

U.S. Department of Education  
Green Ribbon Schools 2012

For Public Schools only: (Check all that apply)  Charter  Title I  Magnet  Choice

Name of Principal Mr. Lindsay Barnes  
(Specify: Ms., Miss, Mrs., Dr., Mr., etc.) (As it should appear in the official records)

Official School Name Hawaii Preparatory Academy  
(As it should appear in the official records)

School Mailing Address 65-1692 Kohala Mountain Road  
(If address is P.O. Box, also include street address.)

Kamuela Hawaii 96743  
City State Zip

County Hawaii State School Code Number\* \_\_\_\_\_

Telephone ( 808 ) 881-4001 Fax (808 ) 881-4287

Web site/URL www.hpa.edu E-mail lbarnes@hpa.edu

I have reviewed the information in this application, including the award and eligibility requirements on page 2-4, and certify that to the best of my knowledge all information is accurate.

Lindsay R. Barnes Date March 22, 2012  
(Principal's Signature)

Name of Superintendent\* N/A  
(Specify: Ms., Miss, Mrs., Dr., Mr., Other)

District Name\* N/A Tel.( ) \_\_\_\_\_

I have reviewed the information in this application, including the award and eligibility requirements on page 2-4, and certify that to the best of my knowledge all information is accurate. I concur that this is one of the highest performing green school applicants in our state.

\_\_\_\_\_  
(Superintendent's Signature) Date \_\_\_\_\_

\*Private Schools: If the information requested is not applicable, write N/A in the space.

toward the three Green School Pillars and Elements.

4. The school meets all applicable federal civil rights and federal, state, tribal and local health, environmental and safety requirements in law, regulations and policy and is willing to undergo EPA on-site verification.

Name of Nominating Agency Hawaii State Department of Education

Name of Nominating Authority Ms. Kathryn S. Matayoshi  
(Specify: Ms., Miss, Mrs., Dr., Mr., Other)

I have reviewed the information in this application, including the award and eligibility requirements on pages 2-4, and certify, to the best of my knowledge through a documentary verification assessment, that the school meets the provisions in this Part of the Nominee Presentation Form.

  
Date March 22, 2012  
(Nominating Authority's Signature)

Note to Nominating Authority: The application, including the signed certifications and documentation of evaluation in the three pillars should be converted to a PDF file and emailed to Director, ED-Green Ribbon Schools at [green.ribbon.schools@ed.gov](mailto:green.ribbon.schools@ed.gov) according to the instructions in the Nominee Submission Procedure.

### Public Burden Statement

According to the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless such collection displays a valid OMB control number. The valid OMB control number for this information collection is 1860-0509. Public reporting burden for this collection of information is estimated to average 37 hours per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. The obligation to respond to this collection is required to obtain or retain benefit P.L. 107-110, Sec. 501, Innovative Programs and Parental Choice Provisions. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the U.S. Department of Education, 400 Maryland Ave., SW, Washington, DC 20202-4536 or email [ICDocketMgr@ed.gov](mailto:ICDocketMgr@ed.gov) and reference the OMB Control Number 1860-0509. Note: Please do not return the completed ED-Green Ribbon Schools application to this address.

## **Hawaii Preparatory Academy-Introduction**

Founded in 1949, HPA is located at 2500 ft. elevation in the rural horse country of Kamuela (Waimea) on the Big Island of Hawai'i. As a K-12 boarding school, HPA hosts over 600 students on two campuses: one in town (the village campus) with grades K-8 (boarding for 6-8) and the upper campus 2 miles away with grades 9-12.

Our students come from many nations, and many communities in Hawaii. Most are local day students, and our boarders are both international and local.

The school was originally located in Kamuela, then expanded to the upper campus in the early 1960's, with the purchase of the village campus (converted offices and condominiums) in the 1970's. These present several environmental challenges, among them the price of energy, most recently at over \$0.50 per kWh (twice the price of Oahu and many times that of the mainland), climate issues (wind averages over 20 mph, humidity usually over 80%), and remote location (the nearest urban centers are Kona, 40 miles to the South and Hilo, 70 miles to the East). These relatively harsh conditions have compounded the age issues of our physical plant, with wind, rain and humidity issues complicating the challenge of maintaining 50-year old buildings.

In response to a student GoGreen movement, HPA worked in 2007 with a local donor to build the HPA Energy Lab, the first of its kind anywhere in the world, a center for education, research and outreach for students K-16. As part of this project, we achieved the LEED 2.0 for schools Platinum rating for the project (first in Hawai'i and third ever to do so), and then became the first school ever to meet the Living Building Challenge (v. 1.3). These challenges served to help us evaluate our overall sustainability portfolio, from energy and water use to waste and resource use. The GoGreen initiative is still alive and well, with the Energy Lab as a hub, including school gardens on both campuses, active energy monitoring and auditing on both campuses, a thriving recycling program, and many internal changes on process and procedure.

Our head of physical plant, Edgar Spencer is committed to these innovations, and sees an opportunity to leverage the 21<sup>st</sup> century technologies and practices of the Energy Lab to renovate our existing buildings on both campuses. Such a challenge is shared with many schools around the nation, and we hope to become an example of how such schools can address the challenge of teaching sustainability in this new century in buildings from the past.

With our unique challenges and opportunities to demonstrate globally relevant solutions, HPA strives to become a school leader in environmental awareness education and sustainability practices. We hope to leverage our location, mission, facilities and personnel to form a coherent, consistent, integrated approach to sustainability, including best practices in instruction, physical plant, operations and residential life programming. We hope to promote this on a global scale.

We will also explore and create meaningful partnerships with other entities (foundations, universities, individuals) seeking to learn from and contribute to our environmental awareness and sustainability programs.

HPA faces many challenges, and we hope to serve as an example of how we can all learn to not only survive in the new century, but to thrive. Creating change agents for the future is our goal.

School address: 65-1692 Kohala Mountain Road  
Kamuela, HI 96743

School website: [www.hpa.edu](http://www.hpa.edu)

Principal: Lindsay Barnes  
[lbarnes@hpa.edu](mailto:lbarnes@hpa.edu)  
phone # 808-881-4000

Lead applicant: Bill Wiecking  
[bill@hpa.edu](mailto:bill@hpa.edu)  
phone # 808-881-4266

## **Hawaii Preparatory Academy – summary of achievements**

In 2007, as a response to a nascent GoGreen movement in the student body, HPA held a charette with students, parents, administrators, staff, teachers and local residents to discuss possible directions for change in the four fronts of energy, water, transportation and waste.

As a result of this workshop, HPA changed many of its internal processes and procedures such as cleaning materials, food service processes and service, recycling, water use, and energy monitoring.

One larger project has had great impact on the school and community: the HPA Energy Lab, a 6200 sq. ft. sustainable prototype classroom, serving the missions of education, research and outreach for HPA and the local community.

Started in 2007, this building was the first to meet the rigorous LEED for schools rating (v. 2.0), achieving Platinum status soon after its opening in April of 2010. With the support of our donor and the school board of directors, we also undertook the far more advanced Living Building Challenge, requiring net-zero energy, water and waste, local materials sourcing, and a prohibitive list of substances (the “red list”). The goal of the LBC is to create prototype buildings that model the best practices of sustainability: build with locally available materials, in a sustainable manner that is healthy from a global perspective: cradle to grave. Nothing in the facility can be toxic in production, use or disposal. In a sense the building is the polar opposite to the “sick building syndrome” structures present in urban centers. We were proud to be awarded the Living Building Challenge in 2011, the first school ever to meet this challenge, and only the third project of any kind ever to do so.

Unlike any other new structure such as a gym or library, the Energy Lab has created its own mission and use patterns, which reflect the tenor of our students, and their hunger for relevant experiences that will engage them and enlighten them to face the four critical challenges of the new century: energy, water, food and culture. The Energy Lab is the nucleus of a global collaboration on these efforts, and we resonate with other schools doing similar projects: school gardens, recycling, water conservation (e.g. bottled water), and energy awareness.

The Energy Lab has enabled our students to create innovative solutions to problems: one such example is our energy monitoring system that monitors energy use and conservation constantly in many of our school buildings and residences. Recently, our students expanded this energy monitoring to a local resort hotel, developing energy “footprints” that have enabled the hotel to save many thousands of dollars per month in energy charges through conservation and operational changes. These opportunities could not have been available to our students years ago, and they foretell a future in which students create their own projects with excellent resources that can be exported to the real world. We have also hosted for the past 4 years the Student Sustainability Congress, a gathering of about 100 students from all over Hawaii and the nation to collaborate on solutions to

the challenges they will face. Leveraging local resources and experts, students are exposed to issues and solutions they take back to their communities, sharing outlooks, attitudes and practices from their home with the congress members. We also engage distant schools via video teleconferencing to share their attitudes and issues, often with surprising results.

In response to teacher interest in sustainability, we developed the Hoku a Aina (stars to land) program which leverages our local resources such as the Hawaii Volcano Observatory, the Natural Energy Lab, the Mauna Loa Atmospheric Observatory and the Keck Mauna Kea observatory to develop curricula and programs for our students. Originally an internal program, we hope to expand this to external participants in the future.

We have also partnered with local, national and global groups such as the Kohala Center in Kamuela, and the Global Footprint Network based in California. Each of these partnerships serves to increase the awareness, engagement and involvement of our students in these issues, such that they feel empowered to create solutions, with ownership of the process.

# HAWAII PREPARATORY ACADEMY

Green Ribbon Schools scoring sheet	Max points	Your score
<b>Pillar One: Net zero environmental impact</b>		
<b>Element 1A: Zero greenhouse gas (GHG) emissions</b>		
1A1. Energy Star certification: yes = 5; no certification = 0	5	0
1A2. Reduction in non-transportation energy use: > 5% = 5, 0-5% = 3, none or n/a = 0	5	3
1A3. Percentage of renewable energy (total onsite and purchased): > 5% = 5, 0-5% = 3, none = 0	5	5
1A4. Percentage of bldg area built within the last 3 years meeting LEED or other standards: > 60% = 5, 50-59% = 5, 35-49% = 3, 20-34% = 2, 10-19% = 1, <10% or n/a = 0	5	5
1A5. Percentage of total existing bldg area meeting LEED Existing Building or other standards: > 60% = 5, 50-59% = 4, 35-49% = 3, 20-34% = 2, 10-19% = 1, <10% or n/a = 0	5	2
1A6. Percentage reduction in GHG emissions: >20% = 5, 15-19% = 4, 10-14% = 3, 5-9% = 2, 1-4% = 1, none = 0 Use of offsets for GHG emissions: any = 5, no = 0	5	3
1A7. Implementation of Facility Energy Assessment Matrix: yes = 5, none = 0 Assessment of building(s) using Portfolio Manager: yes = 5, no = 0	5	5
1A8. Percentage by cost of furniture purchases certified under Business and Institutional Furniture Manufacturers Assn's "level" ecolabel: >50% = 5, 25-49% = 3, 10-25% = 1, <10% or none purchased = 0	5	5
1A9. Energy and water efficient product purchasing and procurement policy: yes = 5, no = 0	5	5
1A10. Other indicators (self-assessed, max = 5)	5	2
<b>Element 1B: Improved water quality, efficiency, and conservation</b>		
1B1. Percentage reduction in water consumption intensity: >15% = 2, 5-14% = 1, < 5% = 0	2	2
1B2. Audits for leaks: quarterly or more frequently = 2, less than quarterly = 1, less than annually = 0	2	2
1B3. Appropriateness of grading and irrigation system and schedule (self-assessed, max = 1)	1	1
1B4. All outdoor landscapes are water-efficient or regionally appropriate: yes = 2, no = 1 if 50% or more, n = 0 if < 50%	2	0
1B5. Alternative water sources for irrigation: yes = 1, no = 0	1	0
1B6. Drinking water from school well is protected: yes = 0, no = -1, no well = 0	0	0
1B7. Program to control lead in drinking water: yes = 1, no = 0	1	0
1B8. School cited in past 3 years for failure to meet potable water quality standards: yes = -1, no = 1, don't know = 0	1	1
1B9. Taps, faucets, fountains, screens, aerators cleaned regularly: yes = 2, no = 0	2	2
1B10. Other ways school is improving water quality, efficiency, conservation (self-assessed, max = 2)	2	1
1B11. Percentage of school grounds devoted to ecologically or socially beneficial uses: >50% = 1, <50% = 0	1	1
<b>Element 1C: Reduced waste production</b>		
1C1. Percentage of waste diverted from landfill or incinerator by reuse, composting, or recycling: >30% = 2, 10-29% = 1, 0-9% = 0	2	1
1C2. Percentage of paper content by cost is post-consumer material or fiber from forests certified as responsibly managed: >25% = 1, 0-24% = 0	1	0
1C3. Percentage of paper content by cost is totally chlorine free or processed chlorine free: managed: >25% = 1, 0-24% = 0	1	0
1C4. Pounds of hazardous waste/student/yr: <1 = 1, 1 or more = 0	1	1
1C5. How school monitors hazardous waste (self-assessed, max = 1)	1	1
1C6. Hazardous waste policy in place and actively enforced: yes = 1, no = 0	1	1
1C7. School cited in past 3 years for improper management of hazardous waste: yes = -1, no = 1, don't know = 0	1	1
1C8. Percentage of total computer purchases by cost are EPEAT certified: >75% = 1, otherwise = 0	1	1
1C8. Disposal of unwanted computer and other electronic products. Environmentally responsible = 1; otherwise = 0	1	1
1C9. Percentage by cost of all cleaning products are green: >75% = 2, 25-75% = 1, 0-24% = 0	2	2
1C10. School custodial program is based on principles of effective management and green service: yes = 1, no = 0	1	1
1C11. Custodial program has been certified: yes = 1, no = 0	1	1
1C12. Describe other indicators of school's reduction of solid waste and elimination of hazardous waste (self-assessed, max = 1)	1	1
<b>Element 1D: Use of alternative transportation to, during, and from school</b>		
1D1. Percentage of students walk, bike, bus, or carpool to/from school: >75% = 3, 50-75% = 2, 25-49% = 1, < 25% = 0	3	2
1D2. No-idling policy on file and "no idling" signs posted: yes = 1, no = 0	1	0
1D3. Vehicle loading and unloading areas are at least 25 ft from all building air intakes, incl doors and windows: yes = 1, no = 0	1	1
1D4. Describe how your school transportation use is efficient and environmentally benign (self-assessed, max = 3)	3	1
1D5. Safe routes to school have been designated, distributed to parents, and posted in the main office: yes = 2, no = 0	2	2
1D6. Describe any other accomplishments your school has made under Pillar One (self-assessed, max = 5)	5	1
Total Pillar One (35% of total)	105	69

HAWAII PREPARATORY ACADEMY

	Max points	Your score
<b>Pillar Two: School environment has a "net positive" impact on student and staff health</b>		
<b>Element 2A: Integrated school health program</b>		
2A1. School has an integrated pest management plan in effect: yes = 3, no = 0	3	3
2A2. School provides notification of pest control policies, methods of application, and requirements for posting and pre-notification to parents and school employees: yes = 2, no = 0	2	2
2A3. School maintains annual summaries of pesticide applications, copies of pesticide labels, copies of notices and MSDS in an accessible location: yes = 2, no = 0	2	2
2A4. School prohibits children from entering pesticide area for at least 8 hours following application, or longer if feasible or if required by the pesticide label: yes = 2, no = 0	2	2
2A5a. School meets strictest standard of ventilation for indoor air quality: yes = 3, no = 0	3	3
2A5b. Percentage of school classrooms have window air conditioning units: > 50% = 0, 25-50% = 1, 0-25% = 2, none = 3	3	2
2A6. Local exhaust systems are installed at all major airborne contaminant sources: yes or no contaminant sources = 3, no = 0	3	3
Local exhaust systems are consistently used: yes = 2, no = 0	2	2
2A7. School has energy recovery ventilation systems where feasible: yes = 2, no = 0	2	2
2A8. School has an inventory of all combustion appliances and inspects annually to assure no release of CO: yes or no combustion appliances = 2, no = 0	2	2
2A8. School has installed CO alarms yes = 1, no or not needed = 0	1	0
2A9a. Unnecessary mercury containing devices have been replaced: yes or no such devices = 1, no = 0	1	1
2A9b. School recycles or disposes of unwanted mercury in accordance with environmental regulations: yes = 1, no = -1, no mercury on campus = 0	1	0
2A10. All wooden decks, stairs, playground equipment, etc treated with CCA has been sealed within the past 12 months or replaced: yes or no CCA on campus = 3, no = 0	3	3
2A11. Smoking is prohibited on campus: yes = 3, no = 0	3	3
2A12. School has an asthma management program in place consistent with Asthma Friendly Schools Guidelines: yes = 2, no = 0	2	2
2A13. School has a indoor air quality management program consistent with IAQ Tools for Schools: yes = 3, no = 0	3	3
2A14. All structures are visually inspected regularly and are free of mold, moisture & water leakage: yes = 4, no = 0	4	4
2A15. School has a chemical management program in place: yes = 3, no = 0	3	3
<b>Element 2B: High standards of nutrition, nutrition education, physical activity, physical education, fitness and quantity of quality outdoor time for both students and staff</b>		
2B1. School has earned USDA's HealthierUS School Challenge award for school food: yes = 3, no = 0	3	0
2B2. Percentage by cost of food purchased is certified "environmentally preferable": > 25% = 2, 5-24% = 1, 0-4% = 0	2	2
2B3. Percentage by cost of food purchased is grown and processed within 200 miles of the school: > 25% = 3, 10-25% = 2, 0-10% = 1, none = 0	3	3
2B4. School has an onsite food garden: yes = 3, no = 0 School garden supplies food for school cafeteria: yes = 1, no = 0	3 1	3 1
2B5. Percentage of students engaged in at least 150 minutes of school-supervised physical education and/or outdoor activity per week: >90% = 3, 50-89% = 2, 25-49% = 1, < 25% = 0	3	3
2B6. Average time each student engages in school-supervised physical education (incl outdoor activity) per week: >150 min. = 3, 100-149 min. = 2, 50-99 min. = 1, < 50 min = 0	3	3
2B7. Percentage of school-supervised physical education is spent outdoors annually: >90% = 3, 50-89% = 2, 25-49% = 1, < 25% = 0	3	2
2B8. Percentage of current student body has participated in EPA's Sunwise Program or equivalent regarding UV protection and skin health: > 90% = 3, 50-89% = 2, 25-49% = 1, < 25% = 0	2	0
2B9. School uses a coordinated school health approach or other health related initiatives to address overall school health issues: yes = 2, no = 0	2	2
2B10. School partners with community group(s) to support student health and/or safety: yes = 2, no = 0	2	2
2B11. Describe any other measures regarding the school's built and natural environment that your school takes to protect student and staff health and which you feel should be considered (self-assessed, max = 3)	3	2
<b>Total Pillar Two (25% of total)</b>	<b>75</b>	<b>65</b>



HAWAII PREPARATORY ACADEMY

	Max points	Your score
<b>Pillar Three: 100% of the school's graduates are environmentally and sustainability literate</b>		
<b>Element 3A: Interdisciplinary learning about the key relationships between dynamic environmental, energy and human systems</b>		
3A1. Percentage of last year's graduates scored proficient or better on state or school assessments:		
environmental: > 75% = 5, 65-74% = 4, 55-64% = 3, 45-54% = 2, 35-44% = 1, < 35% or no assesement = 0	5	1
sustainability: > 75% = 5, 65-74% = 4, 55-64% = 3, 45-54% = 2, 35-44% = 1, < 35% or no assesement = 0	5	1
environmental science > 75% = 5, 65-74% = 4, 55-64% = 3, 45-54% = 2, 35-44% = 1, < 35% or no assesement = 0	5	3
3A2. School or state has an environmental or sustainability literacy graduation requirement: yes = 5, no = 0	5	0
3A3. Environmental and sustainability concepts are integrated throughout the curriculum: max 10 points	10	10
3A4. If school is a high school, percentage of graduates last year who completed AP environmental science :		
> 50% = 5, 40-49% = 4, 30-39% = 3, 20-29% = 2, 10-19% = 1 < 10% = 0	5	2
Percentage of these students scoring 3 or better on the AP environmental science assessment:		
> 50% = 5, 40-50% = 4, 30-39% = 3, 20-29% = 2, 10-19% = 1, < 10% = 0	5	5
3A5. Percentage of students taking assessments last year on environmental science, sustainability, or environmental education who scored proficient or better: > 75% = 5, 65-74% = 4, 55-64% = 3, 45-54% = 2, 35-44% = 1, < 35% or no assesement = 0	5	5
3A6. Teacher professional development opportunities in environmental and sustainability education are provided for all teachers: max = 5	5	4
3A7. School's environmental education program pays particular attention to scientific practices: max 5 points	5	5
3A8. Students have meaningful outdoor experineces at every grade level: max 5 points	5	5
<b>Element 3B: Use of the environment and sustainability toi develop science, technology, engineering &amp; math (STEM) content knowledge and thinking skills to prepare graduates for the 21st cenruy technology-driven economy</b>		
3B1. Students graduate with a robust general science education that includes a deep understanding of life, physical, and earth science: yes = 10, no = 0; partial score as self-assessed and explained	10	10
Average number of hours/week students spend in science content classes:		
> 5 = 10, 4-4.9 = 8, 3-3.9 = 6, 2-2.9 = 4, < 2 = 0	10	6
3B2. If school is a high school, curriculum provides a demonstrated connection between classroom content, college and career readiness, and post-secondary career and study options focuses on environmental and sustainability fields: yes = 10, no = 0; partial score as explained	10	10
<b>Element 3C: Development of civic engagement knowledge and skills, and students' application of these to address sustainability and environmental issues in their community</b>		
3C1. All students are required to conduct an age-appropriate, self-selected civic/community engagement project at every grade level: yes = 4, no = 0; partial score as explained	4	4
Percentage of these projects focuses on environmental or sustainability topics:		
>50% = 4, 34-49% = 3, 20-34% = 2, 0-19% = 1, < 10% = 0	4	4
Percentage of students that satisfactorily completed such a project last year:		
>90% = 4, 70-89% = 3, 60-69% = 2, <60% = 0	4	4
3C2. Percentage of last year's graduates that scored proficient or better on a community or civic engagement skills assessment: >50% = 4, 35-49% = 3, 20-34% = 2, 10-19% = 1, < 10% or no assessment = 0	4	4
3C3. School partners with others to help advance your school, other schools (particularly schools with lesser capacity in these areas) and community toward the three pillars: max 5 points	5	5
3C4. School provides outdoor learning opportunities for students: max 5 points	4	1
3C5. Describe other indicators or benchmarks (quantified if possible) of your progress toward the goal of 100% of your graduates being environmentally and sustainability literate that you feel the review committee should consider: max 5 points	5	3
Total pillar three (40%)	120	92
<b>Summary:</b>		
Pillar One	105	69
Pillar Two	75	65
Pillar Three	120	92
Total all pillars	300	226

**Application of Hawaii Preparatory Academy**

65-1692 Kohala Mountain Road

Kamuela, HI 96743

**List the school team that worked on this application.**

**Response**

Dr. Bill Wiecking, Energy Lab Director  
Edgar Spencer, Head of Maintenance  
Koh Ming Wei, Sustainability Educational Facilitator

**Q 1A2. If your school reduced your total non-transportation energy use (i.e., electricity and gas) from an initial baseline, please provide:**

**Percentage reduction:**

**Response**

25%

The HPA Energy lab has 27 kW of PV installed, with 5.5 solar hours per day, we harvest between 80 and 160 kWh per day. The Lab uses a fraction of this, depending on users, usually 50 kWh per day. The area of the lab is 6227 sq. ft., or about 25% of our classroom area. Total campus building area is complex, as we are a boarding facility, with athletic and drama facilities shared with another campus.

**Measurement unit used (kBTU/square foot or kBTU/student):**

**Response**

kBTU/sq. ft.

**Time period measured (mm/yyyy to mm/yyyy)**

**Response**

1.4.2010-1.4.2011

**Q 1A3. What percentage of your school's energy consumption is derived from:**

**On-site renewable energy generation:**

**Response**

25%

We HAD wind, but it self-destructed: [http://www.youtube.com/watch?v=3CHW23IFf\\_E](http://www.youtube.com/watch?v=3CHW23IFf_E)  
We have 27 kW installed on the energy lab, 2 kW on a faculty cottage.

**Purchased renewable energy:**

**Response**

**Response**

34.6%

This figure is provided by HELCO, the local public utility from which we purchase electricity. HELCO purchases or generates power from these renewable resources: wind, geothermal and hydro..

**Q 1A4. Building Design: If your school constructed and/or renovated buildings in the past three years, what percentage of the building area meets Leadership in Energy and Environmental Design (LEED), Collaborative for High Performing Schools (CHPS), Green Globes or other standards?**

**Response**

25%

**What is the total area constructed (past 3 years)?**

**Response**

6,227 sq.ft.

**What is the total area renovated (past 3 years)?**

**Response**

6,227 sq.ft.

**Area of all other buildings**

**Response**

25,000 sq.ft. total educational buildings

**Total area of all buildings**

**Response**

25,000 sq.ft. total educational buildings

**Which certification (if any) did you receive (LEED, CHPS, Green Globes, Other)?**

**Response**

LEED

**What level of certification did you receive (e.g. Silver, Gold, Platinum)?**

**Response**

Platinum 2.0 for Schools

**Q 1A5. Building Operations: What percentage of your school's total existing building area has achieved LEED Existing Buildings: Operation & Maintenance, CHPS Operations, Green Globes or other standards?**

**Response**

25%

We only have the one LEED structure at this time.

**What is the total building area (sq. ft)?**

**Response**

6,227 sq.ft.

**Which certification (if any) did you receive (LEED, CHPS, Green Globes, Other)?**

**Response**

LEED

**What level of certification did you receive (e.g. Silver, Gold, Platinum)?**

**Response**

Platinum 2.0 Schools

**Q 1A6. If your school reduces or offsets the Green House Gas (GHG) emissions from building energy use, please provide:**

**Current Total GHG Emissions (MtCO<sub>2</sub>e) Note: : MtCO<sub>2</sub>e = metric tons of carbon dioxide emissions**

**Response**

96

**Baseline Total GHG Emissions (MtCO<sub>2</sub>e)**

**Response**

132


## Response

### August 2011

Week	Peak Power	Energy Produced
08/01/2011 - 08/07/2011	9.57 kW	437 kWh
08/08/2011 - 08/14/2011	9.63 kW	439 kWh
08/15/2011 - 08/21/2011	9.55 kW	443 kWh
08/22/2011 - 08/28/2011	9.66 kW	426 kWh
08/29/2011 - 08/31/2011	9.62 kW	198 kWh

<b>August 2011's Total:</b>	<b>1.94 MWh</b>
<b>Previous Month's Total:</b>	<b>1.83 MWh</b>
<b>Year to Date:</b>	<b>12.8 MWh</b>

For more details on these production results, please visit your [Enphase® system](#).



### Your Carbon Offsets

Your Enphase system generated 1.94 MWh of energy during the month of August 2011.

**CO<sub>2</sub> offsets: 1.34 tons**  
You have offset the equivalent of:  
**34 Trees**

Powered by 

This installation represents 10.8 kW of our 27 kW installed PV system, or 40%

### Change from Baseline: GHG Emissions (MtCO<sub>2</sub>e)

#### Response

36

### Percentage change

#### Response

25%

### Time period (mm/yyyy to mm/yyyy)

## Response

1.4.2010-1.4.2011

Explain how you reduced GHG emissions

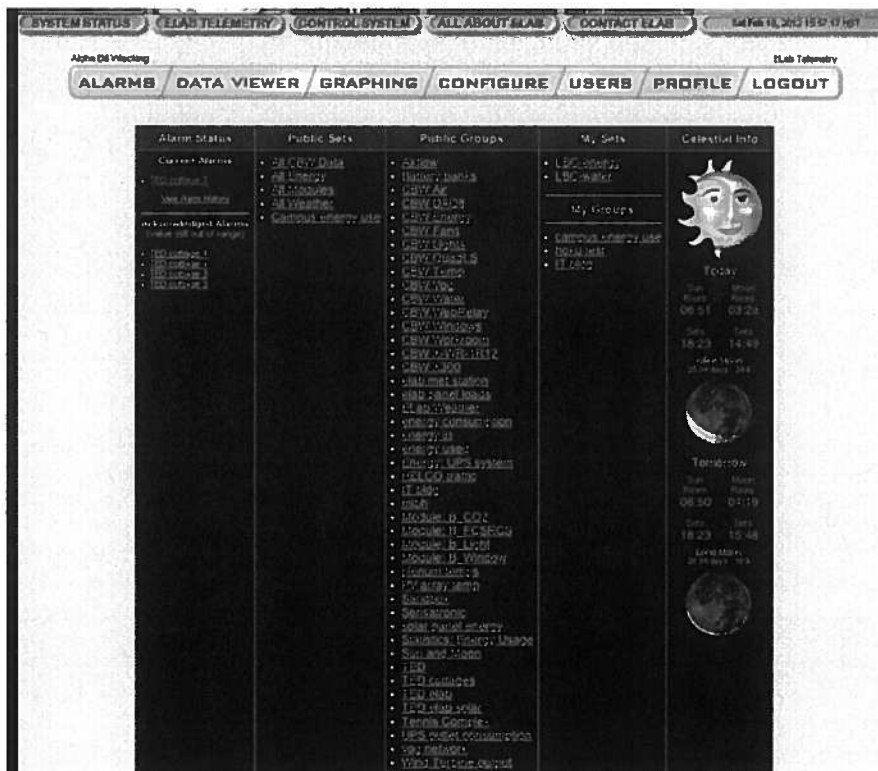
## Response

PV

**Q 1A7. Is your school fully implementing the Facility Energy Assessment Matrix within EPA's Guidelines for Energy Management?**

## Response

Yes. See screenshot below of our telemetry system.



We monitor energy use all over the campus, as well as several hotels on the coast.

**Has the school building been assessed using the Federal Guiding Principles Checklist in Portfolio Manager?**

## Response

No

**Q 1A8. What percentage by cost of all your school's furniture purchases in the past three years are certified under the Business and Institutional Furniture Manufacturers Association's "level" ecolabel?**

**Response**

100%

During the time period we were attempting the LEED 2.0 for schools certification and the Living Building Challenge, we decided to make all purchases GreenGuard certified.

**Q 1A9. Does your school have an energy and water efficient product purchasing and procurement policy in place (e.g., Energy Star and Low Flow fixtures)?**

**Response**

Yes

**Q 1A10. Other indicators of your progress towards elimination of GHG emissions (describe in detail and include metrics if available):**

**Response**

HPA Energy lab monitors energy use and conservation, along with production at the various sites on campus.

**Q 1B1. If you can demonstrate reduced total water consumption intensity (measured in average gal/square foot of school land area/day) from an initial baseline, please provide:**

**Percentage reduction**

**Response**

25%

**Time period of reduced consumption (mm/yyyy to mm/yyyy)**

**Response**

1.4.2010-1.4.2011

**Time period of baseline (Compare the same time period, Average Gallons per Day (GPD) averaged over a three month period in which school is in session) (mm/yyyy to mm/yyyy):**

**Response**

11 gpd over one year

We keep track of the weekly (calc to daily) water usage. 11 gallons is about .023% of the Upper Campus daily average for 2011.

**Q 1B2. How often does your school conduct audits of facilities and irrigation systems to ensure they are free of significant water leaks and to identify opportunities for savings?**

**Response**

Weekly

The water usage spreadsheet helps to identify significant water leaks.

**Q 1B3. Describe how your school's site grading and irrigation system and schedule is appropriate for your soil conditions, plant materials, and climate, with an emphasis on water conservation:**

**Response**

We only irrigate during dry times and rely on rainfall to irrigate. Xeriscaped native plants whenever possible

**Q 1B4. Do all your outdoor landscapes consist of water-efficient or regionally-appropriate (native species and /or adapted species) plant choices?**

**Response**

No

**If no, what percentage of the total consists of this type of plantings:**

**Response**

20%

**Describe the type and location of plantings:**

**Response**

The faculty houses, our recent entrance roads and the area below the ELab have native plants. Much more consideration was given to the "native" part than the "appropriate" part.

**Q 1B5. Are alternative water sources (e.g., grey water) used before potable water for irrigation?**

**Response**

No

**Q 1B6. If drinking water is acquired from the school's own well, are your drinking water sources protected?**

**Response**

No well for drinking water

**Q 1B7. Does your school have a program to control lead in drinking water (including voluntary testing and implementation of measures to reduce lead exposure in drinking water) in place?**

**Response**

No

**Q 1B8. Was your school cited within the past three years for failure to meet federal, state or local potable water quality standards?**



**Response**

No

**Q 1B9. Are all taps, faucets and fountains used for drinking and cooking cleaned on a regular basis to reduce possible bacterial and other contamination; and are faucet screens and aerators regularly cleaned to remove particulate lead deposits?**

**Response**

Yes

**If yes, how often is such cleaning conducted?**

**Response**

The Housekeeping Department does the cleaning. There are no check list items specific to faucet screens to aerators, although there is a written "frequency" of cleaning.

**Q 1B10: Describe any other ways, not addressed above, that the school is improving water quality, efficiency, and conservation:**

**Response**

We are exploring grey water use for irrigation, and installing rain water catchment systems for irrigation. This is presently illegal in this county. Illegal when we permitted for the energy lab, recently amended if a gravel flow bed is used.

**Q 1B11. What percentage of your school grounds are devoted to ecologically or socially (e.g., playgrounds, outdoor spaces designed and used regularly for social interaction, athletics or recreational areas, etc.) beneficial uses, including those that give consideration to native wildlife?:**

**Response**

90%

We can provide a plot plan with approximate sq.ft. of sports fields and open ranges.

**Q 1B11. What percentage of your school grounds are devoted to ecologically or socially (e.g., playgrounds, outdoor spaces designed and used regularly for social interaction, athletics or recreational areas, etc.) beneficial uses, including those that give consideration to native wildlife? Describe:**

**Response**

Conservation, ecological restoration, athletic fields, school garden, school farm, horse riding fields, native plantings, orchards

**Q 1C1. What percentage of waste is diverted from the landfill or incinerator by reuse, composting, and/or recycling (total amount reused, composted or recycled)/(total amount reused, composted or recycled used + total sent to a landfill or incinerator):**

**Response**

65% from computer purchases

**Q 1C2. What percentage of total office/classroom paper content by cost is post-consumer material or fiber from forests certified as responsibly managed by the Forest Stewardship Council, Sustainable Forestry Initiative, American Tree Farm System or other certification standard (If a paper is only 30% recycled, only 30% of the cost of that paper should be counted towards the recycled portion.):**

**Response**

10%

**Which standard did you use?**

**Response**

FSC

**Q 1C3. What percentage of total office/classroom paper content by cost is "totally chlorine-free" (TCF) or "processed-chlorine-free" (PCF)?**

**Response**

10%

**Q 1C4. How much hazardous waste does your school generate (lbs/student/year)?:**

**Response**

0.5 lbs. per student per year

**How was this calculated?**

**Response**

IT waste, waste oil, chemicals

**Q 1C4. How much hazardous waste does your school generate (lbs/student/year)?:List each hazardous waste and the amount of each present at the end of the year:**

**Response**

computer equipment

We have a monthly trailer run to Hilo to drop off computer waste for recycling, as part of Apple's free recycling program.

**Q 1C5. How does your school monitor hazardous waste?**

**Response**

Maintenance department monitors hazardous waste via MSDS sheets, regular contracted HazMat removal service

**Q 1C6: Is a Hazardous Waste Policy for storage, management and disposal of chemicals in laboratories and other areas with hazardous waste in place and actively enforced?**

**Response**

Yes

**Q 1C7. Was your school cited within the past three years for improper management of hazardous waste according to Federal and State regulations?**

**Response**

No

**Q 1C8. What percentage of total computer purchases by cost are Electronic Product Environmental Assessment Tool (EPEAT) certified products:**

**Response**

100%

**How does your school dispose of unwanted computer and other electronic products?**

**Response**

monthly recycling events in Hilo

**Q 1C9. What percentage by cost of all cleaning products in use are certified "green," or can otherwise demonstrate that they meet the environmental standards of established eco-label programs?:**

**Response**

100%

**Which standard(s) are you using?**

**Response**

ISSA, LBC, LEED

**Q 1C10. Is your school's custodial program based on the principles of effective management and "green" service?**

**Response**

Yes

**Q 1C11. Has your custodial program been certified by the ISSA Cleaning Industry Management Standard - Green Building (or an equivalent standard):**

**Response**

Yes

**Q 1C12. Describe any other indicators, not included above, of the school's reduction of solid waste and elimination of hazardous waste:**

**Response**

LEED Platinum standards were adopted through the school, and living building challenge standards are met at the energy lab. They are being implemented as possible renovations and repairs are done.

**Q 1D1. What percentage of students walk, bike, bus, or carpool (2+ students in the car) to/from school?:**

**Response**

50%

Students use the County bus service (Hele on) to get to school.

**Describe how this information was collected and calculated**

**Response**

local bus service

**Q 1D2. Does your school have a no-idling policy on file and signs posted stating that all vehicles, including school buses and other vehicles dropping off and picking up students, are prohibited from idling on school premises?**

**Response**

No

**Q 1D3. Are all vehicle loading & unloading areas at least 25 feet away from all buildings air intakes (including doors and windows)?**

**Response**

Yes

**Q 1D4. Describe how your school transportation use is efficient and environmentally benign (e.g. the percentage of school-owned electric/hybrid/alternative fuel vehicles in your fleet, or other indicators of significant reductions in emissions):**

**Response**

bike access, bike paths, marked bike parking, security enforces traffic rules, limited student parking, parental drop off zones

**Q 1D5. Have "Safe Pedestrian Routes" to school or "Safe Routes to School" been designated, distributed to parents and posted in the main office?**

**Response**

Yes

**Q 1D6. Describe any other accomplishments your school made under Pillar One towards eliminating its negative environmental impact or improving your environmental footprint which you feel should be considered:**

**Response**

Bike lanes per Living building challenge and LEED platinum. As part of the Living Building Challenge and LEED 2.0 for schools, we had to install marked bike parking facilities and provide striped bike lanes.

**Q 2A1. Does your school have an integrated pest management plan in effect to reduce or eliminate pesticides?**

**Response**

Yes

We do have a written contract/plan.

**Q 2A2. Does your school provide notification of your pest control policies, methods of application and requirements for posting and pre-notification to parents and school employees?**

**Response**

Yes

We can provide a copy of the pre-notification to residents. We haven't treated classrooms or dorm rooms while students are around, so no notification to parents.

**Q 2A3. Does your school maintain annual summaries of pesticide applications, copies of pesticide labels, copies of notices and MSDSs in an accessible location?**

**Response**

Yes

**Q 2A4. Does your school prohibit children from entering the pesticide area for at least 8 hours following the application or longer, if feasible, or if required by the pesticide label?**

**Response**

Yes

Warnings and guidelines are given to residents. We have no evidence of their compliance.

**Q 2A5a. Does your school meet the stricter standard of: ASHRAE Standard 62.1-2010 (Ventilation for Acceptable Indoor Air Quality) OR your state or local code?**

**Response**

Yes

**If yes, which standard is your school using?**

**Response**

ASHRAE 60.1

This is ongoing: we are surveying rooms with a mobile CO2 monitor to determine ACH as well as graph CO2, temp and RH values over a typical occupied work day.

**Q 2A5b. What percentage of your classrooms have window air conditioning units?**

**Response**

3%

**Q 2A6. Are local exhaust systems (including dust collection systems, paint booths, and/or fume hoods) installed at all major airborne contaminant sources, including science labs, copy/printing facilities, chemical storage rooms?**

**Response**

Yes

**If yes, are they consistently used?**

**Response**

Yes

There are several of these: chem labs have fume hoods, the energy lab has full passive and active ventilation as needed.

**Q 2A7. Did your school install energy recovery ventilation systems where feasible to bring in fresh air while recovering the heating or cooling from the conditioned air?**

**Response**

Yes

**Q 2A8. Carbon Monoxide (CO): If your school has combustion appliances (gas stove, gas water-heaters, Bunsen burners, settling torches, kiln, etc.), does your school have an inventory of all combustion appliances & does your school annually inspect these appliances to ensure no release of Carbon Monoxide (CO)?**

**Response**

Yes

There is only one combustion device, at the pool, which may or may not be included in this survey, depending on defined instructional use spaces.

**Are CO alarms installed which meet the requirements of the National Fire Protection Association code 720?**

**Response**

No

**Q 2A9a. Mercury: Have all unnecessary mercury-containing devices been replaced with non-mercury devices?**

**Response**

Yes

**Q 2A9b. Does your school recycle or dispose of unwanted mercury laboratory chemicals, mercury thermometers, gauges and other devices in accordance with federal, state and local environmental regulations:**

**Response**

No mercury on campus

**Q 2A10. Chromated Copper Arsenate (CCA): Have all wooden decks, stairs, playground equipment or other structures treated with Chromated Copper Arsenate been sealed within the past 12 months or replaced?**

**Response**

Yes

We have these, all playground CCA materials were either replaced or covered.

**Q 12A11. Secondhand Tobacco Smoke: Is smoking prohibited on campus?**

**Response**

Yes

**Q 2A12. Does your school have an asthma management program in place consistent with the National Asthma Education and Prevention Program's (NAEPP) Asthma Friendly Schools Guidelines?**

**Response**

Yes

**Q 2A13. Did your school develop and implement a comprehensive indoor air quality management program consistent with IAQ Tools for Schools?**

**Response**

Yes

**Q 2A14. Are all structures visually inspected on a regular basis and free of mold, moisture & water leakage?**

**Response**

Yes

**Q 2A15. Does your school have a chemical management program in place that includes the following elements: - Chemical purchasing policy, including low- or no-VOC products - Chemical inventory - Storage and labeling - Training and handling - Hazard communication - Spills, clean-up and disposal - Select EPA's Design for the Environment - approved cleaning products**

**Response**

Yes

MSDS sheets in the chem lab and regular inventories are part of the solution. Both our

**Response**

maintenance and security departments are in the process of documenting these.

**Q 2B1. Did your school earn a USDA's Healthier US School Challenge award for school food?**

**Response**

No

**Q 2B2. What percentage (by cost) of food purchased is certified as "environmentally preferable" (e.g. Organic, Fair Trade, Food Alliance, Rainforest Alliance, etc.)?**

**Response**

80%

**Q 2B3. What percentage (by cost) of food purchased is grown and processed within 200 miles of the school (including food grown on school grounds)?**

**Response**

60%

We have a contracted food service with Sodexo, who cites this figure.

**Does the school have an onsite garden in which the students participate?**

**Response**

Yes

**Q 2B4. Does the school have an onsite food garden?**

**Response**

Yes

**If yes, does the school garden supply food for the school cafeteria?**

**Response**

Yes

**Q 2B5. What percentage of students over the past year engaged in at least 150 minutes of school-supervised physical education and/or outdoor activity time per week?**

**Response**

100%

**Q 2B6. What is the average amount of time over the past year that each student engages in school-supervised physical education (including outdoor activity time) per week (minutes/week)?**



**Response**

600

**Q 2B7. What percentage of school-supervised physical education is spent outdoors annually?**

**Response**

50%

**Q 2B9. Does your school use a Coordinated School Health approach or other health related initiatives to address overall school health issues?**

**Response**

Yes

School health personnel include 24 hour nursing services for the boarding students, they have records of this.

**Q 2B10. Does your school partner with any community groups to support student health and/or safety?**

**Response**

Yes

**If yes, describe these partnerships**

**Response**

HMSA and HealthQuest as well as others.

**Q 2B11. Describe any other measures regarding the school's built and natural environment that your school implements to protect student and staff health and which you feel should be considered:**

**Response**

Isolation of contagious diseases (boarding school), nursing staff monitors all health issues.

**Q 3A1. What percentage of last year's graduates scored proficient or better on state or school: Environmental education assessments?**

**Response**

40%

**Q 3A1. What percentage of last year's graduates scored proficient or better on state or school: Sustainability assessments?**

**Response**

40%

**Q 3A1. What percentage of last year's graduates scored proficient or better on state or school: Environmental science assessments?**

**Response**

60%

**Q 3A1. What percentage of last year's graduates scored proficient or better on state or school: Briefly describe the assessment(s):**

**Response**

AP env science, environmental science, sustainability courses

**Q 3A2. Does your school or your state have an environmental or sustainability literacy graduation requirement?**

**Response**

No

**Q 3A3. Are environmental and sustainability concepts integrated throughout the curriculum?**

**Response**

Yes

**Describe:**

**Response**

As part of our submittal for LEED for schools 2.0 in our Energy Lab, we evaluated the integration of sustainability and environmental awareness from grades K-12, then developed curricular links to each of the four environmental challenges we believe our students will have to face in the new century: energy, water, food and culture. Over this matrix, we developed a curriculum called Hoku a Aina (Land to stars) that leverages four local resources: Hawaii Volcano Observatory (HVO), Natural Energy Lab of Hawaii Authority (NELHA), Mauna Loa Atmospheric Observatory (MLO) and the Keck Observatory on Mauna Kea. Our K-12 teachers have used this program to developing their own curricular resources on sustainability. To aid in this integration, HPA hired a sustainability education coordinator (Ms. Koh Ming Wei) who has worked over the past year to help our students integrated sustainability into their experience at HPA, including recycling, school gardens, and other projects. Our energy lab has served as a hub for these efforts,

**Response**

hosting both HPA and community groups on a regular basis in concert with our mission to create a sustainable campus, community and civilization. Other efforts at the energy lab include onsite and offsite energy monitoring and audits, global research and development projects and programs (Global Footprint, project 2020 and others), all of which enhance the environmental awareness of our students.

**Q 3A4. If your school is a high school, what percentage of your eligible graduates last year completed Advanced Placement Environmental Science during their school career?**

**Response**

25%

**What percentage of these students scored 3 or better on the Advanced Placement Environmental Science assessment?**

**Response**

100%

**Q 3A5. If neither your state or school conduct environmental science, sustainability or environmental education assessments, what percentage of your students scored proficient or better on science education assessments in the last year?**

**Response**

85%

**Q 3A6. Are professional development opportunities in environmental and sustainability education provided for all teachers in your school?**

**Response**

Yes

**Describe these professional development opportunities, including the number and percentage of teachers who participated in these over the last 2 years:**

**Response**

Hoku a aina: a one week intensive course on sustainability was held March of 2010. Teachers traveled to renewable energy sites on the island, videoconferenced with teachers and experts around the world, and presented classroom integration of their experience to the faculty.

**Q 3A7. Does your school's environmental education program pay particular attention to scientific practices, such as asking questions, developing and using models, planning and carrying out investigations, analyzing and interpreting data, using mathematics and computational thinking, constructing explanations, and engaging in argument and applications based on evidence:**

**Response**

Yes

All environmental education curricula are consistent with best practices and content determined by NAIS, HAIS, NSTA and others.

**Q 3A8. Do your students have meaningful outdoor experiences (an investigative or experiential project that engages students in critical thinking, problem solving and decision making) at every grade level?**

**Response**

Yes

**Q 3B1. Do your students matriculate or graduate with a robust general science education that includes a deep understanding of life, physical, and earth sciences?**

**Response**

Yes

**Describe (e.g., percentage of enrollment in environmental and other science courses, assessments and post-secondary school or career intended focus):**

**Response**

There is a rigorous science requirement including several years of lab science, which is often exceeded by our graduates, as there are an equal number of engaging courses all relating to our mission of sustainability.

**How many hours per week on average do students spend in science content classes?**

**Response**

We have 85 minute long classes in the upper campus, with 3 classes each day. Most students take at least one science class, this averages out to 2.5 classes per week.  $85 \times 2.5$  is 212 minutes (3.5 hours) per week, not including informal clubs, projects and independent research.

Science class times at the grade school (K-8) vary from grade to grade, with mandatory science 3 or more times per week in grades 6-8, and science as part of the curriculum grades K-5.

**Q 3B2. If your school is a high school, does your curriculum provide a demonstrated connection between classroom content and college and career readiness, particularly to**

**post-secondary options that focus explicitly on environmental and sustainability fields, studies, and/or careers?**

**Response**

Yes

**Describe these college and career connections:**

**Response**

We could provide affidavits from students, or reports from our college counseling department on percentage of students engaged in environmental education courses/degrees.

**Q 3C1. Are all students required to conduct an age-appropriate, self-selected civic/community engagement project at every grade level?**

**Response**

Yes

**What percentage of these projects focused on environmental or sustainability topics?**

**Response**

80%

We have a robust community service component required of each student, every year of high school. These activities are environmentally centered, and make up only a portion of the environmental outreach exposure our students receive.

**What percentage of students satisfactorily completed such a project last year:**

**Response**

100%

**Q 3C2. What percentage of last year's graduates scored proficient or better on a community or civic engagement skills assessment?**

**Response**

100%

**Q 3C3. Does your school partner with local academic, businesses, government, nonprofits, informal science institutions and/or other schools to help advance your school, other schools (particularly schools with lesser capacity in these areas), and community toward the 3 Pillars?**

**Response**

Yes

**Briefly describe the scope and impact of these partnerships:**

### **Response**

Our partners are local, national and global, with many overlapping missions. Locally we partner with community members, farmers and researchers from NELHA, MLO, Keck and the HVO (see above) on student research projects. We also partner with the Kohala Center on environmental programs, public talks and field research. We partner with both Cornell and Stanford on field programs, hosting teams from each school every semester. We have hosted the student sustainability congress for 4 years, and hope to expand this from a local and national workshop for students to an international offering, and eventually hosting a similar workshop for teachers. Since 2007, we have partnered with the Global Footprint Network, developing educational materials for use internationally, and we recently completed a 2020 challenge with a school in Zambia on Climate Change. We strive to model global sustainability on the possible sustainability of our islands: equally isolated and interdependent.

**Q 3C4. Does your school provide outdoor learning opportunities for students (e.g. outdoor classrooms)?**

### **Response**

Yes

**If yes, describe how outdoor learning is used to teach an array of subjects in context, engage the broader community, and develop civic skills:**

### **Response**

Physical education is required of all students, two hours each day, four days per week.

**Q 3C5. What other indicators or benchmarks (quantified whenever possible) of your progress towards the goal of 100% of your graduates being environmental and sustainability literate does your school feel should be considered by the review committee?**

### **Response**

Sustainability courses in three disciplines (Science, History and English), integrated into all disciplines per directive from administration.