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April | 20

# Carbon Offset Road Map

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## I. Executive Summary

Western Michigan University (WMU) is a member of the American College & University Presidents' Climate Commitment (ACUPCC) and has committed to becoming "climate neutral."<sup>1</sup> To achieve this goal, WMU is trying to reduce its Green House Gas (GHG) emissions in three

areas (See the figure 1). The first and most important strategy is

conservation. To promote reduction

in electrical usage we have a

competition, the Eco-Thon, among

residence halls each winter (residence

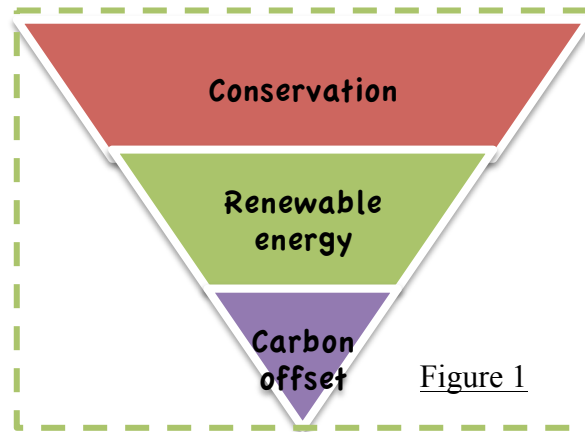
halls include: Bigelow Hall, Burnhams, Henry Hal, Davis Hall, Draper Hall, French Hall, Hoejke Hall, Valley1, Valley2, Valley3, and Zimmerman Hall). This

competition is one component of a larger effort to expand outreach and educate the campus community about the significance of electricity reduction. If students win the

competition, they can get a \$500 cash prize, ceremonial party, plaque recognition, and a tree planted outside their Hall.<sup>2</sup>

The second strategy is renewable energy. WMU has renewable energy resources, for example, photovoltaic, wind power, and the like. The photovoltaic, which is located on Wood Hall, generates approximately 16,000kwh per day, and the wind power, which is located at Parkview campus, generates 2,000kwh per day (Appendix 3-i).

The third level of WMU's climate neutral foal, carbon offset, shows what we are supposed to do the rest of the GHG after we have implemented the energy reduction



<sup>1</sup> Strategic Sustainability Initiative Report (February 12, 2009)

<sup>2</sup> Eco Thon < <http://www.fm.wmich.edu/ecothon/#>>

and the changing to renewable energy. According to Harold Glasser, WMU concentrates on the reduction and changing renewable energy now, and it does not have any road map for carbon offset.<sup>3</sup> This is why I decided to make a carbon offset road map for WMU. This project will be helpful when WMU starts thinking about the carbon offset in near the future.

To make the road map, I referred to the case studies from three universities: Duke University, Green Mountain College, and College of the Atlantic. These universities are members of ACUPCC, and had executed the carbon offset before; Green Mountain College and College of the Atlantic have achieved the climate neutrality. Duke University has executed the carbon offset, but has not achieved the climate neutrality yet. From these case studies and some readings, I came up with three important carbon offset key points: (1) Using local emission credits, (2) Following ACUPCC protocol, (3) Cooperating with students. I will explain these key points step by step in the next chapters.

## **II. Introduction**

Each action in our lives consumes energy and produces carbon dioxide (CO<sub>2</sub>), for example, if you go to the university by a car, your car emits CO<sub>2</sub>. According to Carbon Footprint Ltd, carbon offset can be used to compensate for the emissions produced by funding equivalent carbon dioxide saving elsewhere.<sup>4</sup> Executing the carbon offset is the first step to become GHG neutrality. GHG neutrality means eliminating all GHG emissions from a specified set of activities, and/or offsetting a portion of those emissions by purchasing carbon credits (or generating credits by

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<sup>3</sup> Interview with Dr. Harold Glasser

<sup>4</sup> Carbon Footprint Ltd. < <http://www.carbonfootprint.com/carbonoffset.html>>

developing emissions-reduction projects outside of the boundary of the specified activities being neutralized<sup>5</sup>.)

WMU emitted 123,549 metric tons of carbon dioxide equivalent (MTCDE) from 2008 to 2009 even though we are trying to reduce the amount of CO<sub>2</sub> with the reduction and the renewable energy. To be climate neutral, we have to execute the carbon offset on campus in the near future.

### **III. Methodology**

In order to collect the information for this report, first of all, I researched the case studies of carbon offset at other universities in U.S., using the Internet. I found ten universities, and I picked three universities.

In the ten universities, six used emission credits from their communities. Three universities used emission credits not from their communities, but instead from a developing country, and one university mixed the emission credits from its local community and not-local community. On the other hand, only two of ten universities became climate neutral, and others executed the carbon offset as pilot projects for being climate neutral.

The three universities are (1) Duke University, which used emission credits from its community, but did not become climate neutral, (2) Green Mountain College, which used emission credits from its community, and became climate neutral, and (3) College of Atlantic, which did not use emission credits from its community, but became climate Neutral.

First, I chose these universities because I wanted to see the difference when using the emission credits from a community or not (comparison of (2) with (3)), and

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<sup>5</sup> Investing in Carbon Offsets: Guidelines for ACUPCC Institutions (November 2008 v1.0)

because it would be helpful when WMU executes the carbon offset as a pilot project (1).

I also researched through interviews. This is because I wanted to get information, which I could not get on the Internet.

For the research above, I found three important carbon offset key points: (1) Using local emission credits, (2) Following ACUPCC protocol, (3) Cooperating with students.

Second, I investigated the reason why the emission credits from community are better than the credits not from the community: why over half of universities purchased the emission credits from their communities. I have read some articles, and I think these would be the strong evidences.

Finally, I researched the emission credits from Michigan. This is why we can estimate how much it will cost to execute the carbon offset at WMU. I researched it on the Internet and through interviews.

## **IV. Example of Best Practice on Other Campuses**

### **1. Duke University**

#### **a. The Content of Carbon Offset**

Duke University, a member of ACUPCC, has worked to develop a Climate Action Plan (CAP) that set it on a path to achieve climate neutrality by 2024. The CAP includes aggressive measures to reduce on-campus emissions. However, even with these measures, the University will not be able to achieve neutrality without looking outside the University. Thus, in June 2009, the University established the Duke Carbon Offset Initiative to facilitate and catalyze high quality local and regional

carbon offset projects to meet that portion of Duke GHG reductions that it cannot achieve on-campus. <sup>6</sup>

This offset was a pilot project. 23 of the 341 DukeEngage Academy participants have chosen to offset the GHG emitted from air and car travel to their DukeEngage service sites (DukeEngage Academy is a two-day pre-departure training required for all DukeEngage participant). Out of 23 participants, 15 participants offset 100% of their GHGs emissions. On the other hand, 8 offset a portion of their GHG emissions from their travel. It cost \$666.90 for the purchase of carbon offset from a North Carolina innovative swine waste management offset project. The average cost which each participants paid was \$25.67. <sup>7</sup>

b. The Detail of Emission Credit

The emission credits were from North Carolina innovative swine waste management offset project. This system can capture or avoid methane emission, as well as stop discharge of waste into surface and ground water, substantially



eliminate emissions of ammonia, heavy metals, nutrients, and pathogens. It is estimated that methane captured and combusted from North Carolina's swine farms could generate up to 766,000MWh of electricity (enough to power almost 70,000 homes) and reduce GHGs emission by 5.59 MTCDE per year. <sup>8</sup>

c. The Result of Carbon Offset

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<sup>6</sup> Duke Engage Carbon Offset Pilot Project at Duke University  
< <http://www.aashe.org/resources/case-studies/dukeengage-carbon-offsets-pilot-project-duke-university>>

<sup>7</sup> *ibid.*

<sup>8</sup> Offset Purchases Support Methane Reductions and Help to Clean Up Farm Operations  
<[http://sustainability.duke.edu/carbon\\_offsets/SwineWaste.html](http://sustainability.duke.edu/carbon_offsets/SwineWaste.html)>

The carbon offset stimulated some students, and made them interested in the carbon offset. One of the successful aspects of it was friendly competition between groups. Some students and their staff leaders were so excited about the idea of competition, which measures the percentage of emission impact. It encourages students to take part in the program along with their friends as a result.<sup>9</sup>

## **2. Green Mountain College (GMC)**

### **a. The Contents of Carbon Offset**

Green Mountain College's Climate Action Plan created in 2009 to ensure reductions in institutional GHGs emission and set a climate neutrality date of 2011. After much emphasis on the reduction of emissions, the CAP prescribes the purchase of carbon offsets to neutralize emission that could not be minimized. The Campus Sustainability Council (CSC) chose 2011 for the climate neutrality date because it felt that GMC, as a national leader in campus sustainability, needed to lead by example to take swift and immediate action to mitigate climate change.<sup>10</sup>

GMC picked three providers, and held the public presentations to GMC community. The presentation was announced on campus, and not only members of college faculty, but also students, came to the presentation. They gave feedback on the presentation, and contributed to the decision of emission credits.

At last, GMC chose the emission credits from Central Vermont Public Service (CVPS), who offered to create a locally based project by certifying carbon offsets from methane capture and anaerobic digestion using their cow power program from Vermont dairy farms. This is because it became clear that social and economic benefit

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<sup>9</sup> Duke Engage Carbon Offset Pilot Project at Duke University  
< <http://www.aashe.org/resources/case-studies/dukeengage-carbon-offsets-pilot-project-duke-university>>

<sup>10</sup> Carbon Offset Selection Process: Green Mountain College becomes Climate Neutral

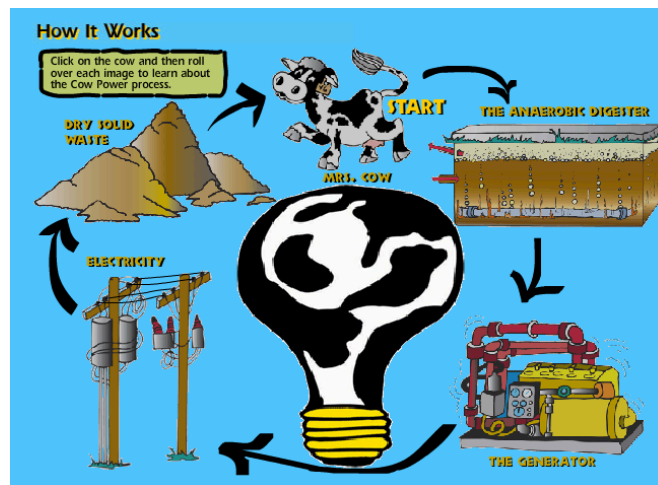


were the highest priorities to the GMC community. Moreover the community indicated a strong need to align institutional values with the values represented by the projects themselves and companies providing the offsets.<sup>11</sup>

b. The Detail of Emission Credits

One cow produces over 30 gallons of manure per day. 1,000 cows produce approximately 30,000 gallons of manure. All that manure can be turned into some serious profit for farmers generating Cow Power. The manure is fed into an anaerobic digester at 100°C. Bacteria convert the waste into various products, one of which is methane, which is produced by the bacteria, builds up pressure in the concrete vessel, and a pipe delivers the biogas to a modified natural gas engine. The biogas fuels the engine, which in turn spins an electric generator to create electricity. Waste heat from the engine is used to keep the digester warm, and offsets fuel purchases on the farm. One cow's waste can produce

enough electricity to light two 100-watt light bulbs 24 hours per day. The energy is fed onto the CVPS electrical system for distribution to customers.<sup>12</sup>



c. The Result of Carbon Offset

According to Amber Garrard, sustainability coordinator at GMC, “in terms of the final impact of the offsets on behavior, the students were happy to support a local company in the purchase of offsets, but they would like to see a reduction in the

<sup>11</sup> Carbon Offset Selection Process: Green Mountain College becomes Climate Neutral

<sup>12</sup> Central Vermont Public Service

< <http://www.cvps.com/cowpower/Cow%20Power%20home.html> >

amount of offsets the College purchases. Carbon offsetting is still a very controversial practice that not all students support, and this creates a great learning opportunity.”<sup>13</sup>

### **3. College of the Atlantic (COA)**

#### **a. The Contents of Carbon Offset**

In December 2007, College of the Atlantic became the nation’s first carbon neutral college. Currently, COA offsets to support the truck stop electrification through Carbonfund.org. The project provides electricity to drivers at truck stops to eliminate the need for the idling of truck engines. This project meets the requirement of ACUPCC protocol.

COA pays \$7.71 per ton for this carbon offset, and it can offset its emission for \$15,000 per year.

#### **b. The Detail of Emission Credits**

Carbonfund.org supports the truck stop electrification project, which reduces tailpipe emission from freight trucks that transport our consumer goods all across the country. Long-haul truck drivers idle their trucks to heat or cool their cab and to power on-board appliances during the federally



mandated rest period. Engine idling creates poor resting conditions for the driver and fosters unhealthy conditions since a large number of trucks idle in close proximity.

Idling also consumes fuel while moving no product, reduces engine life, and requires more frequent engine maintenance.<sup>14</sup>

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<sup>13</sup> Interview with Amber Garrard, Sustainability Coordinator at GMC

<sup>14</sup> Carbonfund.org

<[http://www.carbonfund.org/site/projects/profile/truck\\_stop\\_electrification\\_project/](http://www.carbonfund.org/site/projects/profile/truck_stop_electrification_project/)>

With this project, drivers can shut off their engines and utilize the advances truck stop electrification technology. This system consists of an in-cab service module connected via a flexible hose to an efficient external unit that heats, cools, and powers the interior of the truck, and lets the driver run the radio and check e-mail without forcing the engine to burn diesel while saving about a gallon of diesel per hour.<sup>15</sup>

c. The Result of Carbon Offset

The carbon offset stimulates students' consciousness. For example, the contract between Carbonfund.org will expires in 2011. Some students researched the local projects because they thought the local projects are much more important than the non-local project. They also mentioned the projects should be reflected by the school's value. Many people at COA are interested in wildlife preservation and a conservation project, and they feel COA should fund such a project. The students wanted to emphasize COA to have carbon offset, and to work together with the students in doing so.

## **V. Discussion**

When WMU executes carbon offset, there are three important carbon offset key points: (1) Using local emission credits, (2) Following the ACUPCC protocol, (3) Cooperating with students.

### **1. Using Local Emission Credits**

According to Ashwini Srinivasamohan (New York University), and Hye (Helen) Lee (University of Maryland, College Park), local projects are those designed and executed on the home campus and nearby communities, and offer the opportunity to

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<sup>15</sup> Carbonfund.org  
<[http://www.carbonfund.org/site/projects/profile/truck\\_stop\\_electrification\\_project/](http://www.carbonfund.org/site/projects/profile/truck_stop_electrification_project/)>

have a carbon reduction effect “in our backyard.” Local options can range from reforestation projects to donating the money to a local cause that is of equal or greater value to the cost of the emission.<sup>16</sup>

As you can see the example above, two out of three universities executed the carbon offsets, using the local emission credits. Even at COA, which is purchasing non-local emission credits, some students suggested purchasing the local emission credits. This is why it is said that local carbon offsets can provide greater economical, social, and educational co-benefits.

In the economical aspect, local offset can activate the local economy. If an organization cannot introduce the system, which reduces the amount of CO<sub>2</sub> because of lack of money, it would be very helpful for the organization to be invested by universities around the community.

Of course, there are some problems. One of the problems is the cost. Local carbon offset basically is prone to be more expensive than non-local carbon offset. For instance, Ohio University spent \$667 per ton on their Green Housing Project, and Brown University spent \$200 per ton while only reducing approximately five percent of the university’s annual emissions. On the other hand, the market price of non-local carbon offset ranges from \$0.09 (Chicago Climate Exchange) to \$50 (Beyond Neutral).<sup>17</sup> Actually, local emission credits in Michigan, which I will introduce later, cost approximately \$105 per ton.

In the social aspect, local carbon offset can help connect people to people. Local carbon offset has tangibility, and this leads to great investment in carbon offsets because the offset is no longer just about an unseen reduction in GHG. Almost all of

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<sup>16</sup> Cross-Border Carbon Footprints: University Study Abroad and Carbon Offsetting Programs (June 2010)

<sup>17</sup> CREATING CARBON OFFSETS: A NEW ALTERNATIVE FOR COLLEGES AND UNIVERSITIES? (Lisa M. Curtis Whitman College 2010)

the project developers cited the desire to improve the relationship between their institution and the surrounding community.<sup>18</sup>

In an educational aspect, all of student project developers felt that their projects were an incredible learning experience for themselves and their team. Although all of the student project developers admit that their local offset project has taken up a large amount of time, all of them felt that the benefits to themselves, other students and community members has made the project worthwhile. Local carbon offset projects undoubtedly provide more educational benefits than purchasing a non-local carbon offset project.<sup>19</sup>

## 2. Following the ACUPCC Protocol<sup>20</sup>

According to ACUPCC, the members of ACUPCC have to follow “ACUPCC Voluntary Carbon Offset Protocol” when they execute carbon offset. WMU is a member of the commitment; therefore we have to follow the protocol. The protocol requires 11 conditions to emission credits: a. Real and Additional, b. Transparent, c. Measurable, d. Permanent, e. Verified, f. Synchronous, g. Account for Leakage, h. Registered, i. Not double-counted, j. Retired.

### a. Real and Additional

Projects result in actual reductions of GHG emissions and would not have otherwise occurred under a reasonable and realistic business-as-usual scenario.

### b. Transparent

Project details are known to the institution and communicated to stakeholders in transparent way to help ensure validity and further the goal of education on climate disruption and sustainability.

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<sup>18</sup> CREATING CARBON OFFSETS: A NEW ALTERNATIVE FOR COLLEGES AND UNIVERSITIES? (Lisa M. Curtis Whitman College 2010)

<sup>19</sup> *ibid.*

<sup>20</sup> ACUPCC Voluntary Carbon Offset Protocol (November 2008)

c. Measurable

Projects result in measurable reductions of GHG emissions.

d. Permanent

Projects result in permanent reduction of GHG emissions.

e. Verified

Projects result in reductions of GHG emissions that have been verified by an independent third-party auditor that has been evaluated using the accompanying criteria.

f. Synchronous

Projects result in reductions of GHG emissions that take place during a distinct period of time that is reasonably close to the period of time during which the GHG emissions that are being offset took place.

g. Account for Leakage

Projects take into account any increases in direct or indirect GHG emissions that are being offset took place.

h. Registered

Credits generated from project activities are registered with a well-regarded registry that has been evaluated using the accompanying criteria.

i. Not double-counted

Credits generated from project activities are not double-counted or claimed by any other party.

j. Retired

Credits are retired before they are claimed to offset an institution's annual GHG inventory, or a portion thereof.

3. Cooperating with Students

As the example of COA indicates, local carbon offset should be reflected by the value of the school, and the school should promote local carbon offset, cooperating with school's students. According to Strategic Sustainability Initiative Report (February 12, 2009), previous campus sustainability initiatives at WMU have been largely unsystematic and uncoordinated. They have typically been the result of a small group of individual campus sustainability champions - students, administrators, staff, or faculty - that often didn't know each other, collaborate extensively, or meet on a regular basis. By taking an open, coordinated, strategic planning approach, WMU has the opportunity to leverage and expand on our existing sustainability efforts and commitments.<sup>21</sup>

This report states that WMU has to strengthen the relationship with students. By cooperating with students, the effect of the carbon offset would be much higher.

Finally, I will introduce a local carbon credit in Michigan. I researched through the Internet, and I found an organization, which deals with emission credits in Michigan.

Carbon Credit Environmental Services (CCES) is an organization, which is leading, multi-disciplinary engineering and environmental services firm providing best in class comprehensive sustainability program to its clients. The project I will introduce is alternative energy project in Detroit. There is a non-profit organization, The Children Center, in Detroit. By installing 400watt solar panels on the roof of the organization, we can reduce the energy consumption of the building. Global Validators Inc. and Eastern Research Group Inc. (ERG) verify the project. WMU

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<sup>21</sup> Strategic Sustainability Initiative Report (February 12, 2009)

emitted 123,549 MTCDE from 2008 to 2009, and it cost \$13,000,000 to offset the emission.<sup>22</sup>

## **VI. Limitations of Analysis & Future Work**

Time and language would be my limitation of analysis. Firstly, I could not concentrate on only this research because I was taking three other classes. I came up with many questions, which I wanted to answer, but I could not research these questions because of lack of time. Second, I am an exchange student, and English is my second language. Therefore, it was hard for me not only to research, but also to interview. It took me a lot of time to finish reading materials or sentences, and it prevented me from researching other things.

My future work will be more research about the carbon offset. For example, the emission credits I introduced seems to meet two out of three key points I mentioned, however, I don't think it's enough. First, the emission credit is from Detroit, and it is not clear that we can call this emission credit as "local." It is true that many students at WMU come from Detroit, and this credit can be local for them. On the other hand, it cannot be local for students who are not from Detroit.

Second, I did not research the interests of WMU's students yet. I should figure out what kind of local carbon offset they are interested in, what the value (strength) of WMU is for students, or if they know what carbon offset is in the first place. If they do not know much about carbon offset, I also have to think on how to spread the idea to students.

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<sup>22</sup> <sup>22</sup> Interview with Mike Dolkowski



## **VII. Conclusion**

It is extremely important for WMU to start to think about carbon offset to become climate neutral. In the near future, we have to execute carbon offset because it is almost impossible to become climate neutral without carbon offset. Using local emission credits not only activate the local economy, but also stimulate students' consciousness of carbon offset. It is valuable for WMU to execute local carbon offset because it helps connect between community and the university. Local carbon offset will strengthen the relationship between them.

Following the ACUPCC protocol helps us execute a high quality carbon offset. Low quality carbon offset could create a poor reputation. To avoid it, WMU has to follow the protocol.

It is valuable for WMU to cooperate with students when it executes carbon offset. Students are one of the members of the university, and WMU needs to set a goal to cooperate with students. It will make the carbon offset more educational, and will lead to a high quality carbon offset. It would be a good idea to give chances for students to listen to a carbon offset meeting or a public presentation, or to make a group, which is consisted of students and professors, to think about carbon offset.

It is not easy for WMU to execute carbon offset because it will cost a lot of money and it is hard to decide when WMU will execute carbon offset. However, it is definitely a needed idea, and we have to start to think about it as soon as possible.

## VIII. Reference

### Website:

- AASHE, “Duke Engage Carbon Offsets Pilot Project at Duke University”  
(<http://www.aashe.org/resources/case-studies/dukeengage-carbon-offsets-pilot-project-duke-university>)
- AASHE, “Green Mountain College 2007 Campus Sustainability Leadership Award Application”  
([http://www.aashe.org/resources/profiles/green\\_mtn2007.php](http://www.aashe.org/resources/profiles/green_mtn2007.php))
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([http://www2.presidentsclimatecommitment.org/documents/ACUPCCVoluntaryCarbonOffsetProtocol\\_Nov08.pdf](http://www2.presidentsclimatecommitment.org/documents/ACUPCCVoluntaryCarbonOffsetProtocol_Nov08.pdf))
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([http://www2.presidentsclimatecommitment.org/documents/CarbonOffsetsGuidelines\\_v1.0.pdf](http://www2.presidentsclimatecommitment.org/documents/CarbonOffsetsGuidelines_v1.0.pdf))
- Carbonfund.org, “Truck Stop Electrification Project”  
([http://www.carbonfund.org/site/projects/profile/truck\\_stop\\_electrification\\_project/](http://www.carbonfund.org/site/projects/profile/truck_stop_electrification_project/))
- Central Vermont Public Service,  
([http://www.cvps.com/cowpower/Cow\\_Power\\_home.html](http://www.cvps.com/cowpower/Cow_Power_home.html))
- College of the Atlantic, “NET ZERO” (<http://www.coa.edu/netzero.htm>)
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([http://www.aashe.org/files/resources/student-research/2009/Creating\\_Carbon\\_Offsets.pdf](http://www.aashe.org/files/resources/student-research/2009/Creating_Carbon_Offsets.pdf))

- Cross-Border Carbon Footprints: University Study Abroad and Carbon Offsetting Programs, Ashwini Srinivasamohan (New York University), Hye (Helen) Lee (University of Maryland, College Park) (June 2010)

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([http://sustainability.duke.edu/carbon\\_offsets/SwineWaste.html](http://sustainability.duke.edu/carbon_offsets/SwineWaste.html))

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([http://sustainability.duke.edu/carbon\\_offsets/index.php](http://sustainability.duke.edu/carbon_offsets/index.php))

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(<http://ews.duke.edu/2010/09/hogwaste.html>)

- Humjournal, “Carbon Offset at COA”

(<http://www.humjournal.com/article/carbon-offsets-coa>)

- Western Michigan University, Strategic Sustainability Initiatives Report (February 12, 2009)

(<http://www.wmich.edu/sustainability/pdf/initiatives-report.pdf>)

#### **E-mail:**

- Amber Garrard, Green Mountain College, April 18 2011
- Mike Dolkowski, e-mail message to author, April 14 2011

## IX. Appendices

### Appendix 1 – Current Contact List

Name	Phone Number	E-mail
Yusuke Saito	269-365-5895	<a href="mailto:yusuke.saito@wmich.edu">yusuke.saito@wmich.edu</a>

### Appendix 2 – Contact List and Logs

Name	Phone Number	E-mail
Amber Garrard	802-287-8277	<a href="mailto:garrarda@greenmtn.edu">garrarda@greenmtn.edu</a>
Mike Dolkowski	734-564-5901	<a href="mailto:mdolkowski@getcarboncreditco2.com">mdolkowski@getcarboncreditco2.com</a>

### Appendix 3 – Photos

#### Appendix 3-i



Photovoltaic



Wind Power

## Appendix 3-ii

2008-2009 GHG Inventory Update					
	2007-2008	per capita	2008-2009	per capita	% Change
Fall Headcount	22,795		22,860		0.29%
Stationary Combustion (Actual)	57,521	2.523	62,786	2.747	9.15%
Direct Transportation (Actual)	1,132	0.050	1,131	0.049	-0.09%
Fugitive Emissions (Estimate)	988	0.043	3,484	0.152	252.63%
Fertilizer (Actual)*	13	0.001	13	0.001	0.00%
<b>Scope I Total</b>	<b>59,654</b>		<b>67,414</b>		<b>13.01%</b>
Purchased Electricity (Actual)	24,939	1.094	17,958	0.786	-27.99%
<b>Scope II Total</b>	<b>24,939</b>		<b>17,958</b>		<b>-27.99%</b>
Commuting (Estimate)	25,676	1.126	25,740	1.126	0.25%
Directly Financed Outsourced Travel (Estimate)	2,460	0.108	2,469	0.108	0.37%
Study Abroad Air Travel (Estimate)	1,633	0.072	1,646	0.072	0.80%
Solid Waste (Actual)	4,117	0.181	3,231	0.141	-21.52%
Waste Water (Estimate)	3,000	0.132	3,018	0.132	0.60%
Paper (Estimate)	290	0.013	297	0.013	2.41%
Scope II T&D Losses (Actual)	2,696	0.118	1,776	0.078	-34.12%
<b>Scope III Total</b>	<b>39,872</b>		<b>38,177</b>		<b>-4.25%</b>
<b>Total</b>	<b>124,465</b>		<b>123,549</b>		<b>-0.74%</b>

\*According to Tim this number stays constant