streams that can be reinvested in the campus. The District should employ the principles of Reduce, Reuse, and Recycle in its solid waste reduction program.

7.8.2 IMPLEMENTATION PROGRAMS AND PROJECTS

The following implementation programs should be considered by the District to meet this goal:

7.8.2.1 Create Waste Reduction Goals

Develop a goal to reduce the waste stream and/or increase the waste diversion of readily recyclable and compostable materials. Both will require the District to regularly measure the amount and type of waste being land filled, recycled and composted. As an example, AB 341 establishes a statewide goal of 75% diversion of solid waste to landfills.

7.8.2.2 Maximize Programs Offered by Contracted Waste Hauler

The District should maximize programs offered by its contracted waste hauler. These may include recycling programs, green waste (such as yard trimmings) or food waste composting, and construction and demolition (C&D) recycling. Since there may be variations in programs offered by different haulers, the District may wish to issue an RFP that meets the sustainability goals of the campus and contract with a hauler that provides the desired services. It may be necessary for the District to employ multiple waste haulers in order to receive all of the different desired services.

7.8.2.3 Reduce the Waste Stream to the Landfill

The District can implement the following strategies to reduce the waste stream at the campus:

7.8.2.3.1 Raise Awareness of Waste Reduction

Educate the campus and local community about the benefits of waste reduction and proper disposal of materials, such as hazardous waste, including chemical wastes and electronic waste. Encourage recycling of all recyclable materials and promote composting of green waste and food waste.

7.8.2.3.2 Minimize Unnecessary Waste

Employ strategies to reduce unnecessary waste such as reducing junk mail and faxes, avoiding purchasing products with unnecessary packaging, avoiding immediately using new edition textbooks in courses where the textbook content

has changed very little, and utilizing air hand dryers rather than paper towels in restrooms. Encourage the use of electronic textbooks, and classroom material to reduce paper use.

For tips on how to reduce waste, including junk mail, visit: http://stopwaste.org/home/index.asp?page=1188

7.8.2.3.3   *Reduce Paper Use*

A major source of waste on campuses comes from paper usage. Reduce paper use by taking steps such as setting printers on double sided printing as a default, charging more for single sided printing than double sided printing, sending electronic publications and announcements rather than printing paper copies, limiting class handouts by distributing handouts online and allowing the student to print the handouts if desired, and encouraging the use of electronic and used textbooks as well as online homework and electronic testing.

StopWaste.org has developed a guide to reducing paper use in the office, titled *Paperless Express*, and can be located on their website here: http://www.stopwaste.org/docs/paperlessguide.pdf

7.8.2.3.4   *Minimize Use of Disposable Items*

Encourage the use of reusable items using incentives such as discounts for those who use reusable bags and coffee mugs and by discouraging the use of bottled water by providing adequate public drinking fountains.

7.8.2.3.5   *Facilitate Swap Shops and Flea Markets*

Set up swap shops and flea markets to facilitate reuse and implement policies for the donation of usable items, especially reusable classroom materials.

7.8.2.3.6   *Donate Reusable Goods*

Avoid sending functional items to the landfill by donating electronics, clothes, and other equipment to those in need. Establish a policy to ensure the donation of usable items.

7.8.2.3.7   *Support Producer Responsibility Programs*

Provide legislative and political support for producer responsibility programs as appropriate and desired by the District. Districts should consider purchasing from responsible providers by buying products from providers who are environmentally and socially responsible.

For more information, visit the California Product Stewardship Council website at: http://calpsc.org

### 7.8.2.4   Improve Existing Recycling Programs

7.8.2.4.1   Improve Source Separation of Recyclables

Increase the quality of recyclables by providing separate bins around campus to facilitate source separation of paper, plastic, bottles, cans, and hazardous waste like batteries to improve diversion rates and proper disposal.

7.8.2.5   Collect and Sell All Recyclable Material

Recyclable material can be a source of revenue for Districts. The sale of recyclable material can be used to fund other sustainability programs on campus. See Section 10: Best Practice Case Studies for an example of how Orange Coast College successfully manages their recycling plant.

Visit http://recyclemania.com or http://stopwaste.org for more information about successful recycling programs.
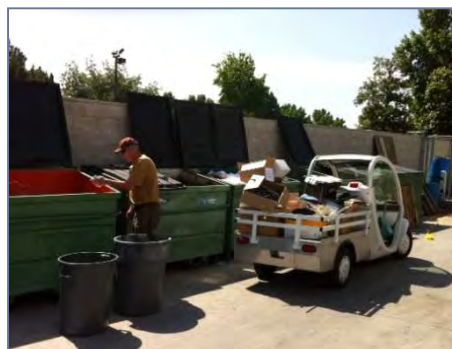
7.8.2.6   Green Waste and Food Waste Composting

Districts should further reduce their waste stream by participating in green waste and food waste composting. This can be done through on-site composting or by using services provided by a local waste hauler.

7.8.2.6.1   On-site Composting

Divert green waste, or yard clippings, and food waste and establish an on-campus composting program. If composting is done on site, the compost can be sold to local landscaping centers creating a revenue stream. However, campuses should be aware that on-site composting requires dedicated and trained personnel to manage the compost to avoid unwanted side effects, such as odors and mosquitoes, which can occur if the compost is not handled properly. The District should also ensure that they have adequate space for on-site composting before proceeding.

7.8.2.6.2   Third Party Green Waste and Food Waste Composting

In some areas, a waste disposal company may offer green waste and food waste collection services for the purpose of composting. Districts should explore the

services available to them, as the current waste management service provider may not provide all the desired services.

7.8.2.6.3   Provide Biodegradable Silverware and Dishware

When disposable silverware and dishware are needed, provide utensils and dishware made of compostable materials rather than plastic or Styrofoam. However, the ability of composting service providers to accept biodegradable plastics depends on the individual service provider, and it is strongly recommended that Districts contact their local composting service provider to ensure that the biodegradable silverware purchased can be composted locally. Biodegradable plastics that cannot be composted by the local service provider will be removed and thrown away at the composting site.

For example, the Cedar Grove composting facility near Seattle specifies which compostable plastics can be accepted by their facility and has created a line of compostable products for easy recognition.   For more information, visit: http://cedargrovepackaging.com/index.php?/products

7.8.2.7   Adopt Construction and Demolition (C&D) Recycling

For building renovations or demolishing old buildings, require construction and demolition recycling in building construction contracts to ensure the recycling of materials. Diversion of construction and demolition waste at a 50% rate contributes to the LEED performance of a building.

7.9   GREEN PURCHASING

7.9.1   PROGRAM GOALS

The District should establish purchasing policies to meet the goals of environmental, economic, and social equity sustainability and use its market power to influence suppliers to be more sustainable.

7.9.2   IMPLEMENTATION PROGRAMS AND PROJECTS

The following implementation programs should be considered by the District to meet this goal. See Section 7.2.2.9.1 for energy-related purchasing. Stopwaste.org has compiled extensive resources on green purchasing. Visit stopwaste.org/home/index.asp?page=372 for more information.

7.9.2.1   Sustainable Food Purchasing

The impacts of food sustainability are far reaching and complex. Districts should take into account the sustainability of food served on campus when making decisions regarding food purchasing and consider the following programs.

7.9.2.1.1   Buy Locally Grown and Organic Food

Reduce emissions and energy use from transporting food long distances by buying locally grown food. Districts can also consider purchasing organically grown food, which limits the amount of chemical pesticides, fertilizers, and antibiotics in the food served.

7.9.2.1.2   Track and Reduce Food Waste

To reduce food waste and avoid unnecessary costs, Districts should track the food thrown away and adjust serving sizes and offerings appropriately in order to minimize food waste. Tools such as the Lean Path software can enable Districts to better track and minimize food waste on campus.

7.9.2.1.3   Offer Trays in Dining Facilities on a Request-Only Basis

Cleaning trays are water intensive and Districts can conserve water by offering trays only to those who request them. In buffet style dining, removing trays discourages individuals from taking more food than can be eaten and reduces food waste.

7.9.2.2   Green Purchasing Practices

7.9.2.2.1   Establish Requirements for Minimum Recycled Content

When purchasing paper, aluminum foil, and other materials, Districts should establish a minimum percentage of recycled content in the material. This reduces

the amount of raw materials in products, which in turn reduces the impact on the environment from harvesting the raw materials.

7.9.2.2.2   Establish Standards for Green Purchasing

Establish standards for the purchasing of cleaning materials and other chemicals on campus. Consider purchasing biodegradable cleaning materials and reduce the use of chemicals that may be harmful to the environment and the health of those who are exposed to those chemicals.

7.9.2.2.3   Require Deliveries to be Made Less Frequently and in Larger Quantities

Request that routine deliveries be made less frequently and in larger quantities in order to reduce vehicle miles traveled and packaging material used.

7.9.2.2.4   Bulk Purchasing

Where possible, Districts can reduce costs and reduce vehicle miles traveled by participating in bulk purchasing. Storage and distribution costs may be high, so it may be advantageous for multiple Districts to partner together. Bulk purchasing can also possibly be done through the Foundation for California Community Colleges.

7.9.2.3   Socially Responsible Purchasing

Establish a purchasing policy with provisions to ensure that products purchased are from producers that are fair trade, practice fair labor, pay living wages, and are otherwise socially responsible.

7.10 STUDENT AND CURRICULUM DEVELOPMENT

7.10.1 PROGRAM GOALS

The primary purpose of the California Community College system is to educate students and foster their success by preparing them for the careers of tomorrow. As economic and environmental sustainability is becoming increasingly important in all facets of society, the California Community College system has a responsibility to play a role in moving the current and future generations toward a sustainable future.

Greening educational curriculum by using campus wide infrastructure as pedagogical tools to inform students about systems thinking and thereby 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 the development of new curricula with an environmental and sustainability focus, the community college system can play a key role in developing an environmentally sustainable future.

California Community Colleges should strive to create opportunities for student involvement so that on-campus sustainability initiatives are clear and have a visible focus. Through this process the faculty, staff, administrators, and students will be able to work together to become effective agents for positive change.

7.10.2 IMPLEMENTATION PROGRAMS AND PROJECTS

The following implementation programs should be considered by the District to meet this goal:

7.10.2.1 *Create a Sub-Committee in the Academic Senate Devoted to Sustainability*

Similar to implementing sustainability in other areas of the District, successful integration of sustainability in the curriculum often relies on a champion for this cause. Creating a sub-committee devoted to infusing sustainability through the curriculum will not only encourage progress but will also provide a focus for the District faculty and student body and facilitate a coordinated and sensible process for the integration of sustainability. The sub-committee could also facilitate the consolidation and coordination between different sustainability course offerings, which currently often occurs sporadically and may result in overlaps or gaps in material.

7.10.2.2 *Provide Professional Development and Create a Faculty Forum*

Since much of the change in the curriculum will be driven by faculty, providing opportunities for professional growth for individual faculty members will increase the success of sustainability integration. Flex Hours can be used as an opportunity to hold workshops on sustainability in the curriculum and start the discussion among faculty. In addition, forums and workshops could be held throughout the year for faculty to learn more about sustainability and to create discussions and partnerships between departments to foster development of sustainability in the curriculum. Recognize faculty that take leadership in the integration of sustainability in the curriculum.

7.10.2.3 *Utilize Different Pathways to Integrate Sustainability in the Curriculum*

The Community College Academic Senate Curriculum Committee indicates that faculty members at CCCs are currently integrating sustainability in the curriculum in three main ways: by adding a component to an existing course outline of record, creating a new course, or creating a new certificate or degree program. These strategies are described more fully below, and all strategies will require leadership from faculty for adoption.

7.10.2.3.1 *Adding a Component to an Existing Course Outline of Record*

One pathway is to add components of sustainability into an existing course, particularly required courses for associate degrees. Some areas of study, such as economics, the sciences, and sociology, present clear links to sustainability, while others may have less obvious connections but would still benefit from the inclusion of sustainability, such as ethics and political science. Examples of sustainability and ecology in literature and mathematics can be used to enrich their respective courses, and assignments or projects in a course can have a sustainability theme to add another dimension to coursework.

7.10.2.3.2 *Create a New Course*

Some Districts have taken the initiative to create new courses to meet learning needs in sustainability that are not adequately addressed by incorporating sustainability into existing courses. Creating a new course can also have the added benefit of interdisciplinary study to enhance student learning. These initial stand-alone courses have the potential to lead to a full degree or certificate for students in the future. According to the Statewide Community College Academic Senate Curriculum Committee, several colleges currently offer sustainability courses, and some titles of these courses recently developed across the state include:

- Principles of Sustainable Agriculture
- Principles of Sustainable Urban Agricultural Practice
- Introduction to Sustainable Energy Studies
- Our Sustainable Future
- Tapping into Renewable Energy: Sustainable Building
- Green and Sustainable Organizational Practices
- Surviving the Future: The (Re)Emergence of Sustainable Cultures
- Sustainable Integrated Pest Management
- Career Opportunities in the Emerging Sustainable Society

While budget reductions and an increased emphasis on scheduling basic college skills courses have slowed the development of new course offerings, Districts are finding that interest in these new sustainability courses is high and may be a source of District growth.

7.10.2.3.3   Create a New Certificate or Degree Program

Districts can enhance their career technical education programs by creating certificate and degree programs to incorporate sustainability.

According to the Community College Academic Senate Curriculum Committee, career technical education programs have already added courses in areas such as construction or auto technology that teach students to apply sustainability practices. For example, students can be trained to install solar panels or compare synthetic motor oil to petroleum products.

In addition to new courses, new programs representing at least eight colleges from all geographic areas have already been submitted to the Chancellor's Office for approval. Some of the new program titles submitted for approval include:

- Sustainable Urban Landscapes
- Sustainable Agriculture
- Sustainable Urban Agriculture
- Environmental Resources: Sustainable Communities
- Sustainable Construction Management

When developing new Certificates of Achievement, Districts will need to work with their regional consortium of colleges to ensure that the new certificate design does not compete with existing certificates being offered by other local Districts. As a result, Districts that are proactive and are first to create a Certificate of Achievement of its kind are more likely to receive approval than late adopters. Creating a new degree does not require the same regional cooperation, though all certificates, degrees, and career technical education programs must be approved by the Chancellor's Office.

Some Districts already currently offer certificates, degrees, and programs in areas related to sustainability, such as HVAC, Energy Systems, and Environmental Technology. A list of the schools that offered such programs at the time of this Template's Publication can be found in Appendix C.

7.10.2.4   Advocate for Change at the Statewide Level

Motivated faculty can also work with colleagues at other Districts and the Community College Academic Senate to propose a resolution requiring the integration of sustainability in curriculum. If passed, such a resolution would give direction to Districts and allow individual Districts to determine how to satisfy the resolution.

Additionally, faculty should be encouraged to contact the Community College Academic Senate to share their work in integrating sustainability in the curriculum more broadly.

The statewide Academic Senate website is located at http://asccc.org

7.10.2.5 Training Opportunities for Students

Students can enhance the learning done in the classroom environment with hands on experience by applying what they have learned to the real world. Districts should employ the following strategies to enhance student learning outside of the classroom.

7.10.2.5.1 Assist in Green Internship and Job Placements

Having career counselors provide information about green jobs to students opens up opportunities for students that may have traditionally been overlooked. There are green jobs in a broad range of industries that CCCs can help their students identify and counselors can point students to green job boards like http://www.greenjobs.com/

The following figure below shows green job growth in California despite the national and global economic recession and unemployment rates:
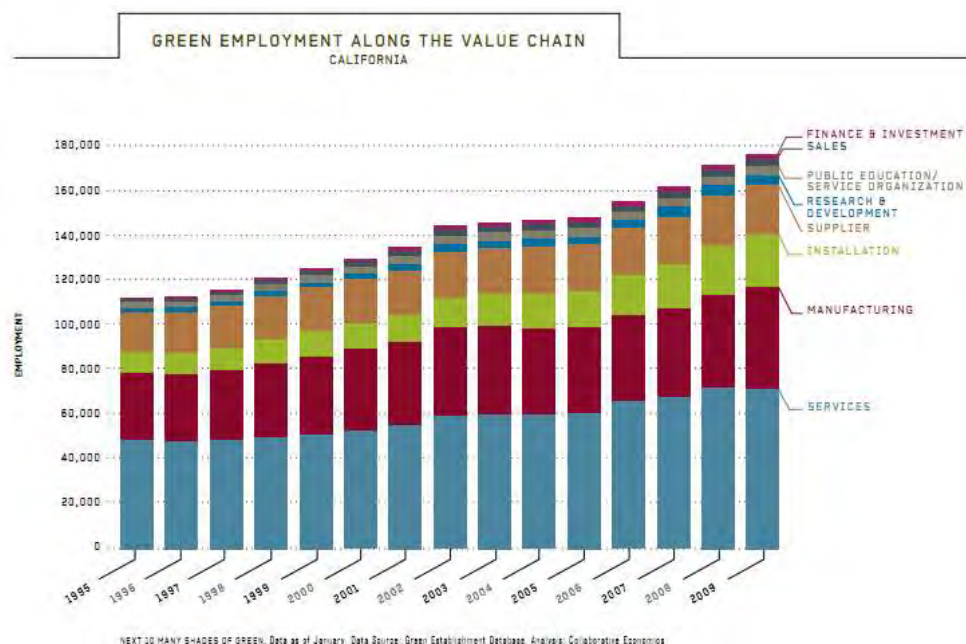
Source: NEXT 10 "Many Shades of Green"
http://next10.org/2012-many-shades-green-california%E2%80%99s-shift-cleaner-more-productive-economy

Through the many certification and degree programs at the CCCs and with the help of District career and transfer centers, students can be prepared to take advantage of the green job growth in the state.

7.10.2.5.2   Facilitate Hands-On Campus Projects

With the guidance of a faculty or staff mentor, students can increase campus sustainability while gaining hands-on experience through campus projects. Motivated students can participate in many projects such as enhancing recycling, spreading awareness of sustainability in food through organic gardening, conducting a lighting audit, performing the campus GHG Inventory, reducing plug loads on campus, or even assisting in Sustainability Tracking, Assessment, and Rating System (STARS) reporting. Districts should compensate students with a stipend or course credit.

7.10.2.5.3   Encourage Social Service

Student growth and learning should not be limited to the classroom and workplace. Encouraging students to participate in social service through honors programs and other avenues can further enrich student learning. Federal programs such as the Science, Technology, Engineering and Mathematics (STEM) Program can also provide an opportunity for outreach, and student should look for local community and government opportunities to give back to their community.

7.10.2.5.4   Invite Notable Speakers

Bring the "real world" to campus by inviting notable speakers who have experience in the realm of sustainability to address the students and the campus at large. Districts located closely together can partner to increase student exposure and share any major costs associated.

7.10.2.5.5   Support Student Committees & Clubs

High student turnover means institutional knowledge is easily lost. Standing student sustainability committees or clubs with a permanent faculty advisor can help the success of a student organization and ensure that progress is not lost from term to term as students graduate and transfer.

Encourage students to take leadership roles in organizations and to actively contribute to campus sustainability through these clubs and committees.

7.11 CAMPUS AND COMMUNITY OUTREACH AND AWARENESS

7.11.1 PROGRAM GOALS

The sustainability of a campus is highly dependent on the actions of individual students, 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 have a large impact on the effectiveness of these projects. Additionally, it is important to maintain transparency and keep the campus and local community informed of the District's progress with sustainability planning and action. This is hard work and contributions to the District's sustainability should be recognized.

7.11.2 IMPLEMENTATION PROGRAMS AND PROJECTS

7.11.2.1 Create a Website Dedicated to Campus Sustainability

Create a page on the college website dedicated to spreading information about sustainability practices, campus news, and the Office of Sustainability, if one has been established. The website can serve as a publicity tool for sustainability events and student groups and as a coordination tool for conveying information to the local community about recycling programs and campus swap shops. This site should be managed by the Sustainability Coordinator or a member of the Sustainability Committee and should be kept up to date with the latest campus developments and link to any public reports about Campus sustainability efforts, including reports submitted to the American College and University Presidents' Climate Commitment (ACUPCC) or STARS.

For examples of existing campus sustainability websites, visit the Butte College sustainability website at http://www.butte.edu/sustainability/ or Cabrillo College sustainability "Green Steps" website at http://www.cabrillo.edu/associations/climate/index.html

7.11.2.2 Hold Workshops and Presentations

Hold open workshops or presentations to allow members of the campus and community to stay informed about sustainability activities, ask questions, and participate in decisions. Workshops and presentations should be well publicized and open to all, and they should be led by individuals who can knowledgably field questions from the audience and efficiently facilitate the workshop process.

7.11.2.3 Sustainability Events

7.11.2.3.1 Coordinate Sustainability Events

Hold fairs or celebrations for local, national, or global sustainability events to spread awareness of worldwide sustainability.   These events are also a good avenue for publicity for achievements. Notable national or global events surrounding sustainability include Earth Day on April 22, 350 in the fall, and Earth Hour in the spring.

Learn more and find resources for publicizing the events at the following websites:
Earth Day: http://www.earthday.org/
350: http://www.350.org/
Earth Hour: http://www.earthhour.org/

7.11.2.3.2 Hold Sustainability Challenges and Competitions

Challenge students, faculty, and staff to think actively and creatively about solutions for making the campus more sustainable. Use constructive competition to encourage water conservation, energy conservation, reduction in single passenger vehicles driven, or any other sustainability goal. Offering small cash prizes to assist in implementing small sustainability changes can spread awareness and get people thinking about possible changes. If appropriate, the challenge or competition can be extended to the local community to encourage sustainable habits beyond the campus.

7.11.2.4 Campus Specific Outreach and Awareness

7.11.2.4.1 Post Behavioral Reminders

Remind individuals to conserve energy, water, reduce and sort waste, turn off car engines to prevent idling, and encourage other sustainable habits by posting reminders where appropriate. Posting reminders with statistics of wasted energy, water, and gasoline and their associated costs can help encourage behavioral changes.

7.11.2.4.2 New Student Orientation

Use New Student Orientation to introduce students to the District's sustainability plans, goals, and commitments. Encourage students to become active members of the college and community during their time as a student and beyond.

7.11.2.4.3 Campus Newspaper or Newsletter

Encourage the campus newspaper or newsletter to include articles about local and campus sustainability events and efforts. The Sustainability Coordinator or a member of the Sustainability Committee should coordinate with the campus newspaper or newsletter to submit regular editorials or articles to keep the campus informed about ongoing efforts.

7.11.2.5 Community Specific Outreach and Awareness

Districts should reach out to their local government and neighborhoods to encourage cooperation and spread awareness about sustainability in the local community by employing the following strategies.

7.11.2.5.1 Cooperate with Local Governments

Cities may be creating their own sustainability or climate action plan, which will likely have similar goals to the District's and may even count the District's emissions as part of their greenhouse gas inventory. Contact the local government to find out if there is any sustainability or climate action planning being done and see if the District can partner with the local government to create synergies.

7.11.2.5.2 Partner with Local K-12 Schools

Through government programs like the Science, Technology, Engineering, and Mathematics (STEM) education coalition, or independently, work with local schools to increase sustainability on campus or in the curriculum. Help students solidify their understanding of basic principles by introducing real world examples or projects related to local or global ecological issues and encourage awareness of sustainability in spaces outside classrooms, such as the cafeteria and outdoor recess areas.

7.11.2.5.3 Encourage Volunteer Work and Community Service

Encourage students, faculty, and staff to become active members of the community by regularly volunteering for community service. Apart from spreading awareness of community service opportunities, Districts can require that students who wish to graduate with honors or receive special distinction must complete a certain number of hours in community service. Some forms of community service, like cleanup efforts at local beaches, rivers, and parks are related to sustainability and can have a direct impact on the local environment.

For more resources, see Campus Compact at http://www.compact.org

7.12 CREATE A CLIMATE ACTION PLAN

7.12.1 PROGRAM GOALS

With the adoption of the California Global Warming Solutions Act (AB-32), many communities and educational institutions have taken steps to reduce GHG emissions. While not strictly mandated for community colleges, recent CEQA challenges to municipal land use planning over GHG reductions could pose similar risk to campus master planning efforts.   Beyond the regulatory issues, many campuses have decided to undertake Climate Action Planning and the reduction of GHG emissions on their own volition for environmental reasons.

7.12.1.1 *Climate Change Science and Impacts*

The global scientific community has reached a consensus that climate change is occurring and that it is being driven by an increase in anthropogenic greenhouse gas concentrations. The Intergovernmental Panel on Climate Change (IPCC), an international scientific body that reviews and assesses the most recent scientific, technical, and socio-economic information researched by thousands of scientists worldwide, have summarized their findings on the physical science basis, impacts and vulnerability, and mitigation options most recently in 2007. At the time of this Template Plan's publication, the IPCC was working on its next review of the latest data, slated to be complete in 2013-2014.

The IPCC Fourth Assessment Report of Climate Change, published in 2007, can be found in four parts here: http://www.ipcc.ch/publications_and_data/publications_and_data_reports.shtml

Climate change impacts will vary by region and season. The IPCC estimates that the global average surface temperature has increased 1.2 to 1.4°F over the past century and projects a further 3 to 7°F increase over the 21st century. While the increase may appear minor when compared to daily and seasonal weather variations, a warming of this rate would be much larger and faster than anything the Earth has historically experienced over the past 10,000 years.

Some anticipated changes are already occurring, which include sea level rise, shrinking glaciers and polar ice caps, changes in the range and distribution of plants and animals, trees blooming earlier, lengthening of growing seasons, ice on rivers and lakes freezing later and breaking up earlier, and thawing of permafrost. Scientists also anticipate an increase in extreme weather events, more extreme heat waves, an increase in risk of climate-sensitive diseases, such as those that are spread by mosquitoes, degradation in air quality, changes in agricultural yields and production, and other long term health and environmental impacts to occur with climate change.

For more information about climate change science and impacts, view the IPCC reports above or visit the US EPA site on climate change at http://epa.gov/climatechange/

7.12.2 CLIMATE ACTION PLANNING PROCESS

A Climate Action Plan (CAP) is a focused effort to quantify the existing emissions inventory at the campus, develop reduction goals, implement specific measures to reduce emissions, and monitor reductions over time.

The basic steps of creating and implementing a successful Climate Action Plan are illustrated below and described more fully in this section. If the campus decides to undertake the development of a Climate Action Plan, the campus will need to perform all of the steps related to Climate Action Planning, which include performing a greenhouse gas inventory, setting greenhouse gas reduction goals, creating an action plan with greenhouse gas reduction measures, and regular monitoring and reporting of progress to the campus. Each of these steps in Climate Action Planning are all dependent on the others and it does not make sense to perform only one or a selection of these steps. However, making a public commitment to reducing greenhouse gas emissions, for example by signing the American College and Presidents' Climate Commitment, is highly recommended but not critical to the creation of a Climate Action Plan as long as the administration has made its own commitment to the reduction of GHG emissions.

Make a Commitment to Reduce GHG Emissions	Perform a GHG Inventory	Set GHG Reduction Goals	Create a Climate Action Plan with GHG Reduction Measures	Execute the Climate Action Plan	Regularly Monitor and Report Progress to Campus
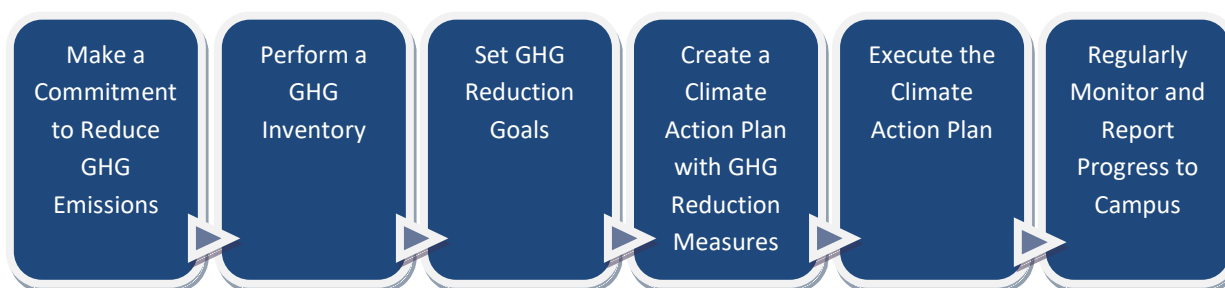
While the preparation of a CAP and conducting a GHG emissions inventory can be done in-house, it is a complex technical effort that could take several years to complete, and therefore it may be beneficial to utilize specialists or consultants if the knowledge or resources do not exist within the institution. There are many "Best Practice" examples of higher education Climate Action Planning efforts and several proven techniques and tools available to assist campuses that are described in more detail below.

7.12.3 GREENHOUSE GAS PROTOCOLS

There have been several GHG measurement and reporting standards or "protocols" developed over recent years. It will be of utmost importance for campuses to use accepted protocols in the preparation and implementation of Climate Action Planning to ensure accuracy, transparency, and integrity of GHG reduction efforts.

The Greenhouse Gas Protocol developed by the World Resources Institute (WRI) is the most widely accepted GHG standard and serves as the foundation for nearly every GHG program in the world, including the International Standards Organization, the Climate Registry, California's AB-32, as well as hundreds of GHG inventories prepared by individual companies. All of the tools, processes, and guidelines recommended in this template comply with the WRI GHG Protocol. More information about the WRI protocols can be found here: http://www.ghgprotocol.org/about-ghgp

The calculated value of a campus's annual GHG emissions can vary widely depending on the types and sources of GHG emissions that are included in the inventory. The six primary greenhouse gases covered by *The Greenhouse Gas Protocol Corporate Standard*, developed by the World Resources Institute

includes carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6). There are multiple calculation tools that exist to help estimate the annual emissions of these gases, which are discussed below and in Section 7.12.6.

GHG emissions sources are broken into three major scope areas:

Scope 1: All direct emissions from sources owned and controlled by the emitter.
Scope 2: Indirect emissions from consumption of purchased electricity, heat, or steam.
Scope 3: Other indirect emissions, such as the extraction and production of purchased materials and fuels, transport-related activities in vehicles not owned or controlled by the reporting entity, electricity-related activities (e.g. transmission and distribution losses) not covered in Scope 2, outsourced activities, waste disposal, etc.

It is recommended that campuses consider using the Clean Air Cool Planet: Campus Carbon Calculator to develop their greenhouse gas inventory. The tool is tailored for higher education institutions and covers the scope of greenhouse gases required for reporting to the ACUPCC.

7.12.4 SUGGESTED FRAMEWORK

Due to the specific protocols for measuring and reporting GHG reductions, creating a Climate Action Plan is in many ways more complicated and rigorous than many of the other sustainability measures described in this template.   Additionally, measuring the campus's greenhouse gas emissions will require that large amounts of data that may not be readily or easily made available be obtained from a variety of sources.   Quantifying and tracking GHG emissions can be a time consuming and labor intensive exercise.

For these reasons, it is recommended that campuses employ proven tools and processes for Climate Action Planning instead of reinventing the wheel.   Fortunately, there are several resources to assist campuses with these efforts as described below.

7.12.4.1 Cool Campus! College Climate Action Planning Guide

The Cool Campus! College Climate Action Planning Guide is tailored to higher education institutions and was developed by the Association for the Advancement of Sustainability in Higher Education (AASHE). This document is a comprehensive guide to creating a Climate Action Plan. It is available both in a "Wiki" website form and a printer friendly PDF. It complies with all accepted GHG reduction protocols and has been successfully used by dozens of campuses.

Website: http://www.aashe.org/wiki/climate-planning-guide
PDF: http://www.aashe.org/files/resources/cool-campus-climate-planning-guide.pdf

It is recommended that Districts and campuses carefully consider using this guide to help them in the GHG reduction programs.

7.12.4.2 Other Planning Guides

ICLEI has also put together a Climate Adaptation Toolkit for local government use. The toolkit is available to ICLEI members and is designed for local government use. For more information about ICLEI, visit their website at http://www.iclei.org/

The CEC also created the Energy Aware Planning Guide to help local governments reduce energy use and increase renewable energy, including strategies for areas like transportation, water, and the built environment.

To access the Energy Aware Planning Guide, visit: http://www.energy.ca.gov/energy_aware_guide/

7.12.5 MAKE A COMMITMENT TO REDUCE GREENHOUSE GAS EMISSIONS

Similar to the other sustainability goals, the campus will need to make an "internal" commitment to reducing greenhouse gas emissions. Support from the administrative level is important to the success of the Climate Action Plan. If possible, greenhouse gas reduction goals should be incorporated into the Vision Statement written by the Campus Committee and adopted by the campus.

In addition, the Board of Trustees, college President or Chancellor can make an "external" or larger public commitment to reducing greenhouse gas emissions by signing the ACUPCC, which is discussed below.

7.12.5.1 American College & University Presidents' Climate Commitment (ACUPCC)

The ACUPCC was established in 2006, and as of November 2011 had over 670 signatories. The ACUPCC provides a framework for GHG inventory and CAP reporting, and signatories of the ACUPCC commit to bi-annual GHG inventory reporting and the development of a Climate Action Plan. Signatories also agree to implement two of seven short term action items listed by the ACPUCC.

This commitment must be signed by the campus's President or Chancellor and provides the college with the support and resources needed to move forward with the first steps to creating a Climate Action Plan, which is to conduct a greenhouse gas inventory. For more information on ACUPCC, see section 7.12.8 on Climate Action Reporting or visit the ACUPCC website at: http://www.presidentsclimatecommitment.org/

7.12.6 PERFORM A CAMPUS GREENHOUSE GAS INVENTORY

After making a commitment to reduce greenhouse gas emissions, the next step is to conduct a greenhouse gas inventory, which is a measurement of the annual greenhouse gas emissions from the campus, also known as a "Carbon Footprint". This will help illustrate past and present greenhouse gas emissions, the rate of greenhouse gas emissions growth, and begin the process of defining the campus's goals for GHG reductions. The GHG inventory is tied to a "baseline year" from which to measure future GHG reductions from.

The GHG inventory should be spearheaded by the Sustainability Coordinator from the Campus Sustainability Committee. Students are also a good resource for data collection, though the process should be managed by a faculty or staff member who will be available to conduct the inventory again in one to two years to measure progress.

7.12.6.1 Clean Air Cool Planet: Campus Carbon Calculator

Clean Air-Cool Planet (CA-CP) is a non-partisan, non-profit organization that developed the Campus Carbon Calculator tool, which has been designed with higher education institutions in mind. The tool is spreadsheet based and is recommended by the ACUPCC as well as AASHE's Cool Campus! Guide.   Users have generally given it a positive review, and those surveyed for this template have agreed that it is a user friendly tool that is designed specifically for college campuses. The CA-CP tool not only meets the requirements for ACUPCC reporting but is also consistent with the Greenhouse Gas Protocol of the World Business Council for Sustainable Development and World Resources Institute.

As it is the most common tool used by signatories of the ACUPCC, using the CA-CP calculator tool allows for easier benchmarking among Districts and campuses and interfaces well with the ACUPCC reporting system.

Download the Clean Air-Cool Planet Campus Carbon Calculator tool for free here: http://www.cleanair-coolplanet.org/toolkit/inv-calculator.php

7.12.6.2 Other Calculator Tools

If the campus has a significant source of emissions not covered by the CA-CP tool, custom GHG calculators can be found for less common emission sources. Campuses can also develop their own tools to supplement the CA-CP tool to work best for the campus. One of the case studies in *Section 10: Best Practices* describes how the CSU Chico greenhouse gas inventory was done using the CA-CP tool in conjunction with a custom built spreadsheet tool for campus sponsored travel.

The Greenhouse Gas Protocol Initiative has also developed a set of tools for GHG emissions inventory, though the tools are broken down by emissions sources and was not developed for higher education institutions. For the GHG Protocol Initiative tools, visit: http://www.ghgprotocol.org/calculation-tools/all-tools

7.12.7 CREATE AND EXECUTE A CLIMATE ACTION PLAN WITH PRIORITIZED GREENHOUSE GAS REDUCTION MEASURES

Greenhouse gas reduction goals are normally set as a target percentage reduction in emissions from a baseline year to a target year. Both the baseline year and target reductions are determined by the campus.

7.12.7.1 Setting a Goal

Goals for GHG reduction should be ambitious but achievable and should be designed in the context of past GHG emissions and growth. In order to be successful, these goals should be developed by the Campus Committee with input from representative stakeholders and will need to have the support of the campus's administration.

The following are a few established goals that can serve as a starting point for campuses.

Legislative Document	GHG Reductions Target
California AB-32	1990 levels by 2020
Governor of California Executive Order S-3-05	2000 levels by 2010 1990 levels by 2020 80% below 1990 levels by 2050
CARB Recommendations[2]	15% below 2005
Kyoto Protocol	5% below 1990 levels by 2008 to 2012

Another long term goal Districts may strive for is eventual climate neutrality, which means that the campus will have zero net GHG emissions achieved through emissions reductions and offsets. An excellent example of this achievement is detailed in Section 10: Best Practice Case Studies featuring Butte College.

7.12.7.2 Create an Action Plan to Reduce Emissions

An Action Plan to reduce GHG emissions should be very similar to the broader Sustainability Plan actions. Many of the sustainability projects and programs described in Section 7 will reduce GHG emissions and should be part of any GHG reduction plan. Districts should use the information collected from the inventory to prioritize GHG reduction projects.   As a result of their GHG inventory, campuses will be able to target the largest GHG emitters and help prioritize their efforts.

The Climate Action Plan should describe the campus's GHG inventory, goals for emissions reductions, past achievements, the general strategy for GHG reductions, as well as the specific projects and programs that will be implemented to reduce GHG emissions.

The process of prioritization should also consider the areas where there is the most potential for improvement. The following chart shows a breakdown of the major emission sources for a typical community college. Many Districts will likely find that transportation and commuting is a large source of their emissions and may want to prioritize projects in this category over smaller pieces of the pie.

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[2] CARB recommendations to Local Governments in 2008 AB-32 Scoping Plan

Scope 1 - 22%

Scope 2 - 24%

Scope 3 - 54%

Source: US EPA
http://www.presidentsclimatecommitment.org/files/documents/best_practices_cap.pdf

The chart above describes the greenhouse gas emissions breakdown for a typical community college:

- Scope 1 includes all direct emissions from sources owned and controlled by the college, such as carbon dioxide released by burning natural gas on site.
- Scope 2 includes indirect emissions from consumption of purchased energy utilities, such as electricity, heat, or steam.
- Scope 3 includes all indirect emissions not covered by Scopes 1 and 2 and includes emissions from student and staff commuting.

In addition to the sustainability projects addressed earlier, Districts can elect to purchase carbon credits such as CRTs to offset some of the emissions to reach the goal. The CA-CP tool used to create the GHG inventory also has a spreadsheet for potential GHG reduction projects and can be used to estimate the GHG reductions from the campus's projects. The CAP should contain a listing of all measures to be taken with estimated GHG reductions quantified by the CA-CP Carbon Calculator.

For examples of Climate Action Plans developed by other colleges, visit the ACUPCC Reporting System at http://rs.acupcc.org/

Section 10, Best Practice Case Studies, discusses UC Berkeley's Climate Action Planning efforts and some of their innovative strategies to reduce GHG emissions. Their Climate Action Plan, created in 2009, can be accessed through the ACUPCC Reporting System at http://rs.acupcc.org/cap/65/

Section 10, Best Practice Case Studies, also discusses Cabrillo College's Climate Action Planning efforts to-date. Their Climate Action Plan can be found on the ACUPCC Reporting System at http://rs.acupcc.org/cap/552

7.12.8 REGULARLY MONITOR AND REPORT PROGRESS TO CAMPUS

While reducing GHG emissions is the primary goal, it is important to be transparent about how the campus is performing.   Stakeholders, campus, and community members should be able to easily locate and access the campus's GHG inventories, reports, and Climate Action Plans, and determine how well the District or campus is doing on meetings its goals.

Section 9: Measure and Report Performance describes in detail how to measure and report progress of the Sustainability Plan to interested parties.   This section also applies to CAP reporting.

In addition to reporting progress to the campus community, there are also national reporting systems where Districts can increase their notoriety by reporting to a much larger audience.   These include the ACUPCC reporting system, The Climate Registry, the CARB, and the US EPA.   All of the data reported to these systems are public information with a wide audience and are described in more detail below.

7.12.8.1 *American College University Presidents Climate Commitment (ACUPCC) Reporting*

The ACUPCC is a voluntary, non-binding commitment to develop a CAP with a goal of eventual climate neutrality at the campus.   Signatories commit to conducting bi-annual GHG inventories and the creation of a Climate Action Plan and make these available through the ACUPCC reporting system.   Signatories also commit to implementing two of seven identified short term measures to reduce greenhouse gas emissions while the long-term Climate Action Plan is under development.

The commitment must be signed by the college's President or Chancellor and offers transparency and visibility for participants.   Signatories have access to a network and resources to assist in climate action planning, and possible sources of funding. Colleges may choose to pay voluntary annual dues of $1000-$3000 to participate, based on the size of the college.

To learn more about the ACUPCC, visit their website at:
http://www.presidentsclimatecommitment.org/

7.12.8.2 *The Climate Registry Reporting*

The Climate Registry is a nationwide greenhouse gas reporting system. Its precursor, the California Climate Action Registry, is no longer accepting new members and has directed all interested entities to The Climate Registry.

The Climate Registry provides a web-based inventory tool, which is only available to its members. Compared to the ACUPCC's bi-annual GHG inventory reporting requirements, members of The Climate Registry are required to report their inventory annually.   The reporting protocol required by The Climate Registry differs slightly from the reporting requirements of the ACUPCC in scope, detail, and boundaries.

Members pay an annual fee ranging from $750 to $5,500 to register. The exact membership fee depends on the school's budget. Members gain access to The Climate Registry's resources for training and technical support. Members can also apply for a Silver, Gold, or Platinum ranking based on their reduction plan and/or their achieved reductions from their baseline measurement.

To learn more about The Climate Registry, visit http://www.theclimateregistry.org/

7.12.8.3 CARB and US EPA Reporting

Both the CARB and the US EPA require large emitters to annually report greenhouse gas emissions. Unlike the ACUPCC and The Climate Registry, these two reporting systems only track carbon dioxide, methane, and nitrous oxide emissions.

Based on the requirements of AB-32, the CARB requires emissions reporting for entities that emit over 25,000 MT CO_2e annually and/or those with electricity generating facilities and cogeneration facilities greater than 1 MW in nameplate capacity and emit more than 2,500 MT CO_2e annually. The US EPA requires emissions reporting for entities that emit over 25,000 MT CO_2e annually.

The table on the following page provides a quick comparison of the four reporting systems described above.

Table 7.1: Reporting System Comparison

	ACUPCC	The Climate Registry	CARB	US EPA
Mandatory?	No	No	Yes, if applicable	Yes, if applicable
Target Reporters	Higher Education Institutions	All	Large emitters (>25,000 metric tons CO_2e/yr) or power generation/ cogen facilities (>1 MW nameplate, >2,500/metric tons CO_2e/yr)	Large GHG Emitters (>25,000 metric tons of CO_2e/year)
Scope of Emissions Reported	All direct (scope 1), indirect (scope 2), and commuting and air travel (scope 3), & biogenic	All direct stationary, mobile, and fugitive (scope 1), indirect purchased utilities (scope 2), & biogenic	Direct stationary fuel combustion sources from lump sum electricity (kWh purchased)	Direct stationary fuel combustion sources
GHGs Reported	CO_2, CH_4, N_2O, SF_6, HFCs, PFCs	CO_2, CH_4, N_2O, SF_6, HFCs, PFCs	CO_2, CH_4, N_2O	CO_2, CH_4, N_2O
Reporting Frequency	GHG inventory bi-annually, one-time CAP reporting	GHG inventory annually	GHG inventory annually	GHG inventory annually
Reporting System	Online report submission	Online submission through CRIS tool	Online reporting tool	Electronic Greenhouse Gas Reporting Tool (e-GGRT)
3rd Party Verification Required?	No, but recommended	Yes	Yes	No (Done by EPA)
Cost	Voluntary dues of about $1000-$3000 annually depending on the size of the college	Annual fee of $750 to $5,500, depending school budget	Free	Free
Benefits	Transparency, resources, networking	Transparency, resources	Fulfills regulatory requirements	Fulfills regularly requirements

7.13 OTHER PROGRAMS AND PROJECTS FOR IMPLEMENTATION

Campuses should not feel limited to the programs and projects listed in the previous sections. Campuses are encouraged to consider their specific needs and think of innovative ways to improve their campus's sustainability and add them to their Sustainability Action Plan.

Examples of areas not already covered by the Sustainability Template could include less common initiatives such as wild lands or habitat preservation in rural areas, or "Smart Growth" strategies at urban campuses. This section provides for additional customization of the sustainability planning process for each District or campus.

The Implementation Programs and Plans Checklist and Sustainability Plan Document Template both include a section for innovative, campus-specific programs. These programs should be tracked like the other sustainability projects and included in all reporting.

SECTION 8.

CREATE AN ACTION PLAN

The next step in the sustainability plan implementation will be to *Create and Execute Action Plans*. This step will be the "heavy lifting" by the Campus Committee to transform the Vision, Goals and Objectives defined earlier into specific action plans, projects, and deliverables that are customized to meet the needs of the college. This is accomplished by reviewing the entire menu of possibilities contained in Section 7, Implementation Programs and Projects, and *prioritizing and "filtering" those programs and projects that best meet the goals and objectives established for the plan*, and are realistic given the time, resources, and funding available.

Districts may elect to hire sustainability professionals to assist in the development of their Action Plan. If this is the case, the college still needs to take an active role. Districts should ensure that the hired professionals have had past experience in sustainability planning and are familiar working with community colleges in California.

> ## Create an Action Plan
>
> - *Transform the Vision and Goals, for Sustainability into specific action items, projects and deliverables*
> - *Prioritizing and filtering those programs and projects that best meet campus goals*
> - *Utilize the Implementation Programs and Plans Checklist to facilitate Action Plan process*
> - *Utilize the Sustainability Plan Document Template to assist campus articulation of plan elements*

The Sustainability Template contains two tools to assist campuses with the development of their Action Plans: an Implementation Programs and Plans Checklist and a Sustainability Plan Document Template. These tools are described on the following pages.

8.1   IMPLEMENTATION PROGRAMS AND PLANS CHECKLIST

An *Implementation Programs and Plans Checklist* is included in the Appendices that will facilitate the creation of the campus-specific Action Plans, and should include specific tasks, task responsibilities, timelines, criteria for success, and estimated costs.   The Planning Checklist is an MS Excel macro-enabled spreadsheet formatted to produce a *planning and tracking document* that will be the heart of the Action Plan and help manage implementation.

Upon opening the live spreadsheet and enabling the "Macros" option, built-in features allow users to navigate from a Summary Tab to the detailed Planning Checklist sheets that correspond to the Implementation Programs and Projects in Section 7 of the Sustainability Plan Guidebook. For example, under Section 7.1, Management and Organizational Structure, specific tasks listed on the detail sheet include: Adopting a District Sustainability Policy, Appointing a Sustainability Coordinator, and Appointing a Campus Sustainability Committee. *The user selects a listed program or project by checking the box* adjacent to the section number, and the selected elements are then listed in the Output tab.   In addition, additional space is provided for custom programs not contained in the checklist. In the tab for Section 7.13, campuses can add individual programs or projects not covered in the other twelve

sections. The user simply needs to type in the project name in one of the blank lines and check the box, and the new project will be included in both the Summary and Output tabs.

A navigation arrow below the tasks allows users to easily return to the Summary tab. Once a user repeats the process of selecting tasks to implement, the user navigates to the Output tab, and with macros enabled, runs the Summary Report by selecting the button at top right. Each of the tasks the college has selected to implement will appear on the Output tab, along with additional action planning fields for the user to input task details as follows:

Field	Action Required
Action Items/Notes	Enter a brief description of the task(s) to be performed to implement the selected policy or other clarifying notes
Priority	Select High, Medium, or Low priority from the dropdown list
Status	Select Planned, In-Process, or Complete from the dropdown list
Linked to	Identify linked or dependent projects in the Action Plan
Cost ($)	Enter an estimate of the in-house or contracted costs in labor and materials
Associated GOAL(s)	List the associated Goal number that the project is intended to satisfy as defined in Section 5.
Target Completion Date	Enter the date that the policy's implementation is expected to be complete
Assigned To	Enter the name of the individual (or position) responsible for implementing the selected policy. This person may assign others to the role. However, the primary responsibility for the policy rests with this person
Email address	Enter the email address for the person referenced above in the "Assigned To" field

Users may also choose to select programs or projects that have already been accomplished on campus to show past achievements. This Checklist should be used to manage the Sustainability Plan Implementation, and should be updated regularly to track progress.

The Implementation Programs and Plans Checklist will help quantify how robust the campus Sustainability Plan is. The Tool will track programs and projects selected, as well as those completed, and compare them against all available projects. This will also assist in the evaluation of project progress for reporting purposes.

Districts are encouraged to "think outside the box" for innovative ways to improve their sustainability and avoid being constrained to only the projects mentioned in this template.

The Implementation Programs and Plans Checklist can be found in Appendix E.

8.2   SUSTAINABILITY PLAN DOCUMENT TEMPLATE

The Sustainability Plan Document Template is a Microsoft Word file that can be used to produce a customized Sustainability Plan Document for the campus. It is organized and formatted with the recommended content and description of deliverables that should be included in the final campus Action Plan. It follows the process outlined in this Sustainability Plan Guidebook and walks the user through a decision-making process to identify the elements of sustainability that will ultimately be included in the campus-specific plan to achieve the program goals.

The Sustainability Plan Document Template can be found in Appendix F.

As with any successful program, the ongoing progress and performance of sustainability plan activities should be *monitored and compared to goals and criteria*. This will require continuous participation of the Campus Committee, college staff, and other participants in the process. To communicate results and ensure transparency and accountability, the *results of the Sustainability Plan activities should be communicated to the larger campus community on a regular basis*.

The following describes the process for measuring and reporting progress of plan activities. While there are more specific measurement and reporting requirements associated with Climate Action Plans (described in Section 7.12) the general concepts in this section also apply to CAP activities.

9.1   MEASURING PERFORMANCE

Measure and Report Performance

- *Sustainability program progress measured against baselines and compared to goals and criteria*
- *Establish and track appropriate performance metrics*
- *Consider Sustainability Ranking Systems*
- *Communicate results to campus community to ensure transparency and accountability*

In order to measure District progress toward its sustainability goals, it is important to regularly collect information on key metrics. This can be done annually for information that is easily collected, such as electricity usage, or bi-annually or less often for information that is more time consuming to collect, such as a greenhouse gas inventory.

Similar to tracking greenhouse gas reductions through a regular inventory, *progress can only be measured if there is a baseline for comparison*. An evaluation of the District's current operations in areas addressed by the sustainability plan, such as energy and water consumption, solid waste diversion, and commute Vehicle Miles Traveled (VMTs) should be made before implementing sustainability projects in order to create a baseline for comparison.

9.1.1   PERFORMANCE METRICS

The data collected and performance metrics calculated should reflect the goals and priorities of the District and show progress towards the goal in a meaningful way. Metrics should be performance-based and reflect the outcomes of sustainability projects, such as greenhouse gas emissions reductions or VMTs reduced, rather than projects implemented, such as the number of bike lanes added on campus. However, projects like added bike lanes should be included as a part of the annual or biannual report to show what actions the District has taken to meet the goals.

The following are examples of performance metrics that can be evaluated to measure campus progress:

- *Energy reduction:* Monthly electricity and gas usage for the entire campus and individually metered buildings, if installed.
- *Water reduction:* Monthly water use for the entire campus and individually metered buildings, if installed.
- *Waste diversion and reduction:* Weight or container counts of waste hauled, recyclables processed, food waste reduced, and boxes of paper delivered.
- *Transportation:* VMTs for faculty and student commutes, number of faculty or students riding public transit, number of faculty or students carpooling or ridesharing.
- *Greenhouse gas emissions reduction:* Metric tons (tonnes) of carbon dioxide equivalent (CO_2e) reduced.
- *Curriculum and Student Development:* Number of sustainability focused courses offered, sustainability certification programs, number of students actively involved in sustainability activities on campus, or number of students enrolled in sustainability curricula.

Performance metrics should be tied to the goals and criteria established in Section 5 of the plan. Since activity on campus can change from year to year, Districts may find it useful to normalize metrics to give a more accurate picture on campus. Those collecting the information and analyzing the District's progress may choose to normalize their measurements by considering the following factors that may affect performance:

- Building gross square footage
- Number of students
- Number of students and employees
- Number of school days or work days
- Annual cooling degree days or heating degree days

It is also beneficial to measure any direct cost savings experienced by the District as a result of sustainability projects. For example, in addition to operational and maintenance cost savings from reducing energy and water use, the District should capture savings from Air District fines or waste hauler costs that are reduced, or if the District was able to avoid building a new parking structure.

Ultimately, the purpose of measuring progress is to compare the District's progress to the interim and long term goals established. Districts should analyze how they are doing on their path to sustainability and evaluate their performance against their goals, use this to plan for the following year's activities, and make adjustments as needed.

9.1.2   SUSTAINABILITY RATING AND RANKING SYSTEMS

In addition to comparing the District's progress with its own goals and expectations, there are also nationally recognized rating and ranking systems that can help higher education institutions compare how they are performing with other colleges and universities.

9.1.2.1   Sustainability Tracking Assessment and Rating System (STARS)

STARS is a voluntary self-reporting system that colleges and universities can use to measure and rank their overall sustainability. STARS was developed by the AASHE. Participants are given a score based on points accumulated in a wide range of areas pertaining to sustainability, including education and research; operations; and planning, administration, and engagement. Districts can also gain points for innovation in sustainability projects not covered by the scoring system.

Districts enter the information through the online STARS reporting tool. If the District chooses to make their score public, they are awarded a Bronze, Silver, Gold, or Platinum status depending on their STARS score. Campuses can keep their scores confidential if desired.

While STARS scores are valid for three years, STARS participants can submit for a new STARS rating as often as once per year. Districts can use this score as a benchmark to measure their own progress and as a comparison to other colleges and universities.

The cost of registering for STARS is $900 for AASHE members and $1400 for non-members. The cost of renewing a STARS registration is $450 for AASHE members and $700 for non-members.

STARS reporting can be time consuming and gathering the data needed from a wide variety of sources can be difficult. However, STARS offers a standardized rating system tailored to higher education institutions and can be useful for measuring a District's overall sustainability and improvement.

For more information about STARS, visit https://stars.aashe.org/

9.1.2.2   The College Sustainability Report Card

The College Sustainability Report Card is a rating system developed by the Sustainable Endowments Institute to grade higher education institutions on their sustainability in multiple areas, including administration, climate change and energy, food and recycling, green building, student involvement, transportation, endowment transparency, investment priorities, and shareholder engagement.

Unlike STARS, where users enter the information directly into the reporting tool, information is collected through surveys with questions about the campus. The information is then processed into a grade for each of the categories, which are in turn aggregated into an overall grade for the campus.

Districts that participate are asked to make a $700 donation to the Sustainable Endowments Institute, though grant assistance is available. Districts can learn more about The College Sustainability Report Card and apply for inclusion at http://www.greenreportcard.org/

9.1.2.3   Sierra Club Cool Schools

The Sierra Club ranks higher education institutions in their sustainability performance and publicizes results through the *Sierra* magazine. The rankings are determined by a score, which is developed by the Sierra Club through information collected through a survey. The survey includes sustainability in ten categories: energy supply, energy efficiency, food, academics, purchasing, transportation, waste management, administration, financial investments, and other initiatives.

Districts that would like to take part in the ranking can email cool.schools@sierraclub.org with contact information for the person who should receive the survey. To see the previous year's Cool Schools results and learn about the ranking system, visit: http://www.sierraclub.org/sierra/201009/coolschools/default.aspx

9.1.2.4   Princeton Review Green Rating

The Princeton Review has created a Green Rating system to rate schools on their sustainability. Information is collected through a survey sent to school administrators and staff, and those that receive the highest Green Rating possible, a score of 99, are included in their Green College Honor Roll list.

The survey includes questions about whether students have a campus quality of life that is both healthy and sustainable, how well a school is preparing students for employment in the clean energy economy and for citizenship in a world now defined by environmental concerns and opportunities, and how environmentally responsible a school's policies are.

The Green Rating system is focused on four year colleges and universities and does not apply to California Community Colleges at this time.

For more information, visit http://www.princetonreview.com/green-honor-roll.aspx

9.2   REPORTING

The purpose of measuring and reporting performance and progress is to maintain transparency in sustainability activities and to assess progress towards goals. The target audience of the reports should be the campus community at large. Progress reporting should be provided in written report format, as well as in workshops and presentations to the campus. It is recommended that an annual Sustainability Report be prepared with the following information.

9.2.1   RECAP OF THE SUSTAINABILITY GOALS

Include a brief summary of the goals and objectives of the plan and why the District is pursuing sustainability. Reference the original Sustainability Plan or Climate Action Plan for more information on why the District is pursuing sustainability and more details about long term plans.

9.2.2   HOW IS THE DISTRICT PERFORMING COMPARED TO THEIR GOALS?

It is important to show the campus's actual progress compared to planned progress in a clear and transparent manner. Graphs are a good visual tool for showing the current and past energy use, water use, GHG emissions, and other metrics to compare current progress towards campus goals.

If there are anomalies in the results or the results are different from what was expected, such as an increase in GHG emissions despite a significant decrease in single occupancy vehicle miles traveled, it is worthwhile to take some time to investigate and explain the reason behind the anomaly. Did emissions from another source increase, such as campus funded travel? Were there factors that may have led to this increase in emissions, such as an injection of research funding that required additional travel?

9.2.3   WHAT WAS ACCOMPLISHED?

This should include information about the sustainability projects that were started, in progress, or completed since the last reporting period. This should also include organizational changes, such as the hiring of a Sustainability Coordinator or the development of a Campus Committee to spearhead sustainability planning and implementation.

This section should also include details of funding allotted to these projects and the resulting cost savings experienced from both operational and maintenance sources and any large capital projects that were avoided as a result of sustainability projects.

The campus should describe successes, failures and lessons learned and should be forthcoming with any obstacles to success and describe how the Campus Committee plans on overcoming similar obstacles in the future.

The Implementation Programs and Plans Checklist included in Appendix E is a useful tool for this purpose.

9.2.4   NEXT STEPS AND PLANNED ACTIVITIES

The report should include information on the campus's next steps and upcoming projects. If plans changed from the last report, campuses should note the change and describe why the change was made. If possible, the next steps should also describe the anticipated impact on progress and where the campus anticipates progress towards goals after the next reporting period.

9.2.5   ACKNOWLEDGEMENTS AND KEY CONTACT INFORMATION

Contributors to sustainability efforts on campus should be acknowledged for their work and successes. The report should also include key contact information in case readers have questions about the report

and sustainability plan and should include links to any online website or other media used for communicating the sustainability plan.

Section 10, Best Practice Case Studies, highlights the reporting methods of UC Berkeley and Cabrillo College, which successfully and effectively inform the university communities about progress and achievements towards their sustainability goals.

9.3   MEDIA AND COMMUNICATION

The Campus Committee is encouraged to actively keep the campus and the larger community engaged and informed about process and activities, and not simply rely on formal progress reports.

See Section 7.11 for ideas for outreach communication strategies. Additional measures are described below.

9.3.1   WEBSITE AND ONLINE MEDIA

The Campus Committee should create a webpage on their college site devoted to informing the campus about the sustainability plan activities. Any published reports should also be made available through this website, as well as links to any of the public reporting systems that the campus participates in, such as STARS, the ACUPCC, or the Climate Registry. It can also act as an awareness tool to communicate sustainable behavior with the campus community and as a first stop for any student, faculty, or staff who might have questions about sustainability.

Campuses can also create and maintain a blog to inform the campus community of sustainability activities with shorter and more frequent updates. The blog should have multiple contributors to maintain fresh and diverse updates, though it should be managed by someone from the Campus Committee.

In addition, Districts can elect to use social media, such as Facebook or Twitter, to make announcements about upcoming events, student competitions, or facts of interest.

9.3.2   CAMPUS AND LOCAL PUBLICATIONS

Districts are encouraged to utilize campus newspapers or local community media to reach a wider audience when major milestones are reached or notable achievements are accomplished. Publishing information in the campus or local newspaper or newsletter is an effective way to reach a large portion of the community.

Campus and local publications can also be used to publicize upcoming events, provide tips on sustainable habits, and even publish op-ed columns when appropriate.

9.3.3   CAMPUS WORKSHOPS

The Campus Committee should periodically hold workshops open to all campus members throughout the planning and implementation phases of the project. This should be a two-way dialogue where information is provided to the campus community and feedback is solicited and incorporated into the activities.

9.3.4   ENLIST HELP FROM STUDENT GROUPS

Many campuses have student sustainability or environmental clubs that should be engaged by the Campus Committee to help spread the word about Sustainability Plan activities. These groups can be a source of active and enthusiastic "people power" and can often have an effective communication infrastructure in place.

SECTION 10.

BEST PRACTICE CASE STUDIES

Several California higher education institutions are leading the effort in creating and implementing innovative sustainable practices throughout their campus and community on all fronts. The following section features case studies of sample projects that serve as examples for other campuses to adopt for their own sustainability projects. The descriptions showcase how different levels of funding, from micro-grants to larger investments, and various degrees of organization, from high-profile state-wide efforts to grass-roots movements among faculty, can have a significant level of impact towards greening a college campus while raising sustainability awareness among students and the greater community.

The authors would like to thank the contributing individuals at each of the colleges included in the following Best Practice Case Studies for their time, effort, and invaluable insights on improving campus sustainability.

Best Practice Case Studies

Cabrillo Community College
- *Climate Action Plan Leadership and Curriculum Development Partnerships*

CSU Chico
- *Travel Data Collection for GHG Inventories*

Butte College
- *First Grid Positive College and new Rideshare Program*

Orange Coast College
- *Recycling Center*

Shasta College
- *EE-Tech Emerging Energy Technology*

UC Berkeley
- *Green Certification*
- *"Talking Louder" about Sustainability*
- *Travel Free Meetings*

CABRILLO COMMUNTIY COLLEGE
CLIMATE ACTION PLAN LEADERSHIP AND CURRICULUM DEVELOPMENT PARTNERSHIPS

Cabrillo College serves as a prime example of how colleges can leverage internal resources and external grants to introduce and implement sustainability measures throughout a campus and within curriculum. In addition to making smart investments in a greener campus, the college benefits from the development of a formal Climate Action Plan as well as more grassroots efforts to develop sustainable elements within existing curriculum.

CONTACTS:

Curriculum: Susan Tappero, Ph.D.
Mathematics, Engineering & Science Achievement Director
(831) 479-6503

Climate Action Plan: Judy Cassada
Institutional Research Specialist
(831) 479-5720

SUSTAINABILITY CURRICULUM DEVELOPMENT

The faculty-lead Sustainability Curriculum Development initiative utilizes a grant from the National Science Foundation (NSF) to interest students in STEM majors through themes of renewable energy and sustainability. The Science Technology & Engineering: Expanding Potential (STEEP) program has enhanced STEM education beyond teaching sustainability in classrooms by supporting student-led projects that otherwise would require additional resources from the school's general fund.

One example of student-driven field work supported by the grant features Energy Interns working with the campus's Maintenance and Operations Department. Student interns surveyed lighting and plug loads in classrooms over break periods, noting many areas that were over lit, including inaccessible areas. Recommendations for more energy efficient lighting measures were made based on the survey findings, allowing students to incorporate their field work into action items. In addition to performing lighting audits, other student projects include energy awareness videos and a study that led to a more efficient parking lot illumination design.

Cabrillo has partnered with nearby University of California, Santa Cruz (UCSC), on another NSF grant to establish a collaborative network to share sustainability curriculum ideas for all disciplines. Through the Engaged Interdisciplinary Learning in Sustainability (EILS) grant, Cabrillo collaborates with UCSC to share and develop sustainability curriculum. The UCSC Sustainability Engineering and Ecological Design website (https://seed.soe.ucsc.edu/) provides an online forum for collaboration, inviting faculty to upload and share related syllabi and lesson plans that have been infused with sustainable elements. By utilizing the resources of the nearby university, Cabrillo can strengthen its own internal efforts to

encourage faculty to "green" their curriculum. Not only are faculty provided with more information on how to incorporate sustainable efforts, but Cabrillo regularly uses the campus Flex Week to increase communication and raise additional awareness on the necessity to address environmental and sustainability issues that will likely appear in future teaching material.

The combination of the NSF grant for sustainability in STEM programs and the grassroots communication campaign to raise awareness and encourage the infusion of sustainability in all disciplines marks just one aspect of Cabrillo College's quest to green their campus and curriculum. Other grant funding has supported the development of an Energy Management AS degree and related certificates as well as a LEED Platinum-designed facility for this program. Cabrillo's long term goals include the development of certification programs and eventually an Associate degree in sustainability, although these will take considerably more funding and require immense planning. Until then, Cabrillo will continue to utilize its external grants and its own human resources within various departments to improve existing curriculum by adding relevant modern day issues and challenges with sustainability.

CLIMATE ACTION PLAN

Cabrillo College has been a signatory to the President's Climate Commitment since July 2007, when it joined numerous other higher education institutions in a pledge to reduce their contribution to climate change by reducing its GHG emissions. Cabrillo's Climate Initiative Task Force (CITF) was formed soon afterwards in 2008 to address the commitment's pledge of ultimately becoming climate neutral.

The CITF's initial efforts featured working with students to help conduct a baseline data inventory of current GHG emissions, thereby establishing the campus's carbon footprint. The analysis provided an assessment of Cabrillo's emission levels, informing a management and reduction plan which targeted various sources of emissions such as transportation.

From these initial studies, the CITF developed a Climate Action Plan intended to reduce emissions and fulfill the President's Climate Commitment. Target areas include offering incentives to utilize alternative transportation methods, increasing the use of renewable energy sources on campus, and implementing a Sustainable Energy Plan focused on energy efficiency and conservation throughout the

PROGRAM AT-A-GLANCE

The following existing programs are a sample of those that will be enhanced and aggressively promoted to meet Cabrillo's energy efficiency and conservation goals:

- Modernization of building energy management systems

- Motion sensors and energy efficient lighting in buildings and parking garages

- Installation of LED exit signs

- Planned Compact Fluorescent Lights (CFL) give-away programs

- Institute and promote "Building Monitor" program to facilitate and enforce daily power strip and equipment turn-off

- Electric fleet vehicles

- Alternative transportation education/incentive programs

- Student Bike Co-op and Sustainability Council

- Student Health Services' Subsidized/Custom-fit Bike Helmet Program

campus community.

Despite ongoing campus construction and recent state budget cuts, the Climate Action Plan continues to provide an aggressive and practical road map to reducing Cabrillo's GHG emissions to its 1990 levels and eventually achieving climate neutrality.

PROGRAM AT-A-GLANCE

- **Flex Week Presentation on Building A Sustainable Culture at Cabrillo** http://cabrillogreensteps.org/pdfs/BuildingaSustainableCultureatCabrillo.pdf

CALIFORNIA STATE UNIVERSITY - CHICO
TRAVEL DATA COLLECTION FOR GREENHOUSE GAS INVENTORIES

Districts that are dedicated to reducing their GHG emissions and creating a Climate Action Plan will need to begin by conducting an inventory of baseline GHG emissions for a given year. Depending on the District's goals, this may involve calculating the GHG emissions for multiple years, including inventories for years past.

CONTACTS:

Fletcher Alexander
Sustainability Coordinator
falexander@csuchico.edu

The CSU Chico GHG inventories were performed by Halli Bovia, who was the Sustainability Coordinator at CSU Chico at the time and who had created the GHG inventory for neighboring Butte College of the Butte-Glenn Community College District.

CALCULATING GHG EMISSIONS FROM TRAVEL

The Clean Air-Cool Planet tool, recommended by the ACUPCC, was utilized to perform the GHG inventory. While the tool's spreadsheet was transparent and somewhat versatile, it could not accommodate CSU Chico's needs for calculating transportation emissions for commuting and travel funded by the college. As a result, a team of student interns built their own spreadsheet tool to calculate travel emissions. Many individuals who have conducted GHG inventories and reported to systems like the ACUPCC or STARS have said that data collection was the most difficult and time consuming part of the effort.

DESIGNING SURVEYS TO COLLECT DESIRED COMMUTE DATA

Districts reporting to the ACUPCC will need to collect data on student and faculty commuting. Exploring the GHG inventory tool of choice beforehand can help tailor the data to ask as few questions as possible while collecting the essential data needed to complete the inventory. Keeping the survey as short as possible and having a fast and efficient way to distribute the survey, such as through email, can improve response rates.

CSU Chico's Sustainability Coordinator at the time, Halli Bovia, found that it was easier to survey at CSU Chico than it was at Butte College because of the different email systems; while all students and staff at CSU Chico receive a CSU Chico email account, those at Butte College only receive a Butte College email address if requested. Bovia also found that distributing surveys through classes was less successful than collecting responses online.

CREATING A TOOL TO COLLECT TRAVEL DATA EFFECTIVELY

Travel records of trips sponsored by CSU Chico are only available in paper files and without electronic records, therefore adding a level of difficulty when trying to survey GHG emissions associated with transportation expenses. Due to the sensitivity of the information, the travel records could not be moved from their location of storage, therefore in order to calculate the GHG emissions from campus-sponsored travel, the paper files had to be organized at the storage site. This effort to manually review the paper records and collect the GHG inventory took approximately 100 labor hours.

Since Climate Action Planning requires regular GHG inventories to track progress in GHG reductions, CSU Chico developed a travel expense claim spreadsheet to make future calculations of emissions from travel more efficient. The spreadsheet requires the user to calculate and input the miles traveled and allows electronic record keeping in order to facilitate future inventories, saving time and personnel resources.

In order to assist individuals in entering information correctly with the new travel expense form, the Institute for Sustainable Development at CSU Chico put together a presentation carefully detailing where employees could find mileage information for the different modes of transport. The total trip mileage, split by mode, is summarized at the bottom of the form for easy access in the future.

EXAMPLE

Presentation on Finding Mileage:
http://www.csuchico.edu/sustainablefuture/practices/documents/travel_miles.ppt

BUTTE COLLEGE IN NORTHERN CALIFORNIA
FIRST GRID POSITIVE COLLEGE AND NEW RIDESHARE PROGRAM

In 2009 Butte College took first place in the Campus Sustainability Leadership Awards, selected by the AASHE. The only community college among the honorees, Butte College is a trailblazer when it comes to impressive and aggressive sustainable energy practices. A signatory to the Talloires Declaration and the President's Climate Commitment, the college is dedicated to incorporating environmental sustainability into its academics as well as confronting climate change with strategic action.

> **CONTACT:**
>
> **Kim Jones**
> Butte College
> Assistant Director of Facilities
> 530-879-6144

Butte's primary goal is to be climate neutral by 2015. Although the campus boasts a number of ongoing sustainability projects, its energy efforts receive the most attention and funding. With approximately 25,000 solar panels at its main campus and Chico Center, Butte made history as one of the first colleges in the country to be "grid positive" or generate more solar energy than it uses.

Butte has put its funding to good use by implementing a three-phase solar panel project, with the first installation in 2005, a second in 2008, and third in 2011. The following highlights how Butte has not only generated a green, "grid positive" campus, but also how its college community has contributed to maintaining a sustainable environment by reducing harmful transportation emissions and costs with a successful rideshare program administered by Zimride.

GRID-POSITIVE

In June of 2011, Butte College was the first U.S. institution to become "grid positive," having the capability to generate more electricity than it consumes from its solar arrays. This achievement has been in progress since the first set of 5,700 solar panels were installed in 2005, followed by an on-site generation installment bringing the panel count to 10,000 in 2009. At the time, these two installments alone reduced the college's utility bills by a third. Since then the pay-off has significantly improved, with over 25,000 solar panels generating more that 6.5 million kilowatt hours of electricity a year and potentially saving the college $50 to $75 million over 15 years. Butte will reap huge benefits from going grid-positive, as it will

PROGRAM AT-A-GLANCE

- Will save **$50 million to $75 million** over 15 years

- Operates **25,000** solar panels on a 928-acre wildlife refuge

- Generates more than **6.5 million** kilowatt hours of electricity per year--enough to power about 920 average-sized homes

not only get paid for the excess electricity production, but also avoid increases in future electricity rates. The savings generated offer immense re-investment opportunities for improvements in academics and on campus, as well as seeking increased enrollment capacity in the two-year school.

Based on these achievements, Butte College was the recipient of the 2012 Board of Governors Energy and Sustainability Award in the Facilities and Operations category.

ZIMRIDE RIDE SHARE

Butte utilizes private rideshare services administered by Zimride to create a network of commuters interested in carpooling around the campus community. The online internal database is accessible to students and campus employees, allowing users to post requests for rideshares, either as drivers or passengers.

Zimride provides the rideshare service to Butte for an annual flat fee of $10,000. In comparison, the average cost for Butte to build a new parking lot is $3,000/space and roughly $11,000/space to build a new parking garage. In addition to the savings incurred from utilizing Zimride services in lieu of building new parking structures, Zimride carpoolers enjoy preferred parking spots that are free of charge.

Following the start of the program in early 2010, Butte's network emerged as one of the fastest growing in the entire Zimride system. The network doubled in the last six months of 2010 boasting 135% in network growth.

With an average of 51 ride options to choose from, the expanded and ever-growing network provides users with a number of commute options to and from campus, home and even local sporting events. The greater Butte College community has embraced this sustainable transportation practice, reducing harmful CO_2 emissions and increasing cost savings associated with vehicles and gas.

Out of over 90 colleges and universities utilizing ZimRide service, Butte's usage ranks 12th in percent of population utilizing the rideshare service for commuting. Furthermore, the college has recently expanded its Zimride network of rides by partnering with nearby CSU Chico.

Six month PROGRAM AT-A-GLANCE*

- **696 users** last semester (approx. 14,000 students at Butte)

- **486 commutes** posted, avg. 13 miles

- **175,980 CO2** (lbs) reduced

- **$117,970** saved in vehicle costs

- **9,071 Gas** (gal) reduced

*Jan-June 2011

ORANGE COAST COLLEGE
REDUCING WASTE AND GENERATING REVENUE THROUGH RECYCLING

Orange Coast College's Recycling Center has been in operation since 1970, generating revenue to support OCC. The Recycling Center serves as the primary facility in the surrounding community, processing nearly 3,000 pounds of plastic and 4 tons of paper a day, in addition to 29,000 pounds of aluminum cans per week. In addition to processing basic recyclables, the center accepts e-waste, scrap metal and green waste on a weekly basis. Revenue generated from the center goes directly to the Associated Students of Orange Coast College fund, with a projected total of $331,000 for the 2011 fiscal year.
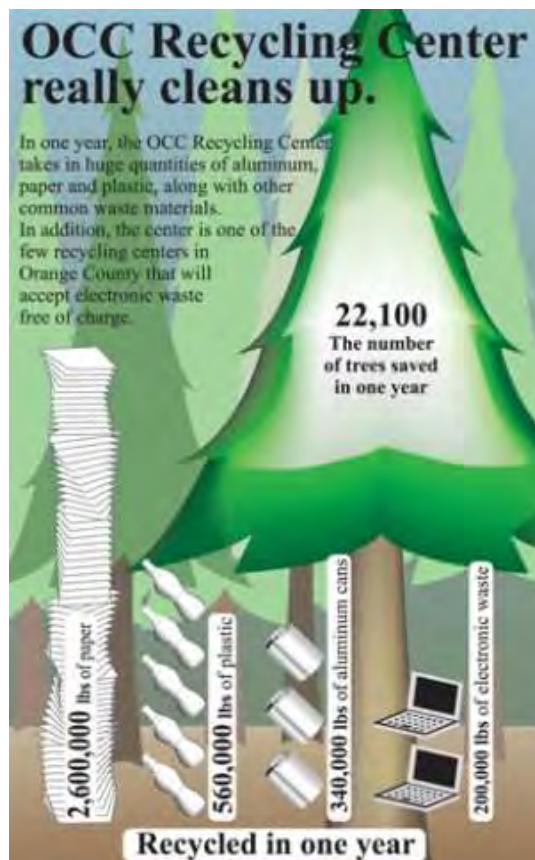
> **CONTACT:**
>
> **Mike Carey**
> Sustainability Coordinator
> (714) 432-5131

The following highlights how the OCC Recycling Center not only provides a green service, but does so by utilizing sustainable operations to effectively maximize efficiency and productivity.

OCC RECYCLING CENTER: A MODEL FOR SUSTAINABLE SUCCESS

While many colleges and campus communities across the US have been slow to initiate recycling efforts, OCC has been on the forefront of the "reduce, re-use and recycle" endeavor since opening the Recycling Center 41 years ago.

Always on the forefront of eco-friendly practices, the center has since adapted various sustainable measures that keep operations running efficiently, allowing for increased processing while cutting expenditures.

New equipment purchases increase productivity by crushing large recyclable quantities into smaller sizes and accepting containers with liquid. Such specialized equipment reduces labor by 12 hours a day and allows for fewer truckloads of plastics and aluminum given the more compact size of crushed items. In addition to upgrading machinery for standard recyclables, the center increased its compost capacity with a tub grinder that turns scrap wood and foliage into mulch. Renting the tub grinder has saved the center $13,000 a year.

In June of 2010 the center took another step towards sustainability with a photovoltaic solar installation. With support from the OCC Sierra Club, forty 210w solar panels were installed, providing an 8.4 kW system with its output available online to the public. The solar project will reduce the center's carbon footprint while saving approximately $1,200 annually in energy costs.

The OCC Recycling Center encourages not only the campus community to utilize its services, but also reaches out to the surrounding area, offering a place for households and offices to safely dispose of e-waste. A California State Certified Collector and partner with the Costa Mesa Sanitary District, the center accepts daily donations of batteries, fluorescent light tubes, computers and monitors, televisions, printers, fax machines, projectors, and more.

In June of 2011 the center demonstrated yet another innovative approach to recycling by administering on-line auctions for surplus equipment, furniture, and electronics. The OCC Recycling Center continues to raise the bar in sustainable operations while making the green practice of recycling easily accessible to the greater community.

PROGRAM AT-A-GLANCE*

- Solar PV Size: **8.4 kW DC**

- **15,188.3 lbs CO2** avoided

- **1.4 lbs NOx** avoided

- Lifetime generation: **12,192 kWh** (enough energy to operate a TV for 84,736 hours)

*As of September 2, 2011

SHASTA COLLEGE
LOCAL HIGH SCHOOL OUTREACH THROUGH THE EE‑TECH PROGRAM

Shasta College has partnered with local high school districts to design technical coursework for students interested in the energy technology field. The Emerging Energy Technology Pathways program (EE-Tech), provides a great model that can be replicated in other communities, encouraging partnerships between secondary and higher education institutions. First offered to students in Fall 2009, the program provides a focused academic and career pathway for students attracted to green technologies, equipping them with the skills necessary to excel at the collegiate and professional level.

CONTACT:

Brad Banghard
Dean, Economic and
Workforce Development
Shasta College
(530) 242-7630

EE-TECH

Similar to other community colleges, Shasta College receives a good portion of its student from nearby schools.Partnering with Shasta Union and Anderton Union High Schools Districts as well as local charter schools was a clear tactic of the EE-Tech program, providing for a natural transition of students from high school to college.

The initial program offering provides challenging curriculum focused on wind and photovoltaic energy sources. Future coursework is being designed to focus on other renewable energy sources, such as bio-fuels and hybrid technology. Students are offered introductory courses with subsequent in-depth college-level classes available to upperclassmen. Completion of EE-Tech coursework offers academic credit at both the partnering high school and Shasta College, creating a clear pathway for various certifications and AA degrees or transfer to a four-year program elsewhere.

The program is grant-funded, supported by the James Irvine Foundation and in partnership with Shasta Union High School District, Anderson Union High School District, Shasta College, Shasta-Trinity Regional Occupation Program and Redding Electric Utility. Grant funds assist students enrolled in the EE-Tech program with tuition, books, fees, and tutoring needs.

In an effort to further enhance the EE-Tech program, Shasta College has been working towards establishing four core courses focusing on industrial technology programs. Called the Industrial Technology Core, these courses are intended to serve as a foundation for all industrial tech programs, including the EE-Tech program, thereby offering dual enrollment for coursework at both the college and high school while providing multiple academic pathways

PROGRAM AT-A-GLANCE

- Academic Focus: Solar, Wind, Bio-Fuels, and Hybrid Tech

- Credit towards high school diploma and Shasta College

for students. High school students that complete the core courses receive a certificate and they can then migrate to any of the industrial tech programs offered at Shasta College. This provides a multi-disciplinary approach, branching beyond the wind and solar options provided by the grant that is strictly dedicated for the EE-Tech Program.

The following diagram illustrates the pathway that students currently take through the Industrial Technology Core program:
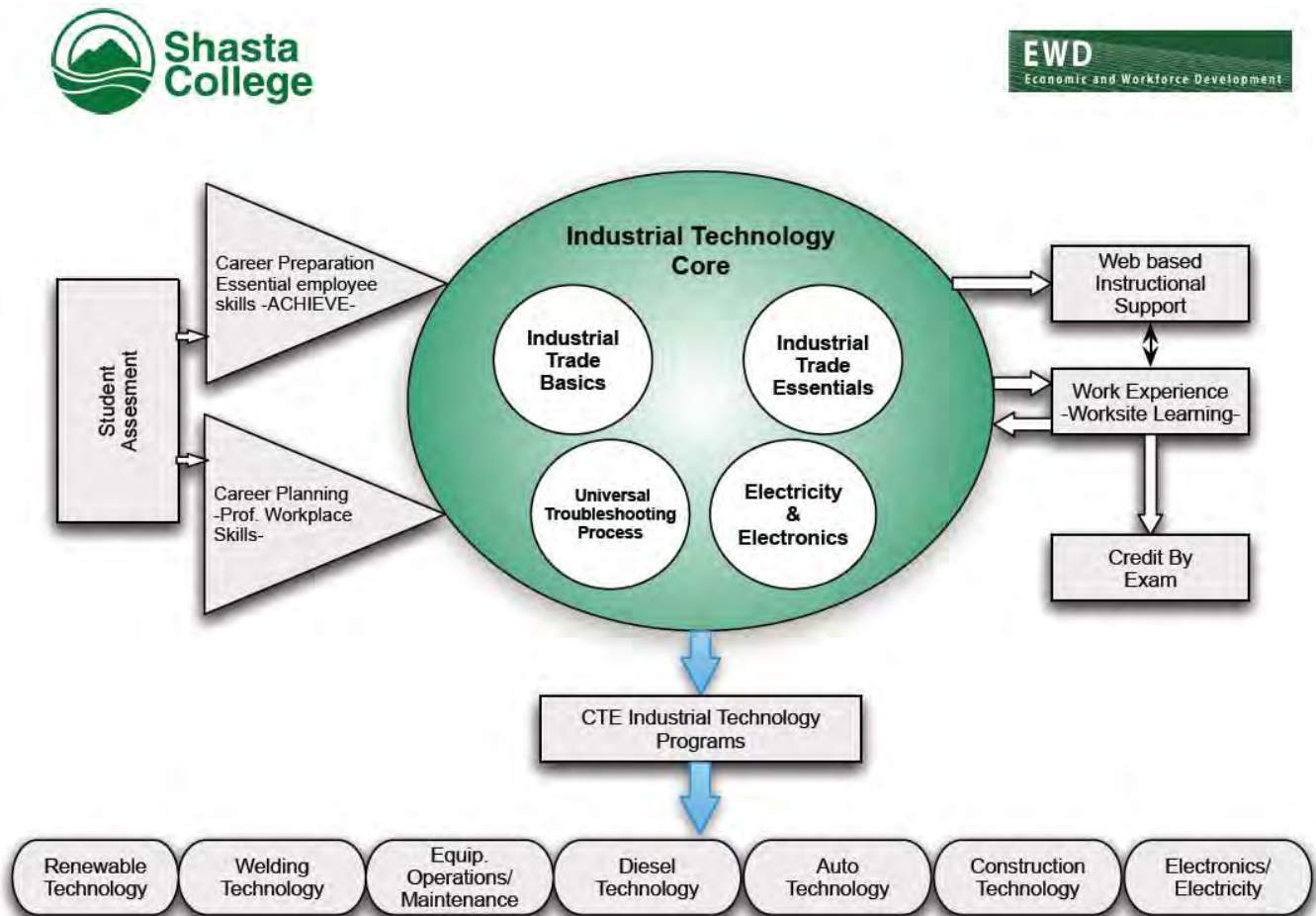
UNIVERSITY OF CALIFORNIA, BERKELEY
GREEN CERTIFICATION, TALKING LOUDER, AND TRAVEL-FREE MEETING GRANTS

UC Berkeley has long been a leader in innovative strategies that support the campuss dedication to creating a sustainable environment while fulfilling its responsibilities as a signatory of the ACU President's Climate Commitment. The campuss 2009 Sustainability Plan outlines various goals that coincide with the UC Berkeley Climate Action Plan (CAP), including the effort to reduce greenhouse gas emissions to 1990 levels by

CONTACT:

Lisa McNeilly
Director of Sustainability
(510) 643-5907

2014. In 2011 the campus issued a Sustainability Report, noting a slight increase in GHG emissions by .8% in 2010 (equivalent to 1,400 metric tons of CO2), however emissions still remain 5% below the 2008 levels.

The following highlights a variety of staff and student driven initiatives which provide a comprehensive and aggressive package of sustainable activities, ranging from high-level planning and reporting to small incentives and communication campaigns, all of which encourage a greener campus.

GREEN CERTIFICATION PROGRAM

The UCB Green Certification program encourages department staff and campus event organizers to engage in sustainable activities that not only create a greener environment but also increase the eco-awareness of students and event attendees.

The Green Department provides resources to assist potential certificate recipients in identifying ways to have more sustainable operations, including resourcefulness in energy, food, compost, waste, venues, recyclable materials, transportation and purchasing practices. Upon certification, departments and events receive recognition for decreasing the environmental impact of their work and are encouraged to maintain their efforts while coming up with fresh ideas. An ongoing grant program competition offers small funding, motivating people to submit ideas on how they could make their department more sustainable if they had $50 to spend.

PROGRAM AT-A-GLANCE

- **Green Certified Departments**: 9*

- **Green Certified Events:** 59**

- **Green Certification Website:** http://sustainability.berkeley.edu/os/pages/gcerts/

* As of November 4, 2010
** As of May 23, 2011

Inspiring and incentivized practices such as the small funding competition and Green Certification program promotes innovation in the UCB community, making sustainable practices more realistic and attainable to various academic departments and events of all sizes.

TALKING LOUDER ABOUT SUSTAINABILITY

The UCB Office of Sustainability initiated *Talking Louder* as a communication outreach mechanism designed to raise awareness of campus-wide efforts to reduce environmental impacts while encouraging sustainable practices. *Talking Louder* increases accessibility to informative ways that staff, faculty, and students can make better, more eco-conscience decisions in areas such as transportation, purchasing, water use, waste, compost, recycling, and food.

PROGRAM AT-A-GLANCE

- **One student sustainability forum** offered each semester

- **Bright Green News** readership increased from a subscription base of 400 to 1,400 as a result of the campaign, representing a 250% increase in readership

Educating the UCB community on both the most and least effective ways to reduce harmful impacts on the environment creates a constantly evolving open dialogue of best practices in sustainability. The *Talking Louder* communications campaign reaches various audiences with a multi-media approach that utilizes newsletters, music videos, and in-person discussion forums as a means to share and exchange tools and knowledge on eco-friendly behavior at both the individual and group level.

Talking Louder promotes sustainable actions not only for everyday activity at home, but also at work by providing a campus sustainability walking tour. The self-guided one-hour walking tour, lead by an info-sheet and map, showcases the sustainability features adopted on campus by UCB.

TRAVEL-FREE MEETING GRANT PROGRAM

Funding provided by the Climate Action Fund allows the Office of Sustainability to implement the innovative Travel-Free Meeting Grant Program. Intended to reduce air travel for business trips by awarding grants up to $100 for alternative travel-free meetings, the program's purpose is to help:

- Provide incentives for and remove barriers to using video/web-based services as meeting alternatives to business air travel.
- Increase general awareness about the environmental impacts of campus business air travel.
- Be part of a larger effort to reduce the number of UC Berkeley's business air trips by up to 10% in the next two years.

By promoting stationary meeting methods, the small yet cost-effective grant award is designated for use by either hosting a ReadyTalk web meeting, a

PROGRAM AT-A-GLANCE

- **Goal:** This program - along with other campus efforts - strives to reduce business air travel by up to 10% in the next two years*. This will result in 2,900 fewer business air trips saving:

  o **2,000 metric tons** of GHG emissions annually (0.7 metric tons per trip)

  o **$1.4 million** in travel expenses saved annually (assumes $475 for two-day domestic trip-air travel, hotel and rental car)

*The program runs through December 2011.

video-conference or purchasing a camera for a computer web-conference.

In an effort to familiarize the UCB community with alternative ways to attend meetings, the Office works with various campus partners to provide trainings on stationary meeting tools such as ReadyTalk and Skype. By establishing partnerships with the Business Process Analysis Working Group, Cal People and Computer Training, and Educational Technology Services, the Office hosted a series of informational and training events that are easily accessible to faculty and staff. The Travel-Free Meeting Program strives to reduce the harmful and costly effects of travel, while encouraging the improvement of technology skills among the UCB community by creating a grant incentive.

RESOURCES FOR IMPLEMENTATION

In this section, Districts will find potential resources for implementation assistance. The resources listed in this section may or may not be applicable to individual Districts depending on the availability of these agencies or utilities in their local area.

At the end of this section is an aggregated list of resources that have been identified throughout the Guidebook with links to the original source.

11.1 LOCAL RESOURCES FOR IMPLEMENTATION

LOCAL GOVERNMENT

The District's city or county may be creating a local government Climate Action Plan, in which case Districts and local governments can collaborate to achieve similar goals to reduce carbon emissions, since local government greenhouse gas inventories are likely to include the community college campus emissions. The District and local government are likely to have similar interests in developing public transit and solid waste reduction and management programs.

Collaboration with the local government may also be necessary for large infrastructure developments, such as connections to grey water infrastructure and creation of bike lanes.

Local governments also have access to resources for sustainability planning through ICLEI and the California Energy Commission Energy Aware Planning Guide. Information about ICLEI can be found on their website here: http://www.iclei.org/

For access to the CEC Energy Aware Planning Guide, visit:
http://www.energy.ca.gov/energy_aware_guide/

CCC BOARD OF GOVERNORS

The California Community College Board of Governors has developed an Energy and Sustainability Policy stipulating energy conservation goals and energy efficiency goals for new construction and renovation projects. In addition to financial assistance, the Energy and Sustainability Policy includes guidelines for energy independence, energy conservation, sustainable buildings, and physical plant management best practices.

The Energy and Sustainability Policy can be accessed here:
http://extranet.cccco.edu/Portals/1/CFFP/Facilities/Cap_Outlay_Docs/3-1_energy_sustainability.pdf

OTHER COLLEGES AND UNIVERSITIES

Districts can partner with nearby colleges and universities if applicable to enhance their sustainability efforts by sharing knowledge, best practices, and pooling resources to improve the effectiveness of sustainability projects. One example of such collaboration is between Butte College and CSU Chico, where a partnership between the two campuses in their carpooling network broadened the availability of rides and riders for both schools. One of the case studies in Section 10, Best Practice Case Studies, illustrates Butte College's success with the Zimride carpooling service.

HIGHER EDUCATION ASSOCIATIONS

There are several associations and coalitions that have formed to pool resources and to serve as a forum for communication for higher education institutions.

The Association for the Advancement of Sustainability in Higher Education (AASHE) is a non-profit organization that hosts resources, conferences, awards, and the STARS rating system, and provides networking for higher education institutions. Visit http://www.aashe.org/ for more information.

The National Wildlife Federation (NWF) Campus Ecology program provides resources and webinars for campuses to improve their sustainability. The Campus Ecology program also provides campus networking and publishes ClimateEdu, an e-newsletter that covers campus projects in sustainability. For more information, visit http://www.nwf.org/Global-Warming/Campus-Solutions.aspx

The National Association of College and University Business Officers (NACUBO) serves as a resource for higher education institutions and has information on a wide range of business and policy areas, including endowment management and facilities and environmental compliance. To learn more, visit their website at http://www.nacubo.org/

Second Nature supports senior college and university leaders, including presidents, chancellors, provosts, chief financial officers, and trustees, in creating a more sustainable campus. Second Nature also supports national initiatives that are focused on sustainability in higher education, such as the American College and University Presidents' Climate Commitment. Visit the Second Nature website at http://secondnature.org/

CCC/IOU ENERGY EFFICIENCY PARTNERSHIP

Districts that participate in the CCC/IOU Partnership Program for implementation assistance can receive incentives for their energy efficiency projects as well as implementation support. Buildings enrolled in the MBCx program will receive engineering assistance and training for facilities management staff. Projects enrolled in the retrofit programs will have their energy savings verified by a third party source.

WATER AND WASTEWATER UTILITIES

The local water and wastewater utilities may have some suggested local best practices and marketing materials for Districts to use to spread awareness of water conservation. Some water districts may also

provide services such as irrigation audits to help determine the District's soil type and better identify the soil's irrigation needs.

MUNICIPAL TRANSPORTATION AGENCY

If there is one, the Municipal Transportation Agency may have resources to assist Districts in improving carpooling and public transit use, and may also have materials to increase awareness of alternative transportation methods. Assistance may be through a program, such as a vanpool network to assist individuals in setting up a new vanpool, or through reduced price transit passes.

SOLID WASTE AGENCY

Solid waste agencies may be able to provide some support in waste reduction and management by providing waste sorting bins, composting bins, educational materials to help individuals become familiar with proper waste disposal, and to increase awareness of waste reduction strategies.

11.2 RESOURCES LISTED BY SECTION

The following is a compilation of resources described in the Guidebook, organized by section. Websites are listed as hyperlinks that will take the user directly the resource website.

SECTION 3. POLICY AND REGULATORY DRIVERS

CCC Board of Governors Energy and Sustainability Policy
http://extranet.cccco.edu/Portals/1/CFFP/Facilities/Cap_Outlay_Docs/3-1_energy_sustainability.pdf

SECTION 6. ECONOMICS AND FINANCING OF SUSTAINABILITY PROJECTS

Accelerating Campus Climate Initiatives
Rocky Mountain Institute & Association for the Advancement of Sustainability in Higher Education
http://www.aashe.org/files/documents/resources/RMI_AcceleratingCampusClimateInitiatives.pdf

Best Practices Toolkit: Energy Performance Contracting for Higher Education
The American College & University's Climate Commitment; The Clinton Foundation's Climate Initiative
http://www.presidentsclimatecommitment.org/resources/eebrp/toolkit

Building Life-Cycle Cost (BLCC) Program
National Institute of Standards and Technology
http://www1.eere.energy.gov/femp/information/download_blcc.html

California Cap-and-Trade Program
California Air Resources Board
http://arb.ca.gov/cc/capandtrade/capandtrade.htm

California Community Colleges/Investor Owned Utilities (CCC/IOU) Energy Efficiency Partnership
PG&E, SCG, SDG&E, and SCE
http://cccutilitypartnership.com/

California State Grants
An Online Database of California State Grants Available
http://www.ca.gov/Grants.html

CalRecycle
California Department of Resources Recycling and Recovery
http://www.calrecycle.ca.gov/

Climate Reserve Tonnes
Certified Carbon Reduction Credits
Climate Action Reserve
http://www.climateactionreserve.org/

ECONPACK
Economic Analysis Tool
U.S. Army Corps of Engineers
http://www1.eere.energy.gov/femp/information/download_blcc.html

Federal Grants
An Online Database of Federal Grants Available
http://grants.gov/

Energy Efficiency Financing
California State Loans for Energy Efficiency and Renewable Energy Projects
California Energy Commission
http://www.energy.ca.gov/efficiency/financing/index.html

Energy $mart
Financing for Energy Efficiency and Renewable Energy Projects
California Department of General Services
http://www.dgs.ca.gov/pd/Programs/StateFinancialMarketplace/Energy.aspx

Foundation for the California Community Colleges
http://www.foundationccc.org/

Green Schools: Attributes for Health and Learning
A Review of the Quality of Indoor Environments and their Impact on Productivity
Committee to Review and Assess the Health and Productivity Benefits of Green Schools, National Research Council
http://www.nap.edu/catalog.php?record_id=11756

Greening the Bottom Line
Green Revolving Funds
Sustainable Endowments Institute
http://www.greeningthebottomline.org/

Health Effects of Ozone in Patients with Asthma
US EPA
http://www.epa.gov/apti/ozonehealth/effects.html

Life Cycle Cost Assessment Model
California Green Building Initiative
http://www.green.ca.gov/LCCA/default.htm

Recycle Mania
Resources for Reducing Waste on College Campuses
http://recyclemania.com/

Renewable Energy Certificates
California Public Utilities Commission
http://www.cpuc.ca.gov/PUC/energy/Renewables/FAQs/05REcertificates.htm

StopWaste.Org
Resources for Waste Reduction
Alameda County Waste Management Authority
http://stopwaste.org/

Sustainable Communities Program
Statewide Energy Efficiency Collaborative
http://californiaseec.org/

The Costs and Financial Benefits of Green Buildings
A Report to California's Sustainable Building Task Force
http://www.usgbc.org/Docs/News/News477.pdf

SECTION 7.1 MANAGEMENT AND ORGANIZATIONAL STRUCTURE

A Practical Guide to Hiring a Sustainability Professional for Universities and Colleges
A Guide for Hiring Sustainability Professionals
The Campus Consortium for Environmental Excellence
http://www.c2e2.org/sustainability_guide.pdf

Higher Education Sustainability Staff Survey
A Study on Sustainability Staff Credentials, Experience, and Salaries
Association for the Advancement of Sustainability in Higher Education
http://www.aashe.org/files/2010_staffing_survey_final.pdf

Integrating Environmental, Social, and Governance Issues Into Institutional Investment
A Guide on Responsible Endowment Investments
Responsible Endowments Coalition
http://www.endowmentethics.org/component/jdownloads/finish/3/5/0

SECTION 7.2 ENERGY EFFICIENCY

California Community Colleges/Investor Owned Utilities (CCC/IOU) Energy Efficiency Partnership
PG&E, SCG, SDG&E, and SCE
http://cccutilitypartnership.com/

Demand Response
Information on Demand Response and Links to IOU Demand Response Programs
California Public Utilities Commission
http://www.cpuc.ca.gov/PUC/energy/Demand+Response/

SECTION 7.4 SUSTAINABLE BUILDING PRACTICES

Campus Green Builder
A Portal to Green Building Information for Higher Education Institutions
http://www.campusgreenbuilder.org

LEED Rating Systems
US Green Building Council
http://www.usgbc.org/DisplayPage.aspx?CMSPageID=222

SECTION 7.5 ON-SITE GENERATION AND RENEWABLE ENERGY

Community Choice Aggregation
Resources and Information about Community Choice Aggregation
California Public Utilities Commission
http://www.cpuc.ca.gov/PUC/energy/Retail+Electric+Markets+and+Finance/070430_ccaggregation.htm

SECTION 7.6 TRANSPORTATION, COMMUTING, AND CAMPUS TRAVEL & FLEET

Guidance on Scope 3 Emissions, pt 1: Commuting
A Guide to Collecting Emissions Data for Commuting and Travel
Association for the Advancement of Sustainability in Higher Education
http://www.aashe.org/blog/guidance-scope-3-emissions-pt-1-commuting

SECTION 7.7 WATER, WASTEWATER, AND SUSTAINABLE LANDSCAPING

Bay-Friendly Landscape Guidelines
Sustainable Practices for the Landscape Professional
StopWaste.org
http://www.stopwaste.org/docs/bay-friendly_landscape_guidelines_-_all_chapters.pdf

Rainwater as a Resource
A Report on Three Sites Demonstrating Sustainable Stormwater Management
TreePeople
http://www.treepeople.org/sites/default/files/images/about/Rainwater_as_a_Resource.pdf

SECTION 7.8 SOLID WASTE REDUCTION AND MANAGEMENT

California Product Stewardship Council
Responsible Purchasing
http://www.calpsc.org

Paperless Express
A Guide to Reduce Paper Use in Offices
StopWaste.org
http://www.stopwaste.org/docs/paperlessguide.pdf

Reduce and Reuse
A Guide to Successful Waste Reduction
Stopwaste.org
http://stopwaste.org/home/index.asp?page=1188

StopWaste.Org
Resources for Waste Reduction
Alameda County Waste Management Authority
http://stopwaste.org/

SECTION 7.9 GREEN PURCHASING

Green Purchasing
Resources for Green Purchasing
Alameda County Waste Management Authority
http://stopwaste.org/home/index.asp?page=372

SECTION 7.10 STUDENT AND CURRICULUM DEVELOPMENT

Academic Senate for California Community Colleges
http://asccc.org/

Green Jobs
A Job Board for Careers in Sustainability
http://www.greenjobs.com/

Many Shades of Green
Regional Distribution and Trends in California's Green Economy
Next 10
http://next10.org/many-shades-green-regional-distribution-and-trends-california%E2%80%99s-green-economy

SECTION 7.11 CAMPUS AND COMMUNITY OUTREACH

350
Annual day of climate change awareness in the fall
http://www.350.org/

Campus Compact
Resources for Promoting Community Service in Higher Education
http://www.compact.org/

Earth Hour
Hour of energy conservation awareness in the spring
http://www.earthhour.org/

Earth Day
Annual day of environmental awareness on April 22
http://www.earthday.org/

Green Steps
Cabrillo College
http://www.cabrillo.edu/associations/climate/index.html

Sustainability at Butte College
Butte College
http://www.butte.edu/sustainability/

SECTION 7.12 RECOMMENDED FRAMEWORK, TOOLS, AND APPROACH FOR CREATING A CLIMATE ACTION PLAN

American College and University Presidents' Climate Commitment (ACUPCC)
http://www.presidentsclimatecommitment.org/

American College and University Presidents' Climate Commitment (ACUPCC) Reporting System
http://rs.acupcc.org/

Association for the Advancement of Sustainability in Higher Education (AASHE)
http://www.aashe.org/

Cabrillo College Climate Action Plan
http://rs.acupcc.org/cap/552/

Campus Climate Action Planning
National Wildlife Federation
http://www.nwf.org/campusecology/pdfs/climateactionplanning.pdf

Clean Air-Cool Planet Campus Carbon Calculator
A Greenhouse Gas Inventory Tool
Clean Air-Cool Planet
http://www.cleanair-coolplanet.org/toolkit/inv-calculator.php

Climate Change
Information on Climate Change Science
US EPA
http://epa.gov/climatechange/

Cool Campus! College Climate Action Planning Guide
Association for the Advancement of Sustainability in Higher Education (AASHE)
Website: http://www.aashe.org/wiki/climate-planning-guide
PDF: http://www.aashe.org/files/resources/cool-campus-climate-planning-guide.pdf

Greenhouse Gas Protocol
World Resources Institute
http://www.ghgprotocol.org/about-ghgp

Greenhouse Gas Protocol Calculation Tools
World Resources Institute
http://www.ghgprotocol.org/calculation-tools/all-tools

Guide to Climate Action Planning
Pathways to a Low-Carbon Campus
National Wildlife Federation
http://www.nwf.org/campusecology/pdfs/climateactionplanning.pdf

International Council for Local Environmental Initiatives (ICLEI)
http://www.iclei.org/

International Standards Organization
http://www.iso.org/

IPCC Fourth Assessment Report of Climate Change
Intergovernmental Panel on Climate Change
http://www.ipcc.ch/publications_and_data/publications_and_data_reports.shtml

The Climate Registry
http://www.theclimateregistry.org/

UC Berkeley Climate Action Plan
http://rs.acupcc.org/cap/65/

SECTION 9. MEASURE AND REPORT PERFORMANCE

Sustainability Tracking, Assessment, and Rating System (STARS)
Campus Sustainability Self-Rating System
Association for the Advancement of Sustainability in Higher Education (AASHE)
https://stars.aashe.org/

The College Sustainability Report Card
Campus Sustainability Rating System
Sustainable Endowments Institute
http://www.greenreportcard.org/

Sierra Club Cool Schools
Campus Sustainability Ranking System
Sierra Club
http://www.sierraclub.org/sierra/201009/coolschools/default.aspx

Princeton Review Green Rating
Campus Sustainability Rating System
http://www.princetonreview.com/green-honor-roll.aspx

SECTION 12.
APPENDICES

APPENDIX A: GLOSSARY OF TERMS

APPENDIX B: EXTERNAL RESOURCES FOR CITRUS CCD

APPENDIX C: CCC SUSTAINABILITY COURSES AND PROGRAMS

APPENDIX D: CALIFORNIA AIR QUALITY MANAGEMENT DISTRICTS

APPENDIX E: IMPLEMENTATION PROGRAMS AND PLANS CHECKLIST

APPENDIX F: SUSTAINABILITY PLAN DOCUMENT TEMPLATE

APPENDIX G: LIST OF CONTACTS

APPENDIX A:

GLOSSARY OF TERMS

Acronyms

AASHE	Association for the Advancement of Sustainability in Higher Education
AB	Assembly Bill
ACUPCC	American College and University Presidents' Climate Commitment
APCD	Air Pollution Control District
AQMD	Air Quality Management District
BLCC	Building Life Cycle Cost
BMS	Building Management System (also known as Energy Management System)
CA-CP	Clean Air-Cool Planet
CAP	Climate Action Plan
CARB	California Air Resources Board
CARROT	Climate Action Registry Reporting Online Tool
CCA	Community Choice Aggregation
CCC	California Community College
CCD	Community College District
C&D	Construction & Demolition
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CH$_4$	Methane (a greenhouse gas)
CO$_2$	Carbon Dioxide (a greenhouse gas)
CO$_2$e	Carbon Dioxide equivalent
COP	Certificate of Participation
CRT	Climate Reserve Tonne
CRV	California Redemption Value
CSU	California State University
EMS	Energy Management System (also known as Building Management System)
EPA	Environmental Protection Agency (Cal/EPA is the California state EPA, while the US EPA refers to the national agency)
EPC	Energy Performance Contract
ESCO	Energy Service Company
EUI	Energy Use Intensity
EV	Electric Vehicle
DR	Demand Response
FEMP	Federal Energy Management Program
FCCC	Foundation for California Community Colleges
GHG	Greenhouse Gas
GRF	Green Revolving Fund
HFCs	Hydrofluorocarbons (a greenhouse gas)
ICLEI	International Council for Local Environmental Initiatives
ILG	Institute for Local Government
IOU	Investor Owned Utility

IPCC	Intergovernmental Panel on Climate Change
IRR	Internal Rate of Return
kWh	Kilowatt-hour
LCCA	Life Cycle Cost Analysis
LCFS	Low Carbon Fuel Standard
LEED	Leadership in Energy and Environmental Design
LGC	Local Government Commission
MBCx	Monitoring Based Commissioning
MPO	Metropolitan Planning Organization
MTA	Municipal Transit Agency
MWh	Megawatt-hour
N_2O	Nitrous Oxide (a greenhouse gas)
NPV	Net Present Value
O&M	Operations and Maintenance
OBF	On-Bill Financing
OPR	Office of Planning and Research
PFCs	Perfluorocarbons (a greenhouse gas)
PG&E	Pacific Gas & Electric
PPA	Power Purchase Agreement
PV	Photovoltaic (Solar Panel)
RCx	Retrocommissioning
REC	Renewable Energy Credit or Renewable Energy Certificate
RFP	Request for Proposal
ROI	Return on Investment
SB	Senate Bill
SBDP	Sustainable Building Design Process
SCAQMD	South Coast Air Quality Management District
SCE	Southern California Edison
SCG	Southern California Gas
SCS	Sustainable Community Strategy
SDG&E	San Diego Gas & Electric
SEEC	Statewide Energy Efficiency Collaborative
SF_6	Sulfur Hexafluoride (a greenhouse gas)
SPB or SPP	Simple Payback Period
STARS	Sustainability Tracking Assessment and Reporting System
STEM	Science, Technology, Engineering, and Mathematics
T&D	Transmission and Distribution
TES	Thermal Energy Storage
TRC	Tradable Renewable Certificate
UC	University of California
VMT	Vehicle Miles Traveled
WRI	World Resources Institute

APPENDIX B:
EXTERNAL RESOURCES FOR CITRUS CCD

Summary of External Resources and Services Available to Citrus CCD

1. **General Sustainability Planning**
   - City of Glendora
     - Glendora is currently performing Greenhouse Gas Inventory and will share the report when complete.
     - After completing the GHG Inventory, Glendora will then draft a city-wide Sustainable City Action Plan.
   - Other Community Colleges
     - Citrus can reach out to other community colleges and state universities in the area to enhance curriculum and carpool offerings.

2. **Energy Efficiency Projects**
   - Investor Owned Utilities (IOUs)
     - CCC/IOU Partnership offers incentives for energy efficiency projects.
     - Local Government Energy Partnership
       - If there is crossover with the City of Glendora's plans, funding may be available through the San Gabriel Valley IOU partnership.
     - SCE Sustainable Communities Program
       - Pilot program to encourage inclusion of sustainability and energy efficiency features in new construction and major renovation projects

3. **Transportation Planning**
   - L.A. County Metropolitan Transportation Authority
     - The future Gold Line metro extension can be leveraged to increase transit use.
     - Rideshare (also known as Employee Commute Reduction Program or ECRP) development guides, products, and services, including:
       - Flyers, brochures, forms, posters, how-to guides and other materials
       - Comprehensive list of strategies for a successful rideshare program with recommended strategies highlighted
       - RideGuide commute matching for employees
       - AVR survey processing and booklet
       - Offers a guaranteed ride home program for emergencies
       - Free Metro weekly pass for new hires
       - Workshops on Metro marketing and commuter tax benefits
       - Rideshare event materials for promotion during Rideshare Week
       - Employee newsletters and other publicity material
     - Vanpool setup resources are available to individuals to facilitate the joining and creating of new vanpools.
     - Work with the City of Glendora to apply for funding through the LA MTA's annual Call for Projects for local transit enhancements.
   - Other Government Agencies With Possible Funding for Projects
     - AQMD Mobile Source Air Pollution Reduction Review Committee (MSRC)

4. **Solid Waste Management**
   - WARE Disposal
     - Roll-off services available for Construction & Demolition.
     - Collects e-waste for proper disposal.
   - Athens Services
     - Provides both food waste composting and green waste mulching and composting for no additional cost.
   - Allan Company
     - Currently buys recyclables from Citrus College.
   - City of Glendora
     - Glendora operates a GREENWASTE program for yard waste mulching.
     - The city sells subsidized compost bins.
     - The city also has multiple CRV buy back centers to facilitate the recycling of plastics.

5. **Water and Wastewater**
   - Azusa Light & Water
     - The DRiP Rebate program for up to 50% of the cost of low water consuming plants, artificial turf, and low flow irrigation technology up to $10,000 per major water account.
     - Citrus College has three major water accounts and is eligible for $30,000 in rebates each fiscal year.
     - Azusa does not provide wastewater or recycled water services.
   - LA County Sanitation District
     - Distance from Citrus College to closest water reclamation plant, the San Jose Creek Water Reclamation Plant, is about 11 miles.
     - Citrus College would need to partner with the City of Glendora to participate in the existing Water Reuse Partnership.

6. **Curriculum and Student Development Resources**
   - Southern California Edison
     - Developing Energy Efficiency Professionals (DEEP) internship program.

APPENDIX C:
CCC SUSTAINABILITY COURSES AND PROGRAMS

Below is a list of Associates Degrees and Certificates of Achievement approved by the CCC Chancellor's Office at the time of this Template's publication:

Allan Hancock College

Environmental Technology	A.S. Degree & Certificate of Achievement

Citrus College

Energy Systems Technology	A.S. Degree & Certificate of Achievement
Building Systems Design Technology	A.S. Degree & Certificate of Achievement

Golden West College

Environmental Studies	A.A. Degree & Certificate Of Achievement
Recycling and Resource Management	A.A. Degree & Certificate Of Achievement
Energy Efficiency and Renewable Energy	A.A. Degree
Energy Auditor	Certificate Of Achievement
Solar Energy	Certificate Of Achievement

Diablo Valley College

Energy Systems: Photovoltaics	A.S. Degree & Certificate of Achievement
Energy Systems : Solar Thermal Systems	A.S. Degree & Certificate of Achievement

El Camino College

Environmental Technology	A.S. Degree & Certificate of Achievement

De Anza College

Environmental Compliance and Pollution Prevention	A.A. Degree & Certificate Of Achievement
Energy Management and Climate Policy	A.A. Degree & Certificate Of Achievement

Cuyamaca College

Environmental Technician	Certificate Of Achievement
Environmental Management	A.S. Degree

Bakersfield College

Environmental Technology	A.S. Degree & Certificate of Achievement

L.A. Trade-Tech College

Weatherization and Energy Efficiency	Certificate Of Achievement
Energy Systems Fundamentals	Certificate Of Achievement

Mendocino College

SST Residential Performance & Efficiency	Certificate Of Achievement
SST Renewable Energy	Certificate Of Achievement

Merced College

Environmental Technologies	A.S. Degree & Certificate of Achievement

Mira Costa College

Energy Technology: Radiation Protection	A.S. Degree
Energy Technology: Operations	A.S. Degree

Mt. San Antonio College

Building Automation	A.S. Degree & Certificate of Achievement

Cypress College

Renewable Energy - Wind Turbine Technician	Certificate Of Achievement

Palo Verde College

Hazardous Materials Specialist	A.S. Degree & Certificate of Achievement

Merritt College

Environmental Hazardous Materials Technology	A.S. Degree & Certificate of Achievement
Environmental Management and Restoration Technology	A.S. Degree & Certificate of Achievement
Environmental Design and Energy Technology	A.S. Degree & Certificate of Achievement

Rio Hondo College

Environmental Technology	A.S. Degree & Certificate of Achievement
Alternative Energy Technology	A.S. Degree & Certificate of Achievement

San Diego Adult College

Weatherization Program	

Santa Monica City College

Recycling and Resource Management	Certificate Of Achievement
Solar Photovoltaic Installation	A.S. Degree & Certificate of Achievement

Sierra College

Watershed Ecology	A.S. Degree & Certificate of Achievement

Siskiyous College

Environmental Resources: Power Generation Technology	A.S. Degree & Certificate of Achievement
Environmental Resources: Sustainable Communities	A.S. Degree & Certificate of Achievement

Solano College

Hazardous Substance & Waste Handling Technician	Certificate Of Achievement

Irvine Valley College

Recycling and Resource Management	Certificate Of Achievement

Southwestern College

Environmental Management	A.S. Degree & Certificate of Achievement
Sustainable Energy Studies	Certificate Of Achievement

Moorpark College

Environmental Technology	A.S. Degree

Oxnard College

Environmental Technology	A.S. Degree & Certificate of Achievement

Mission College

Environmental Technology	A.S. Degree & Certificate of Achievement

APPENDIX D:
CALIFORNIA AIR QUALITY MANAGEMENT DISTRICTS

Below is a complete list of California's local air districts:

- **Amador County APCD**
- **Antelope Valley AQMD** (Northeast portion of Los Angeles County)
- **Bay Area AQMD** (Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, western portion of Solano, southern portion of Sonoma counties)
- **Butte County AQMD**
- **Calaveras County APCD**
- **Colusa County APCD**
- **Eastern Kern APCD** (Eastern portion of Kern County)
- **El Dorado County AQMD**
- **Feather River AQMD** (all of Sutter and Yuba counties)
- **Great Basin Unified APCD** (all of Alpine, Inyo, and Mono counties)
- **Imperial County APCD**
- **Lake County AQMD**
- **Lassen County APCD**
- **Mariposa County APCD**
- **Mendocino County AQMD**
- **Modoc County APCD**
- **Mojave Desert AQMD** (Northern portion of San Bernardino County, eastern portion of Riverside County)
- **Monterey Bay Unified APCD** (all of Monterey, San Benito, Santa Cruz counties)
- **North Coast Unified AQMD** (all of Del Norte, Humboldt, Trinity counties)
- **Northern Sierra AQMD** (all of Nevada, Plumas, Sierra counties)
- **Northern Sonoma County APCD** (Northern portion of Sonoma County)
- **Placer County APCD**
- **Sacramento Metro AQMD**
- **San Diego County APCD**
- **San Joaquin Valley APCD** (all of Fresno, Kings, Madera, Merced, San Joaquin, Stanislaus, Tulare, and Valley air basin portions of Kern counties)
- **San Luis Obispo County APCD**
- **Santa Barbara County APCD**
- **Shasta County AQMD**
- **Siskiyou County APCD**
- **South Coast AQMD**
- **Tehama County APCD**
- **Tuolumne County APCD**
- **Ventura County APCD**
- **Yolo-Solano AQMD** (All of Yolo and eastern portion of Solano counties)

APPENDIX E:

IMPLEMENTATION PROGRAMS AND PLANS CHECKLIST

A hard copy of the Implementation Programs and Plans Checklist is included on the following pages for the user's reference. However, users should employ the electronic version of this Implementation Programs and Plans Checklist to access its full functionality.

The Implementation Programs and Plans Checklist should be used in conjunction with Appendix F: Sustainability Plan Document Template.

APPENDIX F:

SUSTAINABILITY PLAN DOCUMENT TEMPLATE

A hard copy of the Sustainability Plan Document Template is included on the following pages for campus reference. However, users should employ the electronic version of this Sustainability Plan Document Template to access its full functionality.

The Sustainability Plan Document Template should be used in conjunction with Appendix E: Implementation Programs and Plans Checklist.

APPENDIX G:
LIST OF CONTACTS

For general questions about the Sustainability Template Plan project, the following individuals can be contacted:

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For detailed questions about the content of the Sustainability Plan Guidebook or Template, please contact:

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