Presidents Climate Commitment

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Abstract

This project was done for Environmental science 411 during the fall semester of 2008. We attempted to convince the President of Humboldt State University to sign on to the American College & University Presidents Climate Commitment. We met with President Richmond and Vice President Coffey two times to try to work out a deal. We also met with TallChief Comet, the current sustainability coordinator, a few times to get guidance and help presenting our information. The first meeting was a chance to find out if the President has considered the commitment and if he had why he has not signed on. At our second meeting we presented the president with a binder containing all of the documents that are mandatory for all California colleges along with the Presidents Climate Commitment. Within this binder is a comparison of all of these documents showing what we as a school would need to do beyond what is required by California law to complete the requirements of the Presidents Climate Commitment. The biggest requirement for Humboldt State to sign on to the PCC was to create an institutional structure that would have the power and be capable of carrying out sustainable policies and actions. TallChief Comet brought this committee up at the meeting saying that we should do this whether or not we sign on to the commitment. At the end of the meeting it was decided by the President that we would create this structure that would tie together all of the organizations on campus along with other projects to create one umbrella structure that could take the ideas created and put them into action. TallChief comet is the leader in creating this structure and will be assisted by us. The president did not end up signing the commitment because, he said, there are too many things within the commitment that are impossible to carry out. He has asked us to create a list of these things in the form of a letter. With this list he said he will sign the commitment with the stipulations that he is incapable of carrying out these specific tasks. We have started the committee process by having a meeting with Dr. Richard Hansis and TallChief Comet over linking his class with the committee and also by using Dr. Hansis's knowledge of how to go about creating this committee because he has already tried it at Humboldt without success 9 years ago and again when Richmond became the President.

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Mission Statement
To add Humboldt State University to the list of the Presidents Climate Commitment in an effort to further address our commitment to lessening climate change. This will not only help our environment but also push for sustainable education.

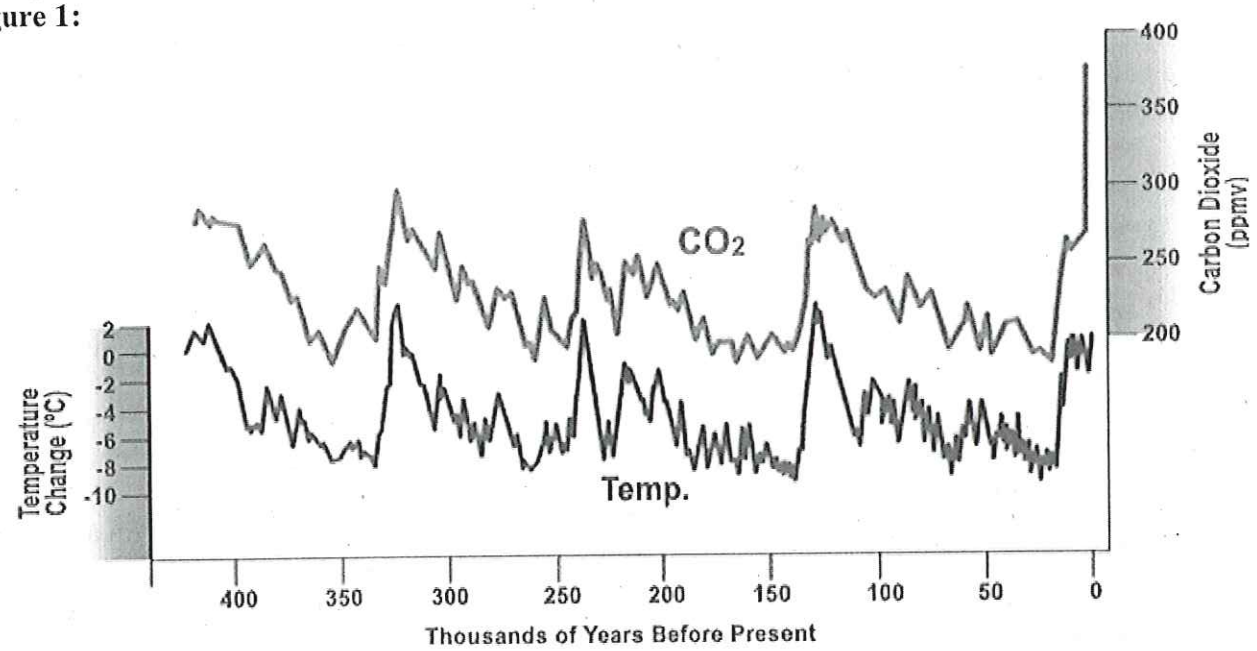
Big deal about GHG:

Greenhouse gas emissions, mainly carbon dioxide are a key factor in the single largest issue we face as humans; global warming. Carbon dioxide from anthropogenic sources mainly comes as a result of burning fossil fuels such as coal, oil, and natural gas. Their emissions have a direct connection to global temperature. Figure 1 shows historic temperature relationship with atmospheric Parts per million (ppm) of CO2. A global temperature rise has huge implications for all life and existence on earth. A few examples are; sea level rise, polar ice melting, change in agricultural production, species extinctions, and a change in our natural resources use, such as food and water.

Historic levels of CO2 in the atmosphere before humans began heavy fossil fuels use was around 300 ppm even as late as 1850. Today's levels are around 387 ppm and climbing(Tans 2008). Globally, we released 28.1 Gigatons of CO2 into the atmosphere in 2005, with projections of 34.3 Gigatons in 2015 and

42.3 Gigatons in 2030(EIA 2008). Atmospheric CO2 levels of 400 ppm is expected to raise the earth's temperature by 2 degrees Celsius, at 450 ppm another 2 degrees C and 550 ppm another 2 degrees C. Greenhouse gas Policy will attempt to lower our greenhouse gas emissions, in an attempt to freeze atmospheric concentrations of CO2 at one of these attainable levels.

Figure 1:



Global Temperature and CO_2 Over The Past 450 Thousand Years

Source: UN Intergovernmental Panel on Climate Change (IPCC), Third Assessment Report, Climate Change 2001

CSU Goals:

The goals of the California State University System are important because they are guiding the goals and policy here at Humboldt State University. In regards to this issue, the CSU has acknowledged the responsibility of using our scarce resources wisely, and the need to increase energy efficiency. The CSU has established the Sustainability Advisory Committee that seeks to engage students, staff and faculty on these issues. The Sustainability Advisory Committee is in charge of implementing policy that has been approved by the trustees of the CSU. A major goal of the CSU is to reduce energy consumption. This is fueled by the economics of cost savings and accomplishments are attributed to efficiency projects. The PCC appears to fit into CSU's goals of efficiency increase, and goes beyond to address the need to reduce GHG emissions.

Presidents Climate Commitment:

The Presidents Climate Commitment is a way to publicly acknowledge climate change while presenting a framework that encourages higher educational institutions to help solve this problem[1]. The commitment is signed by presidents and chancellors who acknowledge climate change and who are willing to help change it. The universities will first set an example by reducing their own emissions and through doing so provide a template for others to follow. Climate change is a challenge that could put higher education on the forefront of reducing green house gas emissions.

Within the climate commitment schools are required to make their plans for climate neutrality and their progress reports publicly available. Being in the spotlight is one of the tactics of the Climate Commitment. With almost 600 schools signed on in the United States people will be asking and wondering

why there school won't make a commitment[1]. Also, when a school does sign on they will be more likely to keep progressing because everyone will know how they are doing. With the public involved and watching, a school could have more access to help and community resources.

Now is the time to start working on changing our ways and implementing new ones. If we don't change we know the results will be negative and another generation will be left with our mess. Higher education is going to be depended on in the coming years to change the way our world and our economies run. We need educational institutions that provide us with the skills and an example of how to face these problems and succeed. Part of the climate commitment is to integrate sustainability into the curriculum so we have people capable of facing our future problems[1]. Our future quality of life is intimately dependent on what we start now and what we teach our future leaders.

Right now California has 348 colleges and universities[2]. Of those 51 have signed the Presidents Climate Commitment[3]. This puts California at a 15% overall commitment. As far as California State Universities goes, 4 out of 23 have signed the agreement, Humboldt so far is not one of them[2,4]. As more schools sign the commitment social pressure will build for others to act. We are hoping that we will be able to convince our President to sign on before everyone else and help lead the way in this movement.

One of the problems we have run into is the California AB-32 commitment. This is a similar commitment to that of the president's commitment but gives colleges and universities in California no choice in the matter. AB-32 is a law that states that we must be moving to climate neutrality within a specific time frame. What we think so far is that our president doesn't want to use more resources to gather the information for the climate commitment when they already have to do a similar measure for the state of California. This is a very good point and one that we will have to deal with to complete this project.

HSU:

As far as where HSU currently stands in regards to the various elements of the climate commitment, it is possible sign on and relatively easily to comply. First within two months our school would need to form a committee consisting of faculty, staff, and students to guide the development of the plan. Considering the strong environmental programs at HSU, forming this type of committee should not be difficult. For instance maybe an upper division envs class could provide a stream of students for the committee who could also annually perform greenhouse emission inventories and progress reports. Also, within the first two months of signing, the school would have to decide on two tangible actions out of a list of seven. Considering our Jack Pass, waste minimization programs, and the fact that our major construction projects are all Leed certified, this part is already taken care of and we could focus resources in other areas. Within one year of a schools start date a greenhouse gas inventory would need to be performed for the school. Finally our school would develop a climate action plan to become fully neutral in terms of greenhouse gas emissions. With programs in place already like the energy independence fund and the impending AB-32 greenhouse gas emission guidelines it would seem that we could easily adopt or current and upcoming programs to fit in the scope of the PCC.

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Goals and Objectives

Presidents Climate Commitment
Devin Trainor
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Ryan Nelson

Problem Statement:

To add Humboldt State University to the list of the Presidents Climate Commitment in an effort to further addre ss our commitment to lessening climate change. This will not only help our environment but also push for sustai nable education.

Objective:

We would like to have the president of H.S.U. sign on to the Presidents Climate Commitment by the end of this semester.

Meeting with the President

10/13/2008

Questions

- Come up with response to:
  1. The PCC Cost's to much
  2. Administration does not want to be held to additional Commitment

Introduction to president:

- Introduce ourselves
- Want HSU to become a signatory to PCC
- understand where the administration stands on issue
- We are currently doing background research on issues

- Working with other schools
- Potential cost savings
- Addressing ghg responsibility

Questions for the President

Brett: what we need to uphold PCC, understand everything about PCC

- Have you considered signing the Presidents Climate Commitment?
  - He should say yes
- What would HSU need to do to commit?
  - Possible answers
    - Need to hire more people and use more resources.
      - Is having a senior internship that would do the work be an option or could we add this in as part the new climate change degree?
      - We are already doing the AB-32. It would be redundant.
- Because of AB-32 how do you view the PCC?

Devin: Understand frequently ask questions,

- What administrator deals with these issues and will work with us?
- As a Contact person
- Address ENVS Faculty dept's interests in incorporating this into curriculum

- someone accessible to contact.

- HSU VALUES:
  - Practice social and environmental responsibility
  - Be a role model for community involvement.
  - Promote responsible economic development.

Ryan: What have we done so far and what haven't we.

- What would you change about the PCC that would make you want to commit
- -Would you consider signing on if you could submit the same data to both places?

Reasons why we want this to happen: in context of addressing to president.

-We want HSU to be recognize for our green efforts and attract like minded individuals to help in the green effort
- Marketing aspect-- recognition--enrollment--get name out there
-Understanding that we need to commit to reducing our GHG footprint
-This project will also help us to learn about politics and how things actually get done, these are things that can't be taught in a book.
-Educational incorporation

What we found

- President has already looked it over.

- Doesn't seem to feel that signing will actually do any good other than " make us feel good"
- Thinks that signing will cost him money that he doesn't have.
- Concerned that he won't be able to keep the commitment because of cost associated with gathering data.
- Already has to spend money on AB-32 and thinks the PCC is redundant.
- President says he will sign things that have political benefit (for HSU or environmental movement) or will give HSU publicity.

What President wants done if he is going to sign.

- We need to come up with estimated cost of completing the PCC to the nearest $5,000.
- Convince the President that by signing it will benefit the environment and make it worth their effort (publicity or look good for our school).
- What would it take to complete the requirements of the PCC. (things we aren't doing yet)
- Need to talk to Rob Gonzales at public relations to find if we can use this for publicity.

11/17/2008

Outline ideas for Richmond meeting

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1. Hand Richmond guide for implementation

- Explain its value as a reference/guide
- we have done extensive research on the subject, where is what we have found:

2. Address Costs

-we have to do most everything already

3. Discuss legitimacy of project

- ie. 80% compliance.

-need to act now (ghg are bad)

4. Address importance of bringing Campus together

-certificate for promotional purpose's

-benefits to students who get to work on these projects.

5. Assure Richmond that he knows what he is signing

- we know more than he does on this subject.
- reassure him that there are no points that we have missed.

-this is a legitimate, good thing.

We put together a binder outlining the costs and the extra things that the PCC would require beyond what the state of California requires. This was an attempt to put all of the information out on the table so the president could make a more educated decision. We don't believe that the president knew much about the commitment because he is a very busy man. So we summed it all up in 4 pages and presented it to him, the vise president and TallChief Comet.

What we found

1. The president wasn't concerned with costs anymore.
2. The president was concerned with not being able to complete the commitment.
3. He believes that the commitment has things like climate neutrality in it that are not possible right now and doesn't support signing a commitment that has standards like this.
4. We explained that climate neutrality is an aspiration that will eventually be possible and he said that there are other things that they just can't do right now.
5. He wants a list of these things and he said he will sign with the stipulation that he won't do certain things that he deems impossible right now.
6. We argued that by signing we would have to set up a structure that could implement environmentally friendly practices that students, staff and faculty come up with. We presented him reports done by students that went into a box rather than used to help our school. Because of this the vice president and TallChief Comet will be setting up an umbrella structure to carry out environmental strategies created by campus people. So we succeeded in being a catalyst for an organization bridging the disconnect between groups and classes on campus.

Meetings with TallChief Comet (Sustainability Coordinator)

10/15/2008

- Plan to deal with the new AB-32 may take another year to complete. They are currently working on ho they will set up a committee and deal with reducing green house gas and make HSU more efficient.
- The CSU chancellor is in charge of the AB-32 now and is setting up guidelines to deal with it. He wants everyone to follow a similar plan rather than everyone doing something different and having to back track if it doesn't work. Everyone should follow along and do it the same way.
- There is a concern that if the president signs the PCC too early, meaning before AB-32 provisions and guidelines are out, that they will possibly have to do all of the work again or back track the work that they have already done to have it apply to AB-32.
- From what TC knows it will cost around 0-$20,000 to complete all of the necessary calculations needed for the PCC. Also most schools have faculty and staff working on it so it will cost the school in lost hours that staff could have been doing other things.
- AB-32 does not account for transportation but the PCC does. Transportation is hard to calculate because transportation is going through so many different agencies and will take a long time to get all of the data.
- This could be changed if all staff were required to fill out a form describing how far they are going before they left. Then one agency would have all of the information.

12/1/2008

- Meeting with TallChief Comet and Dr. Richard Hansis

- We went over how to start creating a committee that had the power and the capability of carrying out sustainable practices and policies. This committee will incorporate and try to bring together all of the

sustainable programs and organizations on campus so that everyone is not reinventing the wheel. The will instead report what they have done to TallChief, who will review and hopefully make them available online, so sustainability can move forward with everyone working as a group rather than separatly. The information gained from students in the sustainable campus class ENVS 411 will be used to make the campus more sustainable rather than to fill a box under a desk.

- Dr. Hansis has tried to do this just 9 years ago and the again when Richmond became president. He said that the old President was a lame duck and so he tried again with Richmond. He said that Richmond said not to his request so he went into early retirement and now only teaches part time.
- Dr. Hansis's expertise in creating this structure should help the process run a little smoother.
- The letter that the President wants concerning the PCC and what he cannot do at this point in time will be completed over the Christmas break by Brett Lee.
- Next semester Ryan Nelson and Devin Trainor will assist in the creation of this committee led by TallChief Comet (Sustainability Coordinator).

Brainstorming solutions

Devin Trainor
Brett Lee
Ryan Nelson

Brainstorming solutions

Because of the specific nature of our project we have one objective and no goals. Our objective is to convince Roland Richmond, the president of Humboldt State University, to sign the Presidents Climate Commitment by the end of fall semester 2008. In order to narrow down our brainstormed ideas we will assess them solely on how likely they are going to accomplish our objective.

Brainstorming ideas:

1. Find a class that will carry out the Presidents Climate Commitment green house gas emissions so the president doesn't have to pay staff to do it.
2. Convince the president that by signing this it will be for the greater good.
3. Show the president that gathering the data can be free.
4. Show the president that other schools are doing it and want to keep doing it.
5. Prove to the president that he will get beneficial publicity for doing this by talking with Paul Mann.
6. Talk to Paul Mann in public relations and see if he thinks this will benefit us in getting the word out about Humboldt and how great it is.
7. Find out specifically what we have done so far that is on the PCC and then what else needs to be done to comply with it.
8. Show the president that we are well on our way and that this will be a good head start into AB-32 that all California schools have to comply too.
9. Show the president that this would be a good opportunity for students to build a resume by helping with the green house gas inventory.

10. If the president were to allow students and volunteer faculty to carry out the necessary measurements for the commitment he would be encouraging sustainability knowledge that will benefit students in the future.
11. Use the local media to generate public excitement
12. Find administrator who is in support and use this as backing
13. Provide a pcc signatory school to Richmond to contact and inquire on the legitimacy of the pcc
14. Show the dire consequences if we do not act now! Show how serious ghg emissions are!
15. Address the president as your Majesty
16. Provide the school with a large monetary contribution
17. Appeal to the president's environmental side.
18. Appeal to the presidents and vice presidents egotistical side in making change and being ahead of the environmental curve.
19. Show the president that by being a leader we can help to increase our popularity and draw more students.
20. Talk to professional staff and faculty to get ideas of how to approach and convince the administration that this is beneficial.
21. Show past green house gas emissions inventories that have been done by students both here and at other schools.
22. Show the president past green house gas reduction strategies that students have done as proof of our capabilities to carry out the inventories necessary to complete and uphold the commitment.
23. Show the president which class would have the time and capabilities to carry out the measurements so he knows that it will be done.
24. Create a positive but tough situation that the president can't logically argue his way out of.
25. After our next meeting if he still doesn't sign figure out the next problems that the president presents and work on them.

Narrowed down solutions:

1. Show the president which class would have the time and capabilities to carry out the measurements so he knows that it will be done.
2. Create a positive but tough situation that the president can't logically argue his way out of.
3. Show the president that gathering the data can be free.
4. Show the president that we are well on our way and that this will be a good head start into AB-32 that all California schools have to comply too.
5. Prove to the president that he will get beneficial publicity for doing this by talking with Paul Mann.

Implementation Plan

Devin Trainor
Brett Lee
Ryan Nelson

Implementation Plan

1. Getting solutions accepted:

a) We have gone over all of the possible documents that lay out environmental mandates H.S.U. has to follow. One of the documents is a memorandum from the chancellor laying out the differences between the mandates and the PCC. This document was used as a foundation for what still needs to be done to comply with the PCC. In a new document, using the memorandum, we organized the exact words from all of the pertinent documents that deal with extra stipulations for the PCC. This gives us a simple and easy way to show the president the differences and how small they are.

As it turns out we are required or will be required in the near future to do most of the things on the PCC due to California state mandates. Along with this AB-32 requires that voluntary early reductions will get credit. So, getting a head start could be very good for the administration. And, we believe, after looking over the PCC and mandated requirements that the transition to the PCC will be an easy one requiring little if any funds.

b) We will use the Keeling report against the president in that he doesn't listen to the students and faculty. We will try to get letters of solidarity from students and faculty to aid in this.

c) We will be drafting a letter for others to sign. It will contain information about the PCC and reasons why people should support and sign it. A pre-made document will increase the likelihood that people will show support for this type of endeavor.

d) We will use the Solar Partnership that H.S.U. just signed to further our argument that we are already on track.

e) We will use the words of the president and the words of H.S.U to put the president in a tight spot regarding the need for more environmental stewardship beyond just what we have to do.

f) We will think ahead and try to anticipate questions the president will have. To aid in this we will ask Dr. Hansis to play the president and we will present our argument to him to get feedback and strategy.

g) We are going to try to meet with the Associated Students and get them to draft a resolution in support of H.S.U. signing the PCC. This and the Keeling report will aid in putting pressure on the president to sign and hopefully go above and beyond. Due to our meeting coming so soon we will do this after we meet and only if he doesn't sign.

2. Task time line:

a) Finish the easy to read comparison document to present to the president.
   i) Finish by 10/10/08 Brett

b) Show the president that by signing the PCC he will be furthering the environment movement
   i) Finish by 10/12/08 Devin

c) Use the Keeling report as a vantage point to get the president to sign the commitment.
   i) Finish researching by 10/12/08 Ryan

d) Draft a letter for other to sign to show that the PCC is what the students and faculty want.
   i) Finish by 10/10/08 Ryan

e) Get information together that will show by signing the PCC we will be making an impact towards environmental stewardship and set an example others will follow.
   i) Finish by 10/12/08 Devin

g) Find words to use against the president (e.g. his own words regarding need for sustainability and H.S.U.'s vision...)
   i) Finish by 10/12/08 Devin, Ryan, Brett

h) Meet with Dr. Hansis to get advice before going to see Richmond.
   i) Finish before 10/17/08 Devin, Ryan, Brett

i) Meet with the president and present our argument.
   i) Meeting 10/17/08 Brett, Ryan, Devin

j) Meet with the Associated Students and get them to draft a resolution supporting the PCC.
   i) Finish before end of semester.

Binder Presented to the President

ACUPCC Requirements not fulfilled by E.O. 987, E.O. S-3-05, Scoping Plan and AB-32

1) Within 2 months create institutional structures to guide development and implementation of the plan. (i.e. climate neutrality)

Cost: None
Plan: Should already be mostly in place. This structure should include students faculty and staff which will, along with the sustainability coordinator, finish the structure.

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a) (EO) 987

i) Each CSU campus will designate an energy/utilities manager with the responsibility and the authority for carrying out energy conservation and utilities management programs. The Chancellor's Office will have the responsibility to coordinate the individual campus programs into a systemwide program. **(78-Adopt; 88-Revise; 01-No Change; 04-No Change) (p.4 #7)**

b) Extra requirements to complete PCC

i) The structure should be empowered with the authority necessary to implement the Commitment, and should include high-level participants who have the ability to enact elements of the plan. Further, because achieving climate neutrality will require support from all sectors of campus, these structures should, at a minimum, include staff, faculty, student, and administrator representatives. Signatories may also choose to include trustees, alumni, local government officials, or other members of the community as participants in the process. The institutional structure should have a chair or other designated person who serves as the implementation liaison, the primary contact person on ACUPCC matters. **(p.9)**

2) Within 1 year of signing, complete a comprehensive inventory of all green house

gas emissions (including faculty, staff, and student commute emissions and air travel); thereafter update the green house gas inventory every other year.

Cost: None

Plan: Have students from ENVS 411 sustainable campus with the guidance of Dr. Hansis carry out the GHG emissions calculations. A 2006 GHG inventory has already completed through ENVS 411 and CCAR. Emissions from air travel and transportation will be completed in class by students using statistical methods.

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a) AB-32

i) 38530. (a) On or before January 1, 2008, the state board shall adopt regulations to require the reporting and verification of statewide greenhouse gas emissions and to monitor and enforce compliance with this program. **p.5**

b) CSU Emissions Inventory 2006

i) The California State University (CSU) joined the California Climate Action Registry (CCAR) in 2006. CSU's goals in joining the registry are to reduce risks to CSU associated with its GHG emissions, understand it carbon footprint to better participate in the regulatory development process under AB32, and to establish a starting point from which to improve the efficiency of CSU's operations. Membership in the CCAR requires a system-wide inventory of direct and indirect GHG emissions using guidance provided by CCAR, certification through a State and Registry approved certifier, and the reporting of the total emissions through the Climate Action Registry Reporting Online Tool (CARROT). CSU is reporting its CO2 emissions for 2006 under management control. Management control is the likely reporting criteria to be used under AB32. **(P.1-1 # 1.0)**

- Direct emissions requirements: p.2-8
- Indirect emissions requirements: p.2-9

c) (EO) 987

i) Each campus shall operate and maintain a computerized energy management system that will provide centralized reporting and control of the campus energy related activities. **(78-Adopt; 88-Revise; 01-Revise; 04-No Change) (p.6 #2)**

d) Scoping Plan *Note: will be voted on in December and go into effect 2012*

i) State agencies should review their travel practices and make greater use of teleconferencing and videoconferencing to reduce the need for business travel, particularly air travel. **(p.25)**

e) Extra requirements to complete PCC

i) In addition, as specified in the Commitment, signatories agree to report some Scope 3 emissions, specifically those from commuting and from air travel paid for by or through the institution, to the extent that data are available. For purposes of the Commitment, commuting is defined as travel to and from campus on a day to day basis by students, faculty, and staff. It does not include student travel to and from campus at the beginning and end of term or during break periods. **(p.11-12)**

ii) Emissions from commuting and from air travel paid for by or through the institution are the

only Scope 3 emissions sources that signatories are required to report on. **(p.12)**

3) **Within 2 years develop a climate action plan to become climate neutral as soon as possible.**
4) **Set a target date for climate neutrality.**
5) **Interim target dates for progress.**

Cost: Unknown

Plan: EO S-3-05 already requires a plan for 2010, 2020 and 2050 . Neutrality can be pursued as an aspirational goal. Anything beyond 2020 will be speculation. ENVS 411 could carry this out in the two years given and their plan would help with HSU's plan. The students plan will take advantage of the required strategic energy plan, executive orders and the new scoping plan for neutrality and target dates. Past energy use and trajectory may be difficult but can be done by students with final approval coming from the president.

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a) EO S-3-05

i) The following greenhouse gas emission reduction targets are hereby established for California: by 2010, reduce GHG emissions to 2000 levels; by 2020, reduce GHG emissions to 1990 levels; by 2050, reduce GHG emissions to 80 percent below 1990 levels. **(p.1 #1)**

b) Memorandum comparing CPCC and AB-32

i) AB-32 requires by 2050 green house gas emissions levels to be 80% lower than 1990 levels but not necessarily climate neutrality. To achieve carbon neutrality, a campus would nee to double or triple energy efficiency efforts, install renewable energy systems, purchase additional renewable energy credits, purchase carbon offsets and/or create and use carbon sinks (wetlands, forests and farmland) on university-owned land. **(p.2)**

c) (EO) 987

i) The CSU shall develop a strategic plan for energy procurement and production to reduce energy capacity requirements from the electricity grid, and to promote energy independence using available economically feasible technology (solar, wind, biomass) and for on-site generation. The CSU shall endeavor to increase its self-generated energy capacity from 26 to 50 megawatts (MW) by 2014. **(05-Adopt) (p.2 III)**

ii) Each CSU campus will develop and maintain a campuswide integrated strategic energy resource plan, which will include tactical recommendations in the areas of new construction, deferred maintenance, facility renewal, energy projects, water conservation, solid waste management, and a structured energy management plan. This plan will drive the overall energy program at each campus. **(78-Adopt; 88-Revise; 01-Revise; 04-Revise)(p.4 #9)**

iii) The CSU will encourage continued energy conservation and lowest utilities operating costs on its campuses by instituting incentive plans designed to recognize and reward meritorious achievements by campus staff, faculty, and students beyond normal expectation. These incentive plans will be designed in such a fashion that they are adaptable to changing budget constraints from year to year. **(78-Adopt; 88-Revise; 01-No Change; 04-Revise) (p.9 #20)**

d) AB-32

i) The state board shall make recommendations to the Governor and the Legislature on how to continue reductions of greenhouse gas emissions beyond 2020. **(p.7)**

e) Scoping Plan *Note: will be voted on in December and go into effect 2012*

i) ARB will provide appropriate credit for voluntary early reductions that can be adequately quantified and verified through three primary means. First, within the cap-and-trade program, ARB would set aside a certain number of allowances from the first compliance period to use to reward voluntary reductions that occur before 2012. In addition, ARB will assure that the allocation process in the first compliance period does not disadvantage facilities that have made reductions after AB 32 went into effect at the start of 2007 and before 2012.47 The third approach will be to design other regulations, to the extent feasible, to recognize and reward early action. **(p.68)**

f) Extra requirements to complete PCC

i) It is important to note that, under the Commitment, each institution sets its own target date for reaching climate neutrality so offsets need not be purchased immediately or even in the near future. **(p.27)**

ii) The ACUPCC signatory institutions agree to develop an institutional action plan for becoming climate neutral. This climate action plan is to be developed within two years of the implementation start date, and should include a target date as well as interim milestones for achieving climate neutrality as soon as possible. For purposes of the ACUPCC, climate neutrality is defined as having no net greenhouse gas (GHG) emissions, to be achieved by minimizing GHG emissions as much as possible, and using carbon offsets or other measures to mitigate the remaining emissions. To achieve climate neutrality under the terms of the Commitment, all Scope 1 and 2 emissions, as well as those Scope 3 emissions from commuting and from air travel paid for by or through the institution, must be neutralized. **(p.21)**

iii) To aid the climate neutral planning process, signatories will need to understand their emissions trajectory over time. Therefore, signatories should endeavor to calculate, to the extent practical, their emissions from years prior to participation in the ACUPCC. Each signatory can decide for itself how far back it needs to track its emissions in order to understand its emissions trajectory. For guidance in tracking emissions over time, and specifically how to deal with structural changes such as acquisitions and divestments, signatories should consult Chapter 5 of the Greenhouse Gas Protocol Corporate Accounting and Reporting Standard. **(p.10)**

6) Publish the action plan, inventory and progress reports through AASHE

Cost: None

Plan: After students complete their climate plan and emissions report the president will approve it so it can be submitted.

Note: CSU total emissions summary is available to the public through CCAR online.

a) Memorandum comparing CPCC and AB-32

i) Publicizing the action plan , inventory and progress reports on AASHE's website is unprecedented. Critics and activists may use the new information against CSU. Alternatively, CSU performs very well compared to other universities in these regards and critics and activists may move on to easier targets. **(p.3)**

b) PCC implementation guide

i) ACUPCC signatory institutions agree to make their climate action plan, inventory, and progress reports publicly available by providing them AASHE for posting and dissemination. **(p.26)**

c) (EO) 987

i) The CSU will cooperate with federal, state, and local governments and other appropriate organizations in accomplishing energy conservation and utilities management objectives throughout the state; and inform students, faculty, staff and the general public of the need for and methods of energy conservation and utilities management. **(78-Adopt; 88-Revise; 01-No Change, 04-No Change) (p.4 # 6)**

ii) Each campus energy/utilities manager shall solicit and evaluate feedback from faculty, staff, and students to monitor the effects of energy conservation efforts on instructional programs and the environment. Training on new energy management concepts and programs will be provided as necessary. **(78-; 88-Adopt; 01- Revise; 04- No Change) (p.4 #10)**

d) AB-32

i) 38560.5. (a) On or before June 30, 2007, the state board shall publish and make available to the public a list of discrete early action greenhouse gas emission reduction measures that can be implemented prior to the measures and limits adopted pursuant to Section 38562. **(p.7)**

ii) The state board shall conduct a series of public workshops to give interested parties an opportunity to comment on the plan. The state board shall conduct a portion of these workshops in regions of the state that have the most significant exposure to air pollutants, including, but not limited to, communities with minority populations, communities with low-income populations, or both. **(p.8)**

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Other Important information pertaining to the PCC

Why reduce now:

AB-32

Design the regulations, including distribution of emissions allowances where appropriate, in a manner that is equitable, seeks to minimize costs and maximize the total benefits to California, and encourages early action to reduce greenhouse gas emissions. p.9

Ensure that entities that have voluntarily reduced their greenhouse gas emissions prior to the implementation of this section receive appropriate credit for early voluntary reductions. P.9

Scoping Plan

ARB will provide appropriate credit for voluntary early reductions that can be adequately quantified and verified through three primary means. First, within the cap-and-trade program, ARB would set aside a certain number of allowances from the first compliance period to use to reward voluntary reductions that occur before 2012. In addition, ARB will assure that the allocation process in the first compliance period does not disadvantage facilities that have made reductions after AB 32 went into effect at the start of 2007 and before 2012.47 The third approach will be to design other regulations, to the extent feasible, to recognize and reward early action. p.68

from PCC:

The implementation start date for institutions that sign the ACUPCC after September 15, 2007 will be on the next of three possible implementation start dates throughout the year: January 15, May 15, and September 15. For example, the implementation start date for an institution that signs the ACUPCC in February 2008 would be May 15, 2008. P.8

When participation in the ACUPCC by one or more organizational units – such as a specialized research facility – would present a unique and unduly burdensome challenge, signatory campuses may choose to exclude these units. The rationale for excluding such units should be provided in all reporting related to the ACUPCC. P.8

To enable comparability and consistency in reporting, signatories would ideally use the same methodology to calculate their emissions. However, the establishment of standards for ACUPCC GHG inventories is

complicated by the fact that signatories are already using a variety of tools and methodologies to track their emissions, and in some cases they are enrolled in programs – such as the California Climate Action Registry or the Chicago Climate Exchange – that require emissions be calculated in specific ways.
In light of this, signatories may use any methodology and/or calculator that is consistent with the standards of the Greenhouse Gas Protocol (GHG Protocol) of the World Business Council for Sustainable Development (WBCSD) and the World Resources Institute (WRI). The GHG Protocol is the most widely-used international accounting tool for quantifying GHG emissions and it provides the accounting framework for nearly every GHG standard and program in the world, including the Chicago Climate Exchange and the California Climate Action Registry. Clean Air Cool Planet's (CACP) Campus Carbon Calculator is also consistent with GHG Protocol standards. P.10

Institution-owned Forests
Institutions that own large tracts of forestland may include carbon sequestered by the forested area in their GHG inventory. Institutions interested in doing so should follow the GHG Protocol's Land Use, Land-Use Change, and Forestry Guidance for GHG Project Accounting, which provides guidance to ensure that reductions from forest lands are real, lasting, and "additional." P.12

for participation in the Chicago Climate Exchange and the
California Climate Action Registry, participants may designate small emissions sources that are difficult to track as *de minimis* and exclude them from the inventory, provided that the emissions sources collectively comprise less than 5% of the institution's total GHG emissions. p.12
Note: also have de minimis in the California Action Registry. P.2-9

Emissions inventory verification or certification is not required of ACUPCC signatories, though they are encouraged to take steps to ensure their emissions inventory is complete and accurate. Chapter 7 of the Greenhouse Gas Protocol Corporate Accounting and Reporting Standard contains guidance on ensuring inventory quality that will be helpful in this regard. P.12

The ACUPCC signatories agree to initiate two or more of seven specified tangible actions to reduce greenhouse gases while the climate action plan is being developed. The actions should be selected within two months and implemented within two years after the start date for implementation, p.13

An internal system of evaluating all new buildings to ensure that they meet LEED Silver standards is also acceptable. P.13

We meet Provision D. p. 15/16

Provision E
Begin purchasing or producing at least 15% of our institution's electricity consumption from renewable sources within one year of signing the ACUPCC. P.16

The climate action plan should be in the form of a brief summary report that is comprehensible by and accessible to the general public. P.21

(curriculum) It should then set out planned actions to make climate neutrality and sustainability a part of the curriculum and other educational experience for all students…….. This section of the plan should also explain how the implementation of the ACUPCC will be integrated into the institution's educational efforts

(e.g., by having students or classes perform the campus GHG inventory), as well as how the entire campus community (including alumni) will be made aware of the institution's participation in and progress toward implementing the ACUPCC. P.23

Signatories may choose to modify their climate action plans in response to changing circumstances. In such cases, the revised plan should be provided to AASHE for posting and dissemination. In addition, changes to the plan and the reasons for them should be described in reporting associated with the ACUPCC. Signatories are encouraged to reevaluate their plans at least every other year (in conjunction with the ACUPCC reporting schedule) and make any changes necessary to keep plans relevant and up to- date. P.25

It is important to note that, under the Commitment, each institution sets its own target date for reaching climate neutrality so offsets need not be purchased immediately or even in the near future. P.27

In the event that, despite its best efforts, a signatory is unable to meet all of the terms of the ACUPCC, the signatory may remain in good standing by submitting in writing to the Steering Committee a request for an extension. The request should describe the signatory's efforts to fulfill the terms of the ACUPCC and explain why it has been unable to do so. The request should also include a new target date for meeting the terms of the Commitment as well as a list of steps the signatory will take to achieve this target. The request should be submitted as soon as the signatory becomes aware that it will be unable to fulfill its obligations under the ACUPCC. The Steering Committee or designee will then review the request and decide whether to grant it. P.28

Emission Inventory for CO2 for 2006 for the California State University System Revised DRAFT:

Membership in the CCAR requires a system-wide inventory of direct and indirect GHG emissions using guidance provided by CCAR, certification through a State and Registry approved certifier, and the reporting of the total emissions through the Climate Action Registry Reporting Online Tool. P.1-1 #1.0

- indirect emissions list p. 1-7

Reporting to the CCAR can be either on the basis of equity control or management control. CSU is reporting emissions to the CCAR for GHG emissions sources contained within the CSU system that are under management control. P.1-3 #1.2

Indirect emissions consist of purchased electricity for a facilities' own consumption. These are the emissions associated with the generation of purchased electricity, and emissions associated with steam/heating/cooling that are consumed in equipment or operations owned or controlled by the facility. P.3-5 # 3.2

Required emissions reporting
Pcc
Consistent with GHG Protocol standards, signatories are expected to track and report emissions of the six greenhouse gases covered under the Kyoto Protocol:2 carbon dioxide (CO2), methane (CH4), nitrous oxide (N2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulphur hexafluoride (SF6). The main focus should be on CO2 since emissions of PFCs or SF6 are unlikely to originate on campus, and emissions of CH4, N2O, and HFCs are likely to represent only a small percentage of an institution's total emissions. P.11

California climate action registry:

For 2006, CSU is reporting only CO2 emissions, as allowed by the CCAR. Other potential sources of GHG emissions that must be considered in future year reporting by CSU include:
• Sulfur hexafluoride (SF6) emissions from circuit breakers;
• Hydrofluorocarbons (HFCs) due to leakage or maintenance on refrigeration systems and air conditioners;
• Perfluorocarbons (PFCs) from use or maintenance on fire extinguishers containing Halon gas; and
• Others that may include:
o Biogenic CO2 from bio matter produced by animals on ranches and dairies; and
o Anthropogenic methane from the decomposition of organic matter or composting.
Both methane and N2O from combustion sources were computed for 2006. However, since methane from agricultural and landscape maintenance activities were not inventoried in 2006, the methane cannot be reported since the CCAR GRP does not allow the reporting of a partial inventory for a given pollutant. Therefore, neither the methane nor the N2O emissions are being reported for 2006. P.3-7

Scoping Plan: Will be voted on in December and go into effect 2012

The California Air Resources Board (ARB or Board) is the lead agency for implementing AB 32, which set the major milestones for establishing the program. p.es-1

ARB must develop a Scoping Plan outlining the State's strategy to achieve the 2020 greenhouse gas emissions limit. This Proposed Scoping Plan, developed by ARB in coordination with the Climate Action Team (CAT), proposes a comprehensive set of actions designed to reduce overall greenhouse gas emissions in California, improve our environment, reduce our dependence on oil, diversify our energy sources, save energy, create new jobs, and enhance public health. It will be presented to the Board for approval at its meeting in December 2008. The measures in the Scoping Plan approved by the Board will be developed over the next two years and be in place by 2012. p.es-1

scoping plan -Creating targeted fees, including a public goods charge on water use, fees on high global warming potential gases, and a fee to fund the administrative costs of the State's long term commitment to AB 32 implementation.p.es-4

Meeting the goals of AB 32 will require a coordinated set of strategies to reduce emissions throughout the economy. These strategies will fit within the comprehensive tracking,reporting, and enforcement framework that is already being developed and implemented. By 2020, a hard and declining cap will cover 85 percent of California's greenhouse gas emissions, helping to ensure that we meet our reduction targets on time. p.es-7

California is working closely with six other states and four Canadian provinces in the Western Climate Initiative (WCI) to design a regional greenhouse gas emissions reduction program that includes a cap-and-trade approach. California's participation in WCI creates an opportunity to provide substantially greater reductions in greenhouse gas emissions from throughout the region than could be achieved by California alone. The larger scope of the program also expands the market for clean technologies and helps avoid leakage, that is, the shifting of emissions from sources within California to sources outside the state. p.es-8

In 2006, the Legislature passed and Governor Schwarzenegger signed AB 32, the Global Warming Solutions Act of 2006, which set the 2020 greenhouse gas emissions reduction goal into law. It directed ARB to begin developing discrete early actions to reduce greenhouse gases while also preparing a Scoping Plan to identify how best to reach the 2020 limit. The reduction measures to meet the 2020 target are to become operative by 2012. p.5

This timely
investigation will be a critical element of California's ability to meet the AB 32 emissions reduction target for 2020, the ambitious target set by the Governor for 2050, and also the specific goal of achieving 33 percent renewables in the state's electricity mix. p.25

Based on the requirements of AB 32, regulations to implement the cap-and-trade program need to be developed by January 1, 2011, with the program beginning in 2012. This rule development schedule will be coordinated with the WCI timeline for developing a regional cap-and-trade program. Preliminary plans for this rulemaking are described later in this section. p.30

By setting a limit on the quantity of greenhouse gases emitted, a well-designed capand-trade program will complement other measures for entities within covered sectors. Additionally, starting a cap-and-trade program now will set us on a course to achieve further emissions cuts well beyond 2020 and ensure that California is primed to take advantage of opportunities for linking with other programs, including future federal and international efforts. p.31

For some energy-intensive industrial sources such as cement, stringent requirements in California, either through inclusion in a cap-and-trade program or through sourcespecific regulation, have the potential to create a disadvantage for California facilities relative to out-of-state competitors unless those locations have similar requirements (e.g., through the WCI). If production shifts outside of California in order to operate without being subject to these requirements, emissions could remain unchanged or even increase. This is referred to as "leakage." AB 32 requires ARB to design measures to minimize leakage. Minimizing leakage will be a key consideration when developing the cap-and-trade regulation and the other AB 32 program measures. p.31

The WCI was formed in 2007. Members are California, Arizona, New Mexico, Oregon, Washington, Utah, and Montana, and the Canadian provinces of British Columbia, Manitoba, Ontario, and Quebec. The WCI Partner jurisdictions, including California, have adopted goals to reduce greenhouse gas emissions that, in total, reduce regional emissions to 15 percent below 2005 levels by 2020. This regional goal is approximately equal to California's goal of returning to 1990 levels by 2020. p.32

Individual projects can be developed to achieve the reduction of emissions from activities not otherwise regulated, covered under an emissions cap, or resulting from government incentives. These projects can generate "offsets," i.e., verifiable reductions of emissions whose ownership can be transferred to others. The cap-andtrade rulemaking will establish appropriate rules for use of offsets. As required by

AB 32, any reduction of greenhouse gas emissions used for compliance purposes must be real, permanent, quantifiable, verifiable, enforceable, and additional (HSC §38562(d)(1) and (2)). p.36

this will help with emissions from travel to and from campus by faculty and students. The Zero Emission Vehicle (ZEV) program will play an important role in helping California meet its 2020 and 2050 greenhouse gas emissions reduction requirements. Through 2012, the program requires placement of hundreds of ZEVs (including hydrogen fuel cell and battery electric vehicles) and thousands of near-zero emission vehicles (plug-in hybrids, conventional hybrids, compressed natural gas vehicles). In the mid-term (2012-2015), the program will require placement of increasing numbers of ZEVs and near-zero emission vehicles in California. In 2009, the Board will consider a proposal that is currently being developed to ensure that the ZEV program is optimally designed to help the State meet its 2020 target and put us on the path to meeting our 2050 target of an 80 percent reduction in greenhouse gas emissions. p.40
Shifts in individual choices and attitudes drive changes in the economy and in institutions. This dynamic of changing individual behavior will influence California's effort to reduce greenhouse gas emissions. For example, as market forces and environmental awareness encourage more people to drive low-greenhouse gas emitting vehicles, the auto manufacturers will respond with more innovative models and more intensive research. Regulations requiring auto manufacturers to provide these cars will complement the market demand. p.99

By 2010, California will develop
climate change education components to the State's new K-12 model school curriculum as part of the Education and the Environment Initiative (AB 1548, Pavley, Chapter 665, Statutes of 2003) Ensuring that California can continue to meet the demand for green jobs wi' require close coordination between workforce development agencies, businesses, State and local governments, labor unions, and community colleges and universities.In light of the fact that forty percent of the nation's skilled workers are slated to retire in the next 5 to 10 years,79 there is an urgent need for educational and training programs to fill these jobs. p.102-104

Unleash the Potential of California's Universities and Private Sector
Bringing greenhouse gas emissions down to a level that will allow the climate to stabilize will take a generation or longer. Many of the ultimate solutions to achieve stabilization will be developed and implemented well into the future. Innovation in energy and climate will come from people who are now in school. These young people will face unprecedented challenges, and they will need both wisdom and imagination to craft solutions. California's respected public and private academic institutions must continue to develop and fund programs based on climate change science that cut across disciplines to address the multi-dimensional aspects of climate change. p.116

ARB is moving on an expedited schedule to develop a fee regulation and expects to take a regulation to the Board in early 2009, with the aim of beginning to collect fees in the 2009-2010 fiscal year. p.112

While the measures needed to meet the 2050 goal are too far in the future to define in detail, we can examine the policies needed to keep us on track through at least 2030. p.117

By 2030, the transportation sector would undergo a similarly massive transition both in terms of the vehicle fleet and the diversity of fuel supplies. Due to the combination of California's clean car standards (ARB's ZEV program and the Low Carbon Fuel Standard), the number of battery-electric vehicles, plug-in hybrid electric vehicles, and fuel cell vehicles would increase dramatically, to about a third of the vehicle fleet. Flex-fuel vehicles would comprise a large fraction of the remaining fleet, with more efficient gasoline and diesel vehicles making up the difference. Electricity, advanced biofuels, improved gasoline and diesel, renewable natural gas and hydrogen would all play a role in powering this high-tech fleet of efficient vehicles. p.119

Regional land use and transportation strategies would grow in importance and would reverse the trend of per-capita vehicle miles traveled, a reduction of about eight percent below business-as-usual in 2030. With ambitious but reasonable action, statewide passenger vehicle greenhouse gas emissions could be reduced to half of 2020 levels in 2030, which is also about half of business-as-usual for 2030. Efficiency strategies and low carbon fuels for heavy-duty and off-road vehicles, as well as for ships, rail, and aviation, would need to be greatly expanded in order to achieve additional reductions from the transportation sector in 2030. p.120

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CSU The California State University
OFFICE OF THE CHANCELLOR

Memorandum

To: Vice Presidents of Administration

From: Elvyra San Juan, Assistant Vice Chancellor, Capital Planning Design & Construction

CC: Richard West, Executive Deans, Plant Directors, Energy Managers, Sustainability Advisory Committee, CPDC Managers

Date: May 15, 2007

Re: AB 32 Global Warming Solutions Act and Campus President's Climate Commitment

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This memo is to provide information on AB32 and the Campus President's Climate Commitment (CPCC).

AB 32, the California Global Warming Solutions Act, requires cutting the state's greenhouse gas emissions to 1990 levels by 2020. The trustees' goal on energy efficiency will help us reduce greenhouse gas emissions; however, additional activities will be required to achieve 1990 emission levels since greenhouse gas (GHG) emissions closely track growth in square feet.

The CPCC is a related third party program; it is a high-visibility effort to address global warming by garnering institutional commitments to neutralize greenhouse gas emissions, and to accelerate the research and educational efforts of higher education to equip society to re-stabilize the earth's climate.

Below is a side-by-side comparison of the CPCC versus CSU's existing commitments (AB 32).

The CPCC is a voluntary commitment:	**CSU Business as Usual/Planned Actions:**
Within 2 months, create institutional structures to implement a plan.	CSU has this requirement partially in place with Executive Order (EO) 987, campus energy managers and a systemwide energy program.
Within 1 year of signing, complete a comprehensive inventory of all GHG emissions (including faculty, staff, and student commute emissions and air travel); thereafter update the GHG inventory every other year.	AB 32 requires that 1990 emissions levels be achieved in CA by 2020 with regulations starting in 2012. CSU, as part of AB32, joined the California Climate Action Registry (CCAR). GHG emissions will be inventoried using existing monthly energy reports (MERs) based on emissions under management control. The GHG inventory will be reported to the CCAR as part of AB 32. This meets all of the requirements of the CPCC with the exception of faculty, student and staff commuter emissions and air travel emissions that are not currently tracked and largely not under management control.
Within 2 years develop an action plan to become climate neutral as soon as possible:	Campuses with Strategic Energy Plans (SEPs) can use the SEP to form the basis of an action plan to achieve climate neutrality.

A target date for climate neutrality.	AB 32 requires by 2050 GHG emissions levels to be 80% lower than 1990 levels but not necessarily climate neutrality. To achieve carbon neutrality, a campus will need to double or triple energy efficiency efforts, install renewable energy systems, purchase additional renewable energy credits, purchase carbon offsets and/or create and use carbon sinks (wetlands, forests and farmland) on university-owned land.
Interim target dates for progress.	EO 987 - requires a 15% reduction in energy use intensity by 2009/10 and 20% of electricity purchases from utilities to be renewable by 2010. The energy program has already reduced annual CO2 emissions by 40,000 metric tons since 2005 and is planning to reduce GHG emissions by another 78,000 metric tons by 2009. Energy efficiency efforts alone cannot achieve climate neutrality.
Actions to incorporate climate neutrality and sustainability as a part of the academic curriculum for all students.	The Education & Research Subcommittee[1] has developed for consideration by the Systemwide Academic Senate and Campus Academic Senates a sustainability resolution consistent with the curriculum and research goals of the CPCC.
Actions to expand research or other efforts to achieve climate neutrality	The Education & Research Subcommittee[1] has developed for consideration by the Systemwide Academic Senate and Campus Academic Senates a sustainability resolution consistent with the curriculum and research goals of the CPCC.
Mechanism for tracking progress on goals.	MER and AB 32/CCAR reporting requirements meet this criterion for facility related emissions, and has been modified to assist those campuses that will track vehicle emissions for the CPCC.
Commitment to at least (2) of (6) tangible near-term actions (listed below).	CSU meets or nearly meets 4 of the 6 actions.
1. Establish a policy to meet the LEED Silver standard.	EO 987 requires campuses achieve LEED certified (or equivalent) and strive for buildings at a Silver level. The CSU Program for Environmental Responsibility alternative to LEED will support this action.
2. Adopt purchasing policy requiring Energy Star appliances.	EO 987 generically covers this action. Additionally, CSU has been an Energy Star partner since 1997.
3. Offset GHG from campus paid air travel.	No current plan; air travel miles are not tracked or reported. Estimates of the air travel miles can be made but the potential cost of mitigating these emissions vary.
4. Encourage use of public transportation.	Existing campus alternative transportation plans likely meet this commitment.

[1] – CSU Sustainability Advisory Committee

5. Purchase or produce 15% of electricity from renewable sources.	EO 987 currently requires renewable energy purchases of 20% by 2010. CSU campuses on the APS direct access contract are currently purchasing 17% renewable energy.
6. Pressure endowment investments to support sustainability in portfolio.	Limited CSU exposure.
Publish the action plan, inventory and progress reports through AASHE.	Publicizing the action plan, inventory and progress reports on AASHE's website is unprecedented. Critics and activists may use this new information against CSU. Alternatively, CSU performs very well compared to other universities in these regards and critics and activists may move on to easier targets.

AB 32 & CPCC Costs:

1. Estimated additional resource requirement: 50% of an MPP administration staff per campus for data gathering, review, analysis, interfacing with students and faculty, report writing, planning and executing projects to reduce GHG emissions.
2. Strategic Energy Plan costs for campuses without one are estimated at $50-100K. In addition $10-20K of GHG specific feasibility study costs to augment the SEP should be anticipated.
3. Mitigation Costs – 4 options for reducing carbon emissions in descending order of quality at near term prices, prices are expected to increase by a factor of 7 sometime between 2012 and 2020.
    a. On-site efficiency & carbon emissions reductions: these efficiency measures also include significant utility budget savings and can be funded with utility incentives and avoided energy costs. ($800-$2,000/m-ton)
    b. On-site renewable projects. (~$10,000/m-ton)
    c. Electric emissions reductions through annual purchase of Renewable Energy Credits (RECs). ($16-$25/m-ton)
    d. Carbon offsets purchased annually through Chicago Climate Exchange or other providers. ($3.50-$5/m-ton)
4. 2,740 kwh of California grid power is equal to 1 m-ton of CO2e. 188 therms of natural gas are equal to 1 m-ton of CO2e.
5. AB 32 cost of reductions (160,000 m-tons) by 2020 systemwide are estimated at:
    a. One-time investment of $100M can achieve 33% of the required reduction from on-site efficiency projects. This cost excludes the ancillary benefits of reduced utility bills and utility incentive funding.
    b. Historically, CSU has tracked energy use in BTU/GSF. If the CSU elected to meet the 100% of the AB 32 required reduction through efficiency, the systemwide BTU/GSF would need to be 41,200 by 2020 to accommodate growth in GSF. By 2050 the BTU/GSF would need to be 7,000. The current BTU/GSF is 87,000.

c. One-time investment of $40-45M in large-scale photovoltaic projects can achieve 1% of the required reduction.

d. $1.5M annually can meet 33% of the required reduction from Renewable Energy Credits. Generally these are more cost-effective than building renewable energy systems.

e. $300K annually can meet 33% of the required reduction from Carbon Offset purchases.

6. Total cost of reductions required by CPCC (714,000 m-tons) at current GSF (65,500,000) systemwide are estimated to exceed $480M based on:

   a. $425M one-time investment in on site efficiency can achieve 33% of required reduction.

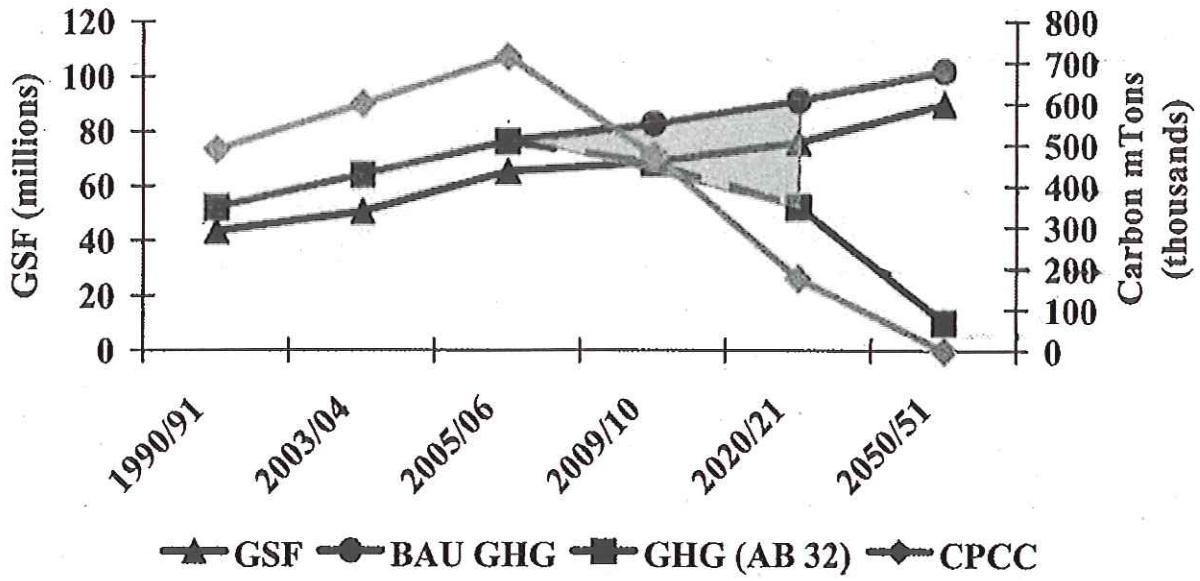
   b. $50-55M one-time investment in on site renewable (photovoltaic) projects can achieve 1% of the required reduction.

   c. $4M annually from Renewable Energy Credits can achieve 33% of the required reduction (This is equal to 89% of CSU electric load).

   d. $1M annually from purchased Carbon Offsets can achieve 33% of the required reduction.

7. Under the CPCC, in order to accommodate new buildings or space, the campus would need to supply 100% renewable energy or ecosystem services to serve the new building load from the existing campus carbon footprint.

The chart below graphically depicts CSU's GHG emissions from the 1990 baseline to current and projects future goals scenarios.



The "triangle" line shows projected growth in square feet for new space.

The "circle" line represents business as usual (BAU) GHG emissions based on the Trustee energy conservation goal. The increase in GHG emissions directly correlates to the increase in new space. In order to comply with AB 32, the CSU would have to reduce emissions by an estimated 160,000 m-tons by 2020.

The "square" line shows systemwide GHG emissions for the base year 1990 through 2005/06 and projected through 2020 based on AB 32 goals. This goal requires that we will continue to invest in energy efficiency, invest in renewable power generation and consider purchasing emission credits.

The "diamond" line represents the emissions based the Campus President's Climate Commitment which includes university facilities energy consumption (the red line) plus estimated vehicle and airline emissions of faculty, staff and students. Three CSU campuses have signed the Commitment.

The shaded area represents the emissions reductions required by AB 32.