UCSB Climate Action Plan Deep Dive: Carbon Offsets

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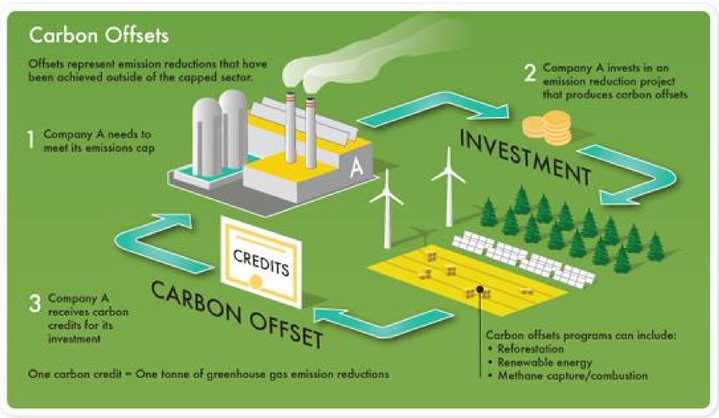
Introduction

The American College & University Presidents Climate Commitment was created in 2007. Since then over 650 schools have signed on and more than half have created Climate Action Plans in order to begin the process towards becoming carbon neutral. UCSB is one of the many schools that have created Climate Action Plans, but in the 2014 edition there were only two pages of discussions on the purchasing of carbon offsets, meaning there was a very limited amount of analysis on the topic. According to class discussions, a growing carbon market, a recent opt-in to Cap-and-Trade compliance carbon offsets, and research on what other schools are doing about offsets, it has become clear that in the future, when no additional on campus emission reduction projects are financially viable, carbon offsets will need to be invested in. UCSB has always been a leader in sustainability, yet many other universities across the national already have carbon offset initiatives or programs in effect, while we have barely scratched the surface of what is possible for this campus. Through my research on carbon offsets, I have identified both state regulation compliance guidelines and national voluntary offset guidelines that could be possibly implemented at UCSB in the future.



Project Goals

As of now UCSB doesn't have a plan for purchasing carbon offsets, but it seems like it will be inevitable in order for UCSB to meet its carbon neutrality goals. There is a Cap-and-Trade program in California under Assembly Bill 32, and UCSB voluntarily opted in in 2015. The appropriate set of guidelines for offsets should be established as it seems unlikely that UCSB will meet its carbon neutrality goals through mitigation strategies alone. Deciding what guidelines will best fit UCSB will require the consideration of offset projects for both compliance carbon markets and voluntary carbon markets. I did this by looking at what other universities have done, what programs they have in place, and what types of offset projects they have invested in

Case Studies

Duke University*:* The Duke University Carbon Offset Initiative has conducted an offset feasibility study, where they created a portfolio that examines all possible offsets for Duke University, including locally and internationally sourced offsets. Duke University is more focused on local offset options that will benefit the neighboring community. Not all of the offset projects that have been done at Duke University can be implemented at UCSB, but it is helpful to look at how the projects worked and how they differentiated between compliance offsets and voluntary offsets.

American University*:* The report analyzes a variety of offset projects, offset guidelines, and verification standards that the university should consider when thinking about what system and what projects should be invested in, which could be useful for when UCSB starts thinking about offsets.

University of Maryland: The Sustainability Council at the University of Maryland created a Carbon Offset Work Group who looked at offset programs that other universities have put into effect. In the report is information on local offset projects, global partnership offset projects, and how creating an offset plan will reinforce the university's leadership in sustainable efforts.

Financial Assessment

Compliance Offset Projects

Offset projects can only be issued offset credits under compliance protocol if CARB approves the projects. Currently, there are six different sets of protocols including U.S. Forest Projects, Urban Forest Projects, Livestock Projects, Ozone Depleting Substance Compliance Projects, Mine Methane Capture Projects, and Rice Cultivation Projects. Each project has its own set of protocols for what qualifications the projects must need in order to be approved by CARB and considered a verified offset project.

Companies and businesses that are covered by AB 32 Cap and Trade are allowed to use offset credits for no more than 8% of their allowances. Because UCSB opted in to Cap and Trade, that means that if we ever meet the cap amount of emissions, which is currently 25,000 MTCO2e, we will have to purchase allowances and will only be able to offset our emissions by 8% each compliance period. UCSB does not currently emit more than this cap, so that means we can offset more than 8% of our emissions and we can still consider investing in voluntary offset projects.

Below is a table of how many offset credits have been issued and how many projects have been approved, excluding urban forest projects and rice cultivation projects, because as of now no credits have been issued.

	Ozone Depleting Substances Projects	Livestock Projects	U.S. Forest Projects	Mine Methane Capture Projects
Offset Credits Issued	5,153,131	688,682	14,791,335	280,667
Number of Projects	79	72	42	8

The price of carbon credits vary every year, which makes them hard to account for. On average, the price of a voluntary offset credit is around $6 per MTCO2e, and the price of a compliance offset credit fluctuates between $6 and $12 per MTCO2e. According to the February 2016 Joint Auction #6 of the California Cap-and-Trade Program Summary of Auction Settlement Prices and Results, the advance auction settlement price of a compliance offset credit is $12.73.

I wanted to know the average monetary value of each offset project. I took the total amount of offset credits ARB approved from each section, divided it by the amount of projects in each section, then multiplied the average amount of credits by the current cost of one offset credit.

	Ozone Depleting Substances Project	Livestock Project	U.S. Forest Project	Mine Methane Capture Project
Average Amount of Offset Credits Given	65,229.51	9,565.03	352,174.64	35,083.38
Price of Offset Projects (USD)	830,371.66	121,762.83	4,483,183.17	446,611.43

Although there are the most ozone depleting substances projects, U.S. forest projects yield the highest amount of offset credits, and thus are worth the most money. If UCSB were to invest in offset projects under compliance regulations, I would suggest investing in U.S. forest projects as they have the highest amount of emissions reductions. Then, I would suggest investing in ozone depleting substances projects because it seems like those are the most popular to implement.

Voluntary Offset Projects

Guidelines and rules for voluntary offset projects are much more flexible and can include many more types of projects compared to compliance offset projects. This is because under AB 32 Cap and Trade compliance project regulations, those industries regulated under the cap cannot have offset projects.

For the purposes of this report, I compared three offset projects from each of my case studies. The first one I wanted to analyze is from the University of Maryland, which is a New Beulah Landfill project, which is a landfill gas system where methane is collected and then destroyed. It is a project that is located in Maryland, and according to the university's offset recommendations, they prefer investing in offset projects that are local so that the benefits of decreased emissions will remain within the nearby community. The project has been in effect for eight years, and the average amount of offset credits issued is 15,224.88. This project is registered with the Climate Action Reserve.

I then looked at Duke University's Loyd Ray Farms offset project, which involves an animal waste management system which destroys methane and creates renewable energy. This offset project is in North Carolina, the same state that Duke University is in. The university wanted to invest in local offset projects for the same reason the University of Maryland did, so that the local community could reap the benefits of having cleaner air. This project has been running for a shorter amount of time, and the average amount of offset credits they generate annually is 694. This project is also registered with the Climate Action Reserve.

The final voluntary offset project I reviewed was more complicated and less straight-forward than the last two. The non profit organization the American University is purchasing offset credits from is Pax Natura, who works to preserve a forest area of 39,522 hectares in Costa Rica. The project has not been fully implemented because of the lack of funds and lack of landowners enrolled in the project. American University purchased 9,000 offset credits over the span of two years, which was the biggest amount of credits bought by one entity. So on average, the university received 4,500 credits annually from the Pax Natura project. This project was not verified by the Verified Carbon Standards, as the project does not meet offset guidelines.

The offset projects from the University of Maryland and Duke University both involve methane emissions reductions. The project with the University of Maryland yielded a higher annual amount of offset credits, which in turn would be a more expensive project to invest in, but the project is local and benefits the community. I would recommend that if UCSB were to invest in voluntary carbon offsets, they should pick local landfill projects.

Recommendations

Considering the research I have conducted on the differences between compliance and voluntary offsets, the approaches that other universities have taken, and the verifying reporting organizations I have looked at, I have created a set of five recommendations I think UCSB should act upon.

1. Purchasing offset credits should be a last resort

According to my research on Duke University, American University, and the University of Maryland, all three campuses decided to consider offsets when there are no other options. In UCSB's Climate Action Plan, it is started that the campus will consider offset purchasing only when on campus emission reduction projects are no longer financially feasible. Only when purchasing offsets becomes more cost-effective than creating new emission reducing projects is when they should be considered.

2. Verify and report voluntary offsets with the Verified Carbon Standard or the Climate Action Reserve

Both of these reporting agencies seem to be the most reputable and thorough, and most voluntary offset projects I looked into were verified by one of these. I also advise to only invest in offset projects that are verified by VCS or the Climate Action Reserve because they can also be used for compliance offset projects, since the California Air Resources Board uses these verifying and reporting agencies as well. But, when purchasing compliance offset project credits, UCSB must follow the guidelines and requirements of offset projects that the California ARB created.

3. Invest in both compliance and voluntary offset projects

UCSB should invest in voluntary offset projects that are verified by the VCS or the Climate Action Reserve. Because UCSB has a while until it reaches the capped amount of emissions allowed under Cap-and-Trade, UCSB should utilize voluntary offsets as much as possible as they are cheaper and there are more offset project options. ARB reviews potential offset protocols that can be added to the list of allowed projects under compliance regulation regularly, so some voluntary offsets could potentially become compliance offsets. In response to the research I have conducted, it seems like local landfill voluntary offset projects are the best bet because they are the more popular and generate a large amount of carbon offset credits.

Compliance offsets are cheaper than allowances under Cap-and-Trade, but are more expensive than voluntary offsets. According to my research, If UCSB were to invest in offset projects under compliance regulations, I would suggest investing in U.S. forest projects as they have the highest amount of emissions reductions. Then, I would suggest investing in ozone depleting substances projects because it seems like those are the most popular to implement. Compliance projects should be invested in because the credits granted are official, ensured, and trusted, but most of the offset credits UCSB is granted should come from voluntary projects.

4. Create a carbon offset workgroup or committee

UCSB has no designated individuals who work on developing carbon offset guidelines or a program for UCSB, which I believe is part of the reason why the university has no plan for the purchasing of offset credits. My research, along with the research done by Maximilian Stiefel, a graduate student, are the only in depth analysis of what UCSB should do regarding offsets. This can easily be changed if a committee or workgroup was created. The people in this group could do more research on any additional guidelines or projects other universities have done, and could potentially create a carbon offset program specifically for UCSB. This program could potentially become a UC-systemwide program that all the UC schools could implement. I would suggest creating this workgroup or committee as soon as possible, preferably within the next two years so that for the next Climate Action Plan update, there will be more information available.

5. Involve students

I believe that students that major or have an interest in environmental studies, geography, or economics would be interested in learning about UCSB's Climate Action Plan and what the campus plans on doing about carbon offsets. This would also be a way to gather input from the student body on their opinions on whether they would be okay with using student money to purchase offset credits. Involvement could be through emails, lectures, and informational meetings. These students could potentially brainstorm for ideas about local projects that can be invested in, or could also become part of the carbon offset workgroup or committee. Students could also become involved if a research class was made just for carbon offsets.

Literature Cited

- Carbon Offset Work Group Report *University of Maryland*
- Climate Action Plan *UC Santa Barbara*
- Compliance Offset Program *California Air Resources Board*
- Dude, Where's my Carbon? *American University*
- Duke Carbon Offsets Initiative 2015 Annual Report *Duke University*
- Image:*http://skillpointalliance.org/green-tech-quarterly*

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