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UC Berkeley Guidelines for Acquiring Renewable Energy Certificates and Carbon Offsets

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Purpose

UC Berkeley has set an ambitious greenhouse gas emissions reduction target of achieving 1990 levels by 2014. Attaining this goal will require that the university reduce its emissions by approximately one-third.

The campus has identified mitigation strategies that will get us more than half-way to the target. These projects focus primarily on energy efficiency - investing over \$24 million in energy reduction projects. As set forth in the 2007 CalCAP Feasibility Study, the intention is to meet the target as much as feasible through campus investment with recognition that both Renewable Energy Certificates (RECs) and possibly carbon offsets (offsets) will likely be needed to meet the near-term target.

In anticipation that the campus will need to acquire RECs or offsets to meet the 2014 target a sub-group of the CalCAP Steering Committee (*sub-group: Vice Chancellor Denton, Dean Wolch, Professor Smith, Professor Weissman, ASUC Representative Christine Tsai, Graduate student Christa Chavez, EHS Director Freiberg*) and the Office of Sustainability have prepared this evaluation of products and guidelines. This evaluation also includes suggestions made by the CalCAP graduate seminar students in spring 2011 specifically on offset options for the campus to consider.

Definitions

“Renewable Energy Certificates” (RECs), also known as Green tags, Renewable Energy Credits, Renewable Electricity Certificates, or Tradable Renewable Certificates (TRCs), are tradable, non-tangible energy commodities in the United States that represent proof that 1 megawatt-hour (MWh) of electricity was generated from an eligible renewable energy resource.”

(en.wikipedia.org, 7/19/10)

Excerpt from 2007 CalCAP Feasibility Study: “In many jurisdictions, the markets for energy and the environmental attributes of energy production are separate. The campus can green its electricity supply by making an investment in green power credits, also known as Renewable Energy Credits (Certificates). One REC covers the technological and environmental attributes of one megawatt hour of electricity generated from renewable sources. RECs are third party certified, increase the demand for renewable energy in the utilities market, and are recognized as a sound method for compensating for carbon emissions from essential energy consumption. UC Berkeley will invest in RECs once possible infrastructures improvements have been implemented.”

“Carbon Offsets” (offsets), a carbon offset is a financial instrument aimed at a reduction in greenhouse gas emissions...One carbon offset represents the reduction of one metric ton of carbon dioxide or its

equivalent in other greenhouse gases. There are two markets for carbon offsets. In the larger, compliance market, companies, governments, or other entities buy carbon offsets in order to comply with caps on the total amount of carbon dioxide they are allowed to emit...In the much smaller, voluntary market, individuals, companies, or governments purchase carbon offsets to mitigate their own greenhouse gas emissions from transportation, electricity use, and other sources... Offsets are typically achieved through financial support of projects that reduce the emission of greenhouse gases in the short- or long-term..." (en.wikipedia.org, accessed 8/3/10)

Excerpt from 2007 CalCAP Feasibility Study: "Carbon offsets can be purchased from many organizations, but the lack of formal regulation of this market raises questions about whether the offset credits are only awarded for emissions reductions that would not have otherwise happened, and whether the offsets are permanent. In the coming years, UC Berkeley will investigate local and regional offset opportunities that offer tangible environmental, social and economic benefits to the local community."

The 2007 CalCAP Feasibility Study valued RECs over offsets - due in part to less accountability and regulation in the offset market in 2007. Since the publication of the Feasibility Study there have been a number of advancements in the regulation and quality of offset projects in the U.S. One that may be the most relevant to the campus includes the 2008 launch the Climate Action Reserve by the California Climate Action Registry. The Climate Action Reserve (CAR) provides registration and tracking of U.S. carbon offset projects - the CAR has 11 protocols and over 200 registered projects that meet emissions reductions in the voluntary carbon market. The California Air Resources Board is considering projects registered by CAR under four protocols for the Cap and Trade program in the state. (http://www.arb.ca.gov/cc/capandtrade/meetings/062210/offset_program_update.pdf)

Due to the advances in offset protocol and high-quality project types that are available it is worthwhile to consider offset opportunities as part of the campus strategy.

Current and Projected Conditions

The campus has identified and is implementing projects planned to achieve about 60% of the required reductions to meet the target. With Operational Excellence Energy Management and other measures, such as our electricity provider, Pacific, Gas and Electric, increasing the use of renewable energy, additional reductions will hopefully close the gap even further.

Based on the 2010 GHG inventory the campus will need to reduce emissions by 42,500 metric tons CO2e in order to achieve the 2014 target. This target reflects both corrections over-time to the inventory methods as well as some emissions reductions achieved already through implemented climate mitigation projects.

CURRENT GHG REDUCTION TARGET	
Refined Target Based on 2010 Inventory	
Year	Metric Tons CO2e
1990	160,500
2010	192,000
2014 - projection	203,000
2014 - target	160,500
Reduction Required	42,500

Based on these current projections and mitigation projects that are underway or may be possible it can be estimated that between 11,000 and 22,000 metric tons CO₂e will need to be met through RECs or offsets to meet the target in 2014.

A few items of reference related to these projections:

- 22,000 metric tons CO₂e equals the emissions of 84,000,000 kWh (about 40% of current electricity use). *Assumption based on 2009 PG&E electricity emissions factor.*
- In 2014, UCB will be purchasing RECs or offsets in the voluntary market.
- In 2014 the cost of RECs and offsets is uncertain in the voluntary market.
 - Based on RECs purchased for LEED qualification by UCB in 2009 at \$.00099 a kWh - the cost in 2014 to abate 22,000 metric tons CO₂e through RECs will cost \$85,000 (2009 dollars).
 - Based on 2009 Point Carbon forecasts, US Carbon Allowances might be at \$13.70 per ton in 2012. Based on this, the cost in 2014 to meet the target through offsets could be \$300,000.

For UC Berkeley to meet its target commitments in 2014 through RECs and/or offsets the cost will likely be in the range of \$85,000 to \$300,000. This will be an on-going annual cost until campus meets the 1990 levels by 2014 target through emissions reductions.

Additional items of reference to consider when evaluating campus acquisition of RECs and offsets:

- In years 2009-2011:
 - The campus completed energy efficiency projects that reduce emissions by about 5,200 metric tons CO₂e (an average reduction of 1,725 tons a year).
 - It cost the campus about \$850,000 (after rebates) in energy efficiency projects to reduce 1,000 metric tons CO₂e.
 - These projects have an average payback of 3.3 years.
- While it is the priority of the campus to meet our targets through investments on campus, the campus may not have identified cost-effective projects or the project management capacity to complete enough reduction strategies in time to meet the 2014 target.

Evaluating and Selecting RECs and offsets to Acquire

The CalCAP Steering Committee formed a sub-group to develop evaluation and selection criteria for acquiring RECs and offsets that is reflective of UC Berkeley's values. In spring 2011 the committee sub-group met to review and discuss:

- The projected amount of emissions anticipated in 2014 that might need to be mitigated to meet the target.
- The guidance provided by the Environmental Protection Agency (EPA) on purchasing RECs and offsets to address emissions from Scope 1, Scope 2 and Scope 3 sources.
- The types, location, and mix of REC and offset project types the campus might consider.

Feedback to date sub-group includes an interest in:

- Using both RECs and offsets to mitigate campus GHG emissions.

- Developing a selection process for REC and offset acquisition that is considered a model of best practices.
- Evaluating RECs and offsets with rigor for carbon reduction quality and effectiveness, as well as using other screening criteria that consider cost, social impact, animal welfare, and other indirect impacts.
- Considering offset projects that have local benefit - which due to their small scale may not be verified and registered projects.
- Considering offset projects that are connected to campus research.

Based on this feedback, the Office of Sustainability is providing a series of recommendations for consideration by CalCAP to guide and inform future acquisition guidelines for RECs and offsets.

The mix of RECs and Offsets to be acquired

The Environmental Protection Agency (EPA) has developed some draft guidance measures on the applicability of using RECs and offsets for Scope 1, 2 and 3 emissions that an organization can use to voluntarily green an organization power and reduce its carbon footprint. The campus could consider using these guidelines to determine the mix of RECs and offsets purchased to meet 1990 levels by 2014.

Table I. Scopes for Corporate GHG Accounting and EPA’s Interpretation of Their Use

Scope	Description	Applicability		Allowable Reduction Claims
		RECs	Offset	
Scope 1 (Direct Emissions)	Emissions from sources that the organization owns or controls, such as industrial processes, natural gas consumption in buildings, owned vehicles, and owned energy generators ¹¹	No	Yes	Total GHG emission reductions; direct emission reductions
Scope 2 (Indirect Emissions)	Emissions associated with the generation of electricity, steam, or heat—from sources that the organization does not own—that is purchased and consumed by the organization	Yes	Yes	Carbon footprint reductions; indirect emission reductions
Scope 3 (Other Indirect Emissions)	Emissions from other sources the organization does not own or control; examples include waste disposal, leased/outsourced activities, business travel, and employee commuting	No	Yes	Carbon footprint reductions; indirect emission reductions

http://www.epa.gov/greenpower/documents/gpp_basics-recs_voluntary.pdf

In 2014 assuming that all the mitigation projects are complete and the emissions savings from these projects persist, the GHG emissions not reduced to 1990 levels will be from Scope 1 direct emissions from natural gas, fleet and refrigerants and Scope 2 indirect emissions from purchased electricity and steam. In 2014, Scope 3 emissions will be 8,000 metric tons CO₂e below 1990 levels.

Using the EPA guidance the campus has options a few of which are:

1. The campus could consider taking Scope 1 emissions to 1990 levels through carbon offsets (about 3,000 metric tons CO₂e) and accomplish the remaining reductions needed to meet the target through RECs for Scope 2 emissions.
2. The campus could consider just utilizing RECs to accomplish the target, though reducing direct emissions and having a more diversified portfolio of products might be preferable.

3. The campus could consider just utilizing carbon offsets. While both RECs and offsets can be used for Scope 2, RECs may be a preferable option, as they are considered a method to indirectly lower the carbon impacts of campus electricity and steam use, while potentially supporting the growth of renewable energy.

Mix of RECs and Offsets

Recommendation: Based EPA guidance the campus consider a mix of purchases of about 80-90% RECs and 10-20% offsets to meet the target.

GUIDANCE ON PURCHASING RENEWABLE ENERGY CERTIFICATES

The U.S. Department of Energy, the EPA, the World Resources Institute, and the Center for Resource Solutions have produced a [Guide to Purchasing Green Power](#) which provides guidance for REC purchases the campus can consider.


Per the Guide to Purchasing Green Power: "...organizations can design a green power purchase that meets their specific criteria mix of geographic location, technology type, supplier, facility, vintage, and price."

The Climate Registry – the organization through which UC Berkeley reports its greenhouse gas emissions inventory – is releasing updated reporting protocols this year that include additional direction and criteria for use of RECs. This update will include guidance on the age of the facility and timeframe of the REC generation, the types of renewable energy RECs that can be used, and the methods for quantifying the emissions savings from RECs. Applicable guidance from TCR will be added to these recommendations when the updated protocol is available.

The following uses the Guide to Purchasing Green Power document's guidance to provide an initial set of campus recommendations for renewable energy certificate acquisition.

■ Third-party certified and verified REC products.

Per the Guide to Purchasing Green Power: "A green power product can be certified and verified by an independent third party. Such certification can provide credibility and confirmation of the product's environmental value."



Energy

What is Green e Energy?
Green-e Energy is the nation's leading independent certification and verification program for renewable energy. It is a voluntary consumer protection program that certifies superior renewable energy options offered by utilities and marketers in the voluntary renewable energy market. The Green-e Energy National Standard identifies many criteria renewable energy must meet to be certified. Electricity must come from eligible sources of supply, like wind, solar, geothermal, biomass, or "low-impact" hydropower. Only new renewable facilities can be used, ones built since 1997. Electricity can't be used to fulfill a state renewable energy goal, and can't be "double counted" towards that goal. And marketing to consumers must be accurate—Green-e Energy performs a marketing compliance review twice a year to ensure that what they say is what you get. It is administered by Center for Resource Solutions, a nonprofit based in San Francisco, CA. www.green-e.org/energy

Green-e certification applies to RECs that meet their National Standard in North America – primarily for facilities in the U.S. and Canada.

Certification and Verification

Recommendation: *The campus will only purchase REC products that are third-party certified and verified.*

Recommendation: *Criteria used by third-party certified and verified projects reflect UCB's minimum standards, and in some instances the campus could use more stringent criteria for selection.*

■ Renewable Energy/Resource Mix of REC products.

Per the Guide to Purchasing Green Power: "A renewable energy/resource mix refers to the kinds of resources used in the green power product. For example, is the product generated from wind, biomass, solar, geothermal, or hydro? Some resources have a greater environmental impact than others. Wind, solar, and geothermal power usually are the most environmentally preferable energy sources. Each is renewable and nonpolluting, with limited impact on the land or local habitats. Certain environmental groups regard some types of hydropower, biomass, and municipal solid waste as less desirable. Hydropower dams may drastically alter river habitats and fish populations; biomass facilities may emit significant quantities of smog-forming pollutants; and burning municipal solid waste may release heavy metals and other toxins into the environment."

Type of Green Power

Recommendation: *RECs from the less impactful renewable energy sources such as wind, solar, geothermal and some biomass and hydro will be prioritized (Green-e Energy certified products meet this criteria).*

Recommendation: *The campus will also consider more stringent environmental review and criteria for REC products that go beyond those required by Federal or State law or by a certifying program such as Green-e (such as additional review that has been done to reduce the impacts of wind power installations on bird and bat populations).*

■ Location of Generation.

Per the Guide to Purchasing Green Power: "In order to support the local economy and to contribute local environmental benefits, some organizations may prefer local or in-state renewable generation. Some renewable electricity products, however, use resources located out-of-state, and renewable energy certificates may be based on generation located outside of the purchaser's region. For example, purchasing RECs from a state in which fossil fuel comprises more of the electric generation mix may provide greater environmental benefit than purchasing RECs from a state in which renewable electricity. RECs, therefore, do not necessarily represent a uniform set of environmental impacts or attributes. As a reporting convention, EPA allows Climate Leader Partners to claim emission reductions based on the regional average emissions rate for where the REC was generated."

Based on the above guidance, and in consideration of the:

- Lower fossil fuel content of California's electricity compared to other parts of the country;
- Potential to have more impact on the rapid development of renewable energy by investing in other parts for the country;

- And, the opportunity to get more emissions reduction per REC by investing in higher emission rate areas:

Location

Recommendation: REC purchases will be for products located in North America and more specifically in the U.S. in order to take advantage of using regional emissions rates for where the REC was generated.

Recommendation: Location of generation is important as it relates to increasing renewable energy deployment nationally and providing more financial advantage and emissions reduction value for the campus. While investment in California products could be a bonus for supporting State development it is not a priority.

■ Specific generation facility.

Per the Guide to Purchasing Green Power: “Some green power providers generate their power at a specific site, such as a nearby wind farm, rather than offering green power from a mix of different resources. These products, such as the annual output of one particular wind turbine, are sometimes preferred by customers because such products offer a closer sense of connection between a purchase and a specific environmentally beneficial.”

Facility

Recommendation: Specific facility generation is not a high priority but in some instances could provide additional benefit if connected to the campus education or research mission.

■ “New” is defined as in operation 1997 or later.

Per the Guide to Purchasing Green Power: “New” renewable resources generally refer to renewable facilities that began operation in 1997 or later, which is when the voluntary market for green power began to grow. Besides the direct impact of purchases from new renewable sources, these purchases also help create the demand necessary for constructing additional renewable resources.”

Age

Recommendation: The campus will purchase RECs that are considered “new” - began operation in 1997 or later.

■ Buying “Future RECs.”

Per the Guide to Purchasing Green Power: “An alternative way to buy RECs is through a subscription, or “future RECs,” which involves an up-front purchase of RECs to be generated in the future by a new or soon-to-be-built renewable electricity facility. The advantage of this approach is that it promotes new renewable facilities by providing up-front financial assistance for their development and construction. In return, the purchaser receives the RECs as they are generated over an extended period of years. Nevertheless, even though they are paying upfront for future RECs, buyers cannot make environmental claims against those RECs until they are generated. A risk of this approach is that the facility might not be constructed or could be destroyed by a natural disaster after construction, and buyers should investigate what remedy the seller

proposes in such an event. As with all products, independent product certification and verification of the claims made is an important aspect to consider.

According to the EPA purchasing RECs is the “simplest way for organizations and institutions to affect the United States’ electricity generation mix at a national scale. These voluntary purchases create demand that is over and above the demand created by the compliance requirements of state RPSs and allow organizations of all sizes to leverage their collective purchasing power to positively influence utility-scale generation.” (http://www.epa.gov/greenpower/documents/gpp_basics-recs_voluntary.pdf)

There is debate on whether RECs really drive the expansion the renewable energy production. One argument is that the cost of the REC only represents a small fraction of the actual cost difference between producing the renewable and non-renewable energy – and not enough to spur new renewable sources. Others have raised concern about the oversight and transparency of RECs including guarantees that a REC is not sold twice or a REC is retired. For additional some additional discussion on these and related issues see:

- Professor Daniel Press, UC Santa Cruz’s Op Ed piece: [“Renewable energy certificates are a feel-good scam.”](#) Also, see a [video interview](#) with Press on the subject of RECs and the connection to spurring expansion of renewable energy sources.
- Professor Michael Wara, Stanford [video interview](#) on the issues of REC oversight.
- Princeton University researcher [Michael Gillenwater](#) has prepared numerous papers exploring these complex issues.

Purchase of a future REC often requires a contract or agreement to purchase the RECs over a period of time at a specified price. While this can create a certainty of cost over time, it can also mean one may pay more (or less) for the product than market rate. The financial risks associated with type of purchase might be counterbalanced by other benefits including direct investment in the building of a new renewable energy producing facility that may also have social and other benefits to the communities in which these facilities are located. These types of benefits could be aligned with the public mission of the campus.

Future RECs

Recommendation: The campus should consider purchasing future RECs, and potentially assuming some additional risk, to better guarantee the investment is delivering the expansion of new technologies and renewable energy deployment.

■ Price

Prices of RECs vary widely based on different factors including age, type and location of the renewable energy facilities, whether the product is blended or site specific, etc. Two examples of higher price REC products/providers that might be of interest to the campus because of the additional qualities they offer include:

- Bonneville Environmental Foundation is a non-profit seller whose prices tend to be higher due in part to the additional environmental reviews they provide on projects and community re-investment strategies.

- 3Degrees' *Project-Specific RECs* allow organizations to customize REC purchases to support specific facilities, or for facilities located in a particular geographic area and usually provide rights to the use of video and photography of these projects for promotional purposes.

For additional REC product offerings and costs see an EPA provided listing at:

<http://www.epa.gov/greenpower/pubs/gplocator.htm>.

As a public agency, UC Berkeley may be able to take advantage of pooled purchases with other public agencies. An initial discussion with the UC Department of Energy's indicates that we may be able to participate in the pooled RFP's they do for Federal Agencies as a WAPA customer – this may be advantageous both for pricing and for reduced administration. Additionally, UC's Office of the President is currently looking into system-wide options that could assist the campus.

Price & Sourcing

Recommendation: *The campus may consider a more expensive REC product that satisfies our criteria and represents a best practice.*

Recommendation: *The campus will pursue options such as pooled purchases with other public agencies and the other UC campuses that may reduce costs.*

Examples of Renewable Energy Certificate Products for Purchase

In consideration of the above initial recommendations, the following renewable energy certificate products offer an example of what the REC providers and products the campus might purchase to meet the 2014 target. This does not represent an exhaustive search or necessarily a recommendation for these particular providers.

Bonneville Environmental Foundation



www.b-e-f.org

- I. **Meets the above basic recommendations for REC products**
- II. **Has additional attributes including:**
 - A non-profit organization.
 - Net revenues are reinvested in environmental programs dedicated to the promotion, financing and development of new sources of renewable energy, renewable energy education programs in K-12 schools and watershed restoration projects.
 - Requires the renewable energy projects that produce RECs to undergo an additional third party environmental review process. This process uses criteria endorsed by three independent environmental organizations, including the Natural Resources Defense Council.
 - Non-Utility Green Power Supplier of the Year (U.S. Dept. of Energy, 2009).

- Also sells offsets.

III. Prices tend to be higher due in part to BEF's additional review and re-investment strategies.

3Degrees



<http://www.3degreesinc.com/>

I. Meets the above basic recommendations for REC products

II. Has additional attributes including:

- For a premium, 3Degrees' *Project-Specific RECs* allow organizations to customize REC purchases to support specific facilities, or for facilities located in a particular geographic area and usually provide rights to the use of video and photography of these projects for promotional purposes.
- In 2009, over 60% percent of 3Degrees' Green-e[®] Energy Certified *National Wind RECs* were sourced from projects that went online on or after January 1, 2006.
- Non-Utility Green Power Supplier of the Year (U.S. Dept. of Energy, 2009 & 2010).
- Also sells offsets and provides other related services.

III. Prices vary depending on REC type purchased.

Renewable Choice Energy



<http://www.renewablechoice.com/>

I. Meets the above basic recommendations for REC products

II. Has additional attributes including:

- Offered very low pricing for blended wind products in recent years; UCB purchased from this vendor for LEED projects.
- Through a sponsorship program offers installations of 50 kilowatt turbines in K-12 schools.
- Has received sustainability awards from the EPA and Department of Energy.
- Also sells offsets and provides other related services.

III. Prices vary depending on REC type purchased.

GUIDANCE ON PURCHASING CARBON OFFSETS

As mentioned above the campus should consider purchasing a mix of about 80-90% RECs and 10-20% offsets to meet the 2014 target.

There are two resources that the campus can use to guide the type and criteria for offset purchases:

- **The American College & University Climate Commitment (ACUPCC)** – of which the UC system is a member institution – has developed guidelines and protocol for purchasing carbon offsets, “the principles of what determines a high-quality offset are described in the protocol. Emissions reductions should be real and tangible; additional; transparent; measurable; permanent; verified; synchronous; registered; and retired.”
http://www2.presidentsclimatecommitment.org/documents/ACUPCCVoluntaryCarbonOffsetProtocol_Nov08.pdf
- **AB 32, the Global Warming Solutions Act in California**, also states that carbon offsets must be real, permanent, quantifiable, verifiable, enforceable and additional. The California Air Resources Board (ARB) identifies offset project types and Climate Action Reserve protocols that entities subject to Cap and Trade will be able to use to accomplish up to 8% of needed allowances. The Climate Action Reserve is a national offsets program working to ensure integrity, transparency and financial value in the U.S. carbon market.

CalCAP Graduate Student Report on Purchasing Carbon Offsets

In spring 2011 the CalCAP Graduate Seminar students (Christa Chavez, Kristin Brainerd, Autumn Petros-Good, Rongxin Yin) prepared a report with recommendations to the campus on purchasing carbon offsets as part of the strategy to meet campus climate commitments. This report explores both of the above offset guidance sources, identifies some project types for the campus to consider, and makes several recommendations to the campus.

The report also highlights a matrix provided in the ACUPCC document “Investing in Carbon Offsets: Guidelines for ACUPCC Institutions” that compares costs and risks associated with offset projects:

ACUPCC Comparison of Costs and Risks of Offset Investment Options

Offset Investment Options	Risk	Cost
Purchasing Credits – retail	Low	Varies
Purchasing Credits –wholesale	Varies	Varies
Investing in Projects	Varies	High
Developing Projects	High	High
Prompt Delivery	Low	High
Forward Delivery	Low	Low
Forward Crediting	Moderate	Varies

http://www2.presidentsclimatecommitment.org/documents/CarbonOffsetsGuidelines_v1.0_ExecSummary.pdf

CalCAP Graduate Report Carbon Offset Recommendations

Recommendation: *The campus should invest in portfolio of national offsets, such that a percentage of them comply with AB 32 protocols. The eligible project types that meet CAR protocol are for Urban Forest, Forest, Ozone Depleting Substances and Livestock Manure Digesters.*

Recommendation: *Some of the offsets could come from experimental and international projects, including UC Berkeley run projects in other countries and community weatherization programs.*

Recommendation: *The campus should consider purchasing under the Forward or Future Delivery option due to its low risk and cost.*

Read the full Graduate Student CalCAP report “Recommendations for Purchasing Carbon Offsets:”

http://sustainability.berkeley.edu/calcap/docs/CalCAP_GradSeminar_OffsetRecommendations_2011.pdf

Additional Guidance for Purchasing Carbon Offsets

Several of the guidance measures explored and recommended above for RECs are also applicable to selection of offset products. These include the following:

Certification

Recommendation: *The campus will only purchase offset products that are third-party certified and verified such as those that follow CAR protocol or other recognized certifications. The exception might be in the circumstance of developing our own local project or one that is related to campus research for which the size or scope does not warrant independent certification and verification; in such an instance the campus would transparent about its reporting and application.*

Recommendation: *Criteria used by third-party certified and verified projects reflect UCB’s minimum standards, and in some instances the campus will use more stringent criteria for selection.*

Location

Recommendation: *Location of generation is important as it relates to investing in the types of projects prioritized by the campus and to spurring more development of offset projects. Investment in California products could be a bonus for supporting in-State development by may not be a priority.*

Additional Offset Type Guidance

Recommendation: *The campus should consider not investing in livestock (feedlot industry) related manure digester offsets that support a carbon intensive industry and have negative animal welfare implications.*

Price

Recommendation: *The campus may consider more expensive offset product that satisfy our criteria and represent a best practice. This is particularly applicable to acquiring offsets that meet the California cap and trade requirements – as these may become more expensive once they can be utilized by a regulated sector for compliance. The campus may be able to take advantage of the competitive pricing resulting from UC system-wide purchasing of AB 32 compliant offsets for those UC campuses under Cap & Trade.*

UC Natural Reserve Lands for Offset Projects

The question has been posed as to whether UC Natural Reserve Lands (NRS) could be used for offset projects. Generally, NRS lands cannot be used for the purpose of generating offset credits because University-owned NRS lands are managed in a predominantly undeveloped state to support research, teaching, and outreach activities. NRS lands are unique and are subject to a variety of deed and other use restrictions, many of which would preclude the use of the lands to generate offset credits. (Source: email exchanges between UCOP staff: Violet Nakayama; Matthew StClair; Charlotte Strem; Andy Coghlan; Michael Dorward, 2010)

Examples of Offset Options

In consideration of the above recommendations, the following offer an example of what offset products and approaches the campus might consider to meet the 2014 target.

CalCAP Graduate Report

The report "[Recommendations for Purchasing Carbon Offset](#)" identifies project types that the campus might consider including a biogas plant, community weatherization projects, and UCB faculty research projects. The analysis includes some estimated costs and requirements, and carbon offset potential.

KyotoUSA – The HELiOS Project

<http://www.heliosproject.net/>

The HELiOS Project (HELiOs Energy Lights Our Schools), an effort by [KyotoUSA](#) and Berkeley residents, is focused on installation of solar on public K-12 schools in the east bay. Recently KyotoUSA and the National Renewable Energy Laboratory released [Solar Master Plans](#) developed for Berkeley, Oakland, and West Contra Costa Unified School Districts. Over the years CalCAP has had discussions with the HELiOS project to see if there are some intersecting REC and/or offset opportunities with these local projects. Recently, Tom Kelly of the HELiOS Project communicated that in the next few years it is anticipated that the school districts will be evaluating whether the costs of new PV systems will actually be offset by the savings and incentives that can be achieved - and how the possibility of long term REC sales could be a factor in a district's decision to install PV. The quality of the school generated RECs might mean that they are more expensive than those produced off-shore or in other parts of the country, however, the benefits (economic, environmental, and health) to the local community could be of value.

Native Energy



<http://nativeenergy.com>

Native Energy has expertise in forward or future offset projects.

From their website: “Through the [Help Build™ carbon offsets](#), businesses and individuals can help finance the construction of wind, biogas, solar, and other [carbon reducing projects](#) with strong social and environmental benefits. We have provided essential funding to more than 50 community-based initiatives—our customers have brought renewable energy to schools, methane digesters to family farms, and we even helped build the first large scale Native American-owned wind turbine in the U.S. All *Native Energy* carbon offsets are [third-party validated and verified](#) to leading standards.”

Native Energy is known for the Help Build™ Greensburg wind farm that helped Greensburg, Kansas provide a renewable energy source as part of the town’s rebuilding effort after 95% of it was destroyed by a tornado in 2007.

Duke University – Carbon Offset Initiative

http://sustainability.duke.edu/carbon_offsets/index.php

Duke University has undertaken the development of its own verified offset projects in collaboration with Duke Energy. This commitment has resulted in the opening in 2011 of a waste-to-energy project at a local hog farm that is producing carbon offsets and RECs.

From Duke’s website: “Duke University established The Duke Carbon Offsets Initiative (DCOI) to help meet the University’s [carbon neutrality commitment](#). The DCOI’s mission is to develop local, state, and regional carbon offset projects that yield significant benefits beyond greenhouse gas emission reductions. Benefits the DCOI looks for in projects are additional environmental and public health protection, job creation opportunities, energy savings, and habitat protection.”

The DCIO is a major undertaking by the university – the initiative has two staff members dedicated to it.

Ohio State University (Athens, GA) – The Green House Project

<http://www.ohio.edu/compass/stories/09-10/7/Green-House-700.cfm>

The Green House Project was an energy-efficiency and education program targeting both student renters and their landlords. The project provided subsidies to landlords to make energy efficiency improvements in units rented by students, coupled with related energy saving education. The project was an innovative example of a local offset project that benefits the students and community. The project was not a verified or certified offset program, but did result in some energy savings. Each ton of carbon offset ended up costing about \$330 – significantly more expensive than purchasing in the open market from a provider.

NEXT STEPS

1. The CalCAP Steering Committee provide input on the recommendations.
2. The Office of Sustainability will finalize the initial REC and Offset acquisition guidelines.
3. If directed by the CalCAP Steering Committee, more exploration of local or UC sponsored REC and offset opportunities will be done.
4. In the near term, the REC guidelines can inform LEED purchases.
5. In 2014, these guidelines will be reviewed and revised and will be used in the development of purchasing contracts for RECs and offsets.