

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

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 <u>under management control</u> . 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 <u>that are not currently tracked and largely not under management control</u> .
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.

<p>A target date for climate neutrality.</p>	<p>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.</p>
<p>Interim target dates for progress.</p>	<p>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.</p> <p>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.</p>
<p>Actions to incorporate climate neutrality and sustainability as a part of the academic curriculum for all students.</p>	<p>The Education & Research Subcommittee¹ 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.</p>
<p>Actions to expand research or other efforts to achieve climate neutrality</p>	<p>The Education & Research Subcommittee¹ 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.</p>
<p>Mechanism for tracking progress on goals.</p>	<p>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.</p>
<p>Commitment to at least (2) of (6) tangible near-term actions (listed below).</p>	<p>CSU meets or nearly meets 4 of the 6 actions.</p>
<p>1. Establish a policy to meet the LEED Silver standard.</p>	<p>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.</p>
<p>2. Adopt purchasing policy requiring Energy Star appliances.</p>	<p>EO 987 generically covers this action. Additionally, CSU has been an Energy Star partner since 1997.</p>
<p>3. Offset GHG from campus paid air travel.</p>	<p>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.</p>
<p>4. Encourage use of public transportation.</p>	<p>Existing campus alternative transportation plans likely meet this commitment.</p>

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.

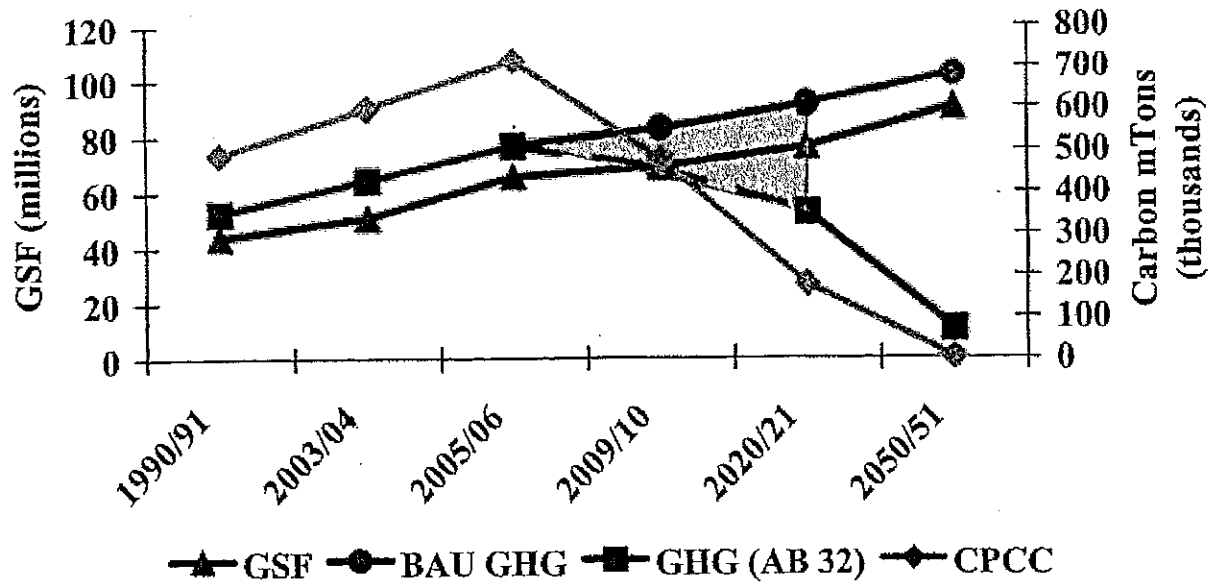
AB 32 & CPCC Costs:

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.

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- 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.