



U.S. Department of Education Green Ribbon Schools

**2011-2012 Presentation of Nominee to the
U.S. Department of Education**

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Attach State or Nominating Authority’s Evaluation of School Nominee (Either application or other documentation of review)

OMB Control Number: 1860-0509
Expiration Date: February 28, 2015

PART I - ELIGIBILITY CERTIFICATION

School and District's Certifications

The signatures of the school principal and district superintendent (or equivalents) on the next page certify that each of the statements below concerning the school's eligibility and compliance with the following requirements is true and correct.

1. The school has some configuration that includes one or more of grades K-12. (Schools on the same campus with one principal, even a K-12 school, must apply as an entire school.)
2. The school achieves or comes close to achieving the goals of all three green Ribbon Pillars: 1) environmental impact and energy efficiency; 2) healthy school environments; and 3) environmental and sustainability education.
3. The school has been evaluated and selected from among schools within the state or Nominating Authority's jurisdiction (BIE, DoDEA), based on *documented achievement* toward the three Green School Pillars and Elements.
4. Neither the nominated public school nor its public school district is refusing the U.S. Department of Education Office of Civil Rights (OCR) access to information necessary to investigate a civil rights complaint or to conduct a district wide compliance review.
5. OCR has not issued a violation letter of findings to the public school district concluding that the nominated public school or the public school district as a whole has violated one or more of the civil rights statutes. A violation letter of findings will not be considered outstanding if OCR has accepted a corrective action plan to remedy the violation.
6. The U.S. Department of Justice does not have a pending suit alleging that the public school or the public school district as a whole has violated one or more of the civil rights statutes or the Constitution's equal protection clause.
7. There are no findings of violations of the Individuals with Disabilities Education Act in a U.S. Department of Education monitoring report that apply to the public school or public school district in question; or if there are such findings, the state or public school district has corrected, or agreed to correct, the findings.
8. The school meets all applicable federal, state, tribal and local health, environmental and safety requirements in law, regulations and policy and is willing to undergo EPA on-site verification.

U.S. Department of Education
Green Ribbon Schools 2012

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

Name of Administrator Mrs. Nancy Garvin (Director of School & Community Partnerships)
(Specify: Ms., Miss, Mrs., Dr., Mr., etc.) (As it should appear in the official records)

Official School Name Detroit Edison Public School Academy
(As it should appear in the official records)

School
Mailing Address 1903 Wilkins St.
(If address is P.O. Box, also include street address.)

Detroit, Michigan 48207
City State Zip

County Wayne State School Code Number* 82945

Telephone (313) 833-1100 x 1215 Fax (313) 833-8653

Web site/URL www.depsascholars.org E-mail ngarvin@detroitedisonpsa.org

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.

Nancy Garvin Date March 21, 2012
(Director of School & Community Partnerships Signature)

Name of Superintendent* Mr. Ralph C. Bland
(Specify: Ms., Miss, Mrs., Dr., Mr., Other)

District Name* Edison Public School Academy Tel. (313) 833-1100 x 1102

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.

Ralph C. Bland Date March 21, 2012
(Superintendent's Signature)

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

PART II – SUMMARY OF ACHIEVEMENTS

Instructions to School Principal

Provide a concise and coherent "snapshot" that describes how your school is representative of your state's highest achieving green school efforts in approximately 600-800 words. Summarize your strengths and accomplishments. Focus on what makes your school worthy of the title U.S. Department of Education Green Ribbon School. Be sure to note if students were actively involved in preparing the application.

This summary should be written as a stand-alone document. It will provide the ED review panel with an overview of the school's green activities that were detailed in the application to the state, DoDEA or BIE evaluators. If the school is awarded a U.S. Department of Education Green Ribbon, this information may be shared with other schools, candidates for next year, the press, and the public.

PART III – DOCUMENTATION OF STATE EVALUATION OF NOMINEE

Instructions to Nominating Authority

For the pilot year, the Nominating Authority must review nominated schools for high achievement based on the schools' *documented achievement* toward reaching the goals of each of the three U.S. Department of Education Green School Pillars and elements. For each school being nominated by the Authority to ED, please attach state (or equivalent) evaluation materials (application) based on the Nominating Authority Evaluation Support Framework provided by ED to facilitate your evaluation of schools.

The Nominating Authority must review and sign the following certification for each school being nominated to ED.

Nominating Authority's Certifications

The signature by the Nominating Authority on this page certifies that each of the statements below concerning the school's eligibility and compliance with the following requirements is true and correct.

1. The school has some configuration that includes one or more of grades K-12. (Schools on the same campus with one principal, even a K-12 school, must apply as an entire school.)
2. The school achieves or is one of those overseen by the Nominating Authority which comes the closest to achieving the goals of all three green Ribbon Pillars:
 - 1) environmental impact and energy efficiency; 2) healthy school environments; and
 - 3) environmental and sustainability education.
3. The Nominating Authority has evaluated the school and selected it for submission to the U.S. Department of Education from among those schools overseen by the Nominating Authority which have applied for a Green Ribbon, based on *documented achievement*

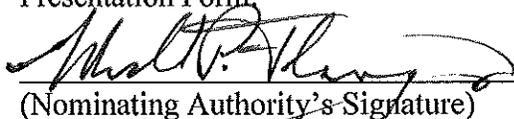
toward the three Green School Pillars and Elements.

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 Michigan Department of Education

Name of Nominating Authority Mr. Michael Flanagan, State Superintendent
(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 3/22/12
(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 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 and reference the OMB Control Number 1860-0509. Note: Please do not return the completed ED-Green Ribbon Schools application to this address.

The Detroit Edison Public School Academy (DEPSA) has been taking a comprehensive approach to greening our school. Three years ago Superintendent Ralph C. Bland placed a seasoned Principal into the position of Director of School and Community Partnerships. One of the major requirements given in this position was to facilitate the greening of DEPSA working closely with the Superintendent and a number of Community Partners.

We began to work toward creating a net zero environmental impact as well as maximizing a positive impact on the health and performance of students and staff. Additionally, we are dedicated to insuring all of our school's graduates will be environmentally and sustainably literate.

While building community partner relationships we established Green Teams. Our school's green teams have been focusing on renewable/alternative energy, conservation and ecology. Our current science club is developing a car driven by biofuel. Additionally, selected students became involved in a program entitled Young Explorers at Ecotek Lab. They have created bioplastic and biofuel, visited a wind farm in Pigeon, Michigan, assisted the US Coast Guard with the BP oil spill in the Gulf of Mexico, traveled to Cape Town, South Africa to work with the South African Weather Service and the GLOBE Program on climate change, and presented their work on environmental science and sustainability to diplomats of member countries at the United Nations in New York City.

The Engineering Society of Detroit introduced our students to Future City Competitions (students build models of sustainable cities of the future utilizing only recycled materials) and Robotics. Our first Earth Day event included a student led demonstration of a hydrogen fuel cell vehicle from General Motors as well as a variety of fuel efficient vehicles. We became involved with the Michigan Green School Association and were awarded the highest level (Evergreen) in our second year of competition. DEPSA received grants to plant trees, erect a wind turbine, solar pavilion and weather station. Our intent was to offset the greenhouse gas emissions generated by our main campus. A 40 foot, 2.4kW Skystream 3.7 wind turbine and 2kW solar pavilion was constructed on our school premises as a result of being awarded a grant from Energy Works Michigan. DEPSA is one of a handful of schools in the state that were selected for this unique program. This investment has resulted in a 10% savings on our electric bill. We were one of nine schools in the country to be awarded a multi-year STEM service learning grant. Several years ago we became Project Learning Tree's "test" school for urban environments. In October 2011, we hosted a state wide PLT workshop. In December 2011, we hosted a two day STEM service learning professional development.

DEPSA is well known in the community. We have worked diligently to develop a positive brand in the community. This has been done through business partnerships and direct outreach. These partnerships have provided our students and staff with developmental opportunities in medicine, global policy, college readiness, and careers in environmental science and sustainability, just to name a few. In terms of direct outreach, DEPSA has sponsored healthy living walks in the community. Our most recent healthy living event had over 600 participants. To ensure that we are making an impact, we recognize students periodically for being good ambassadors of the school. For example, we have a group of students that have been invited to present their work on green science at the 2012 National Green School Conference in Denver, Colorado. This is quite unique because DEPSA is the only school from Michigan that will be sending a student delegation to the conference.

We are very excited about the planning and development of our "New Leaders Discovery Center." We are particularly thrilled to partner with EcoTek, Distributive Power and Michigan State University's ADREC research and development group.

*"You never change things by fighting the existing reality.
To change something, build a new model that makes the existing model obsolete."*
~ Buckminster Fuller

Our primary objective is to create a center for education based on sustainability at the Detroit Edison Public School Academy's ECE (Early College of Excellence). The center will actively demonstrate regenerative strategies to address urban challenges of education, waste, energy and food. We will establish a customized educational model integrated with the center that prepares, equips and trains students for the 21st century using place-based learning that are rooted in STEM. Empowering young individuals to become entrepreneurs and leaders in emerging industries that seek to rebuild economic and social frameworks.

The New Leaders Discovery Center will shepherd forth a new era of education with a discovery-based learning approach that connects students to emerging industries through hands-on application and the facilitation of personal ingenuity while providing the necessary technical skills for successful financial livelihoods.

Day by day, DEPSA continues to grow greener!

Michigan Department of Education

2012 Green Ribbon School Application Review

Detroit Edison PSA

District Code: 82945 Detroit Edison PSA

School Code: 82945

Reviewer	Cross Cutting	Elements									Total
		1A	1B	1C	1D	2A	2B	3A	3B	3C	
1	5	9	4.5	3.5	2	13	13	14	5	9	78
2	5	6.5	5	2.5	2.5	13	13	20	5	9	81.5
3	5	9.5	4	4	4	14	12	15	5	10	82.5
4	5	7	4.5	4	2.5	14	13	17.5	5	9	81.5
5	5	7	4.4	3.3	1.4	13	13	15	5	10	77.1
6	4	4	4.5	3.25	2.5	11	10	16	5	8	68.25
7	4	6	4.5	3	3	14	12.5	10	5	8.5	70.5
8	5	8	5	3	2	12	11	12	5	9	72
9	5	9.5	5	3.5	4	13	15	15	5	10	85
10	5	9	5	3.5	3	13	12	18	5	10	83.5
											0
											0
											0
											0
											0
											0
											0
											0
Total Score	4.8	7.6	4.6	3.4	2.7	13.0	12.5	15.3	5.0	9.3	77.99

Cross-Cutting Questions

Participation in Michigan Green Schools, Programs, and/or Awards for Environmental and Sustainability Efforts

- CC1. Is your school participating in a local, state, or nationally recognized green school program which asks you to benchmark progress in some fashion (for example, National Wildlife Federation Eco-Schools USA, Green Schools Alliance, Collaborative for High Performance Schools, or Project Learning Tree's Green Schools!, Energy Essentials, Rebuild Michigan, or Michigan Green Schools)?
Yes No

What program(s) are you participating in and what level(s) have you achieved? We have been participating in Michigan Green Schools for the past two years. In year one we achieved the "Emerald" designation and last year the "Evergreen" designation was achieved. Additionally, we were considered Project Learning Tree's "test site" for Urban PLT programs. In October of 2011 a state-wide workshop for PLT was held on our campus. There was a large number of participants; many of whom signed up to become PLT schools that day. Our school's green teams have been focusing on renewable/alternative energy, conservation and ecology. Our current science club is developing a car driven by biofuel. Approximately 30 students attended the Future City Competition where three different models of cities of the future were developed. We have taken numerous awards at this event during the past two years. A select group of students have been participating with community partner "Ecotek Lab." They have created bioplastic and biofuel; visited a wind farm in Pigeon, Michigan, assisted the US Coast Guard with the BP oil spill in the Gulf of Mexico; traveled to Cape Town, South Africa to work with the South African Weather Service and the GLOBE Program on climate change; and presented their work on environmental science and sustainability to diplomats of member countries at the United Nations in New York City.

- CC2. Has your school, staff, or student body received any awards for environmental or sustainability stewardship/action?
Yes No

Please list the awards you have received and the years you received them. We were one of nine schools in the country to receive the Education Commission of the States, "School of Success" grant for our STEM Service Learning projects which included both environmental and sustainability stewardship. This award took place in 2009, 2010 and culminates in 2011. Additionally we were awarded a grant from Energy Works Michigan. This grant resulted in the school receiving a wind turbine, solar pavillion and weather station. Measurement tools came with these energy saving devices. Our middle school students have participated in the Engineer Society "Future City" program for the past three years. The students received numerous awards for their "sustainable model cities." As stated above we have participated in the Wayne County Green Schools program and currently hold the Evergreen distinction. In the 2011-2012 school year we are continuing to develop green programing which is connected to standards, for all grades in our PreK through 12th grade. Our authorizer, Oakland University has awarded sponsorship funds for programs from Initiative Science, EcoTek and Distributive Power.

Pillar I: Environmental Impact and Energy Efficiency

Buildings, grounds, and operations goal: **The school has made significant progress toward "net zero" environmental impact** (zero carbon, solid waste, and hazardous waste footprints).

Pillar I includes four main elements. Each question in this section is designed to measure you school's progress toward Pillar I and its associated four elements.

Element 1A: Zero Greenhouse Gas (GHG) Emissions

ENERGY

- 1A1. Can your school demonstrate a reduction in its greenhouse gas emissions?
Yes No

Please provide the following information:

Initial GHG emissions rate (MT eCO2/person): .15 CO2/person
Final GHG emissions rate (MT eCO2/person): on-going study
Percentage reduction: TBD%
Time period measured (mm/yyyy – mm/yyyy) 11/1/2011-Current
How did you document this reduction (e.g., the inventory module from Clean Air Cool Planet's Campus Carbon Calculator)? Clean Air Cool Planet Campus Carbon Calculator

- 1A2. Has your school received EPA's ENERGY STAR certification or does it meet the requirements for ENERGY STAR certification? Yes No

If your school received the certification, please note the year(s) it was achieved and the score received. Applying for certification in 2011-12 school year

RESOURCES: [DOE and EPA ENERGY STAR for K-12 School Districts](#)
[DOE Purchasing Specifications for Energy Efficient Products](#)

- 1A3. Has your school reduced the total non-transportation energy use (i.e., electricity and temperature control) from an initial baseline? Yes No

Please provide the following information:

Percentage reduction: 10%
Measurement unit used (kBtu/square foot or kBtu/student), annual therms, etc.: Kbtu/square foot
Time period measured: from 01/01/2011 to Current
How did you document his reduction, (i.e., ENERGY STAR portfolio, district report)? Energy Star portfolio

RESOURCES: [EPA Portfolio Manager](#), [DOE's Better Building Manager Database of State Incentives for Renewable Energy \(DSIRE\)](#)

- 1A4. What percentage of your energy consumption is derived from:

Onsite renewable energy generation: 10%
Purchased renewable energy: 0%

RESOURCES: [Advanced Energy Design Guide for K-12 School Buildings](#), [USGBC Center for Green Schools](#)

BUILDINGS

In what year was your school constructed? 1930
What is the total building area of your school? 144000 square feet

- 1A5. Has your school constructed a new building or renovated an existing building in the past 10 years? Yes No

Please provide the following information:

Percentage of the building area meeting green build standards (for example, Leadership in Energy and Environmental Design (LEED), Collaborative for High Performing Schools (CHPS), Green Globes or other standards): 5%
What certification did you receive and at what level? n/a
What is the total constructed area? 144000 (SQ.FT.)
What is the total renovated area? 7200 (SQ.FT.)

RESOURCES: [K-12 Guide to Energy Savings Performance Contracting](#)

- 1A6. Do any parts of your **existing** buildings meet green build standards (for example, Leadership in Energy and Environmental Design (LEED), Collaborative for High Performing Schools (CHPS), Green Globes or other standards)? Yes No

Please provide the following information:

What percentage of your school's total existing building area has achieved green building standards (LEED Existing Buildings: Operation & Maintenance, CHPS Operations, Green Globes, or other standards)? 5%

What is the total building area? 144000 (SQ.FT.)

Which certification (if any) did you receive and at what level (e.g., Silver, Gold, Platinum)? Detroit Edison PSA is a member of the US Green Building Council. We are in the process of constructing a new high school (66,000 square feet) that will be LEED Certified. For our existing campus, we are currently applying for LEED Certification to the U.S. Green Building Council's because we currently meet the LEED Management and Operations for an existing building.

RESOURCES: [ENERGY STAR for Federal Agencies](#)

1A7. Does your school reduce or offset the greenhouse gas emissions from building energy use?

Yes No

Please provide the following information:

List offsets used:

To offset the greenhouse gas emissions generated by our main campus, we constructed a 40 foot, 2.4kW Skystream 3.7 wind turbine and 2kW solar pavilion. This project was done in collaboration with Energy Works. Detroit Edison PSA is one of a handful of schools in the state that were selected for this unique program. This investment has resulted in a 10% savings on our electric bill.

Current Total GHG Emissions (MtCO₂e) 0

Baseline Total GHG Emissions (MtCO₂e) 0

Change from Baseline: 0

Time period: from 11/01/2011 to Current

RESOURCES: [DOE State Energy Program](#)

1A8. Please indicate which green building practices your school is using to ensure your building is energy efficient:

- Our school has fully implemented the Facility Energy Assessment Matrix within EPA's Guidelines for Energy Management.
- Our school building has been assessed using the Federal Guiding Principles Checklist in Portfolio Manager.
- Our school has an energy and water efficient product purchasing and procurement policy in place.
- Other indicators of your progress towards elimination of GHG emissions (describe in detail and include metrics if available): We have established a CO₂ sequestration test site near the school to measure how well certain species of plants remove greenhouse gases from the atmosphere. This helps our students learn about phytoremediation technologies.

Assessment tool: [Clean Air Cool Planet's Campus Carbon Calculator](#)

RESOURCES: [EPA's Guidelines for Energy Management Overview](#), [EPA Portfolio Manager](#)

Element 1B: Improved Water Quality, Efficiency, and Conservation

WATER

1B1. Can you demonstrate reduced total water consumption (measured in gal/occupant from an initial baseline)? Yes No

Please provide the following information:

Percentage reduction domestic: 3%

Percentage reduction irrigation:: 0%

Time period: from 11/01/2011 to Current

How did you document this reduction (i.e., ENERGY STAR Portfolio Manager, school districts reports)? Detroit Edison PSA water consumption is tightly linked to student school day activities. Even though we can not make major changes in water consumption, we have spent significant resources to eliminate water leakage in bathrooms and over use. For example, we have setup multiple hand sanitizers stations in the building to reduce transmission of surface germs and bacteria. This strategy has also lead to a slight reduction in water usage because students are using the hand sanitizer and wipes instead using water to wash their hands. Energy Star Portfliio Manager

RESOURCES: [EPA WaterSense](#)

1B2. Which of the following practices does your school employ to increase water efficiency and ensure quality? (check all that apply)

- Our school conducts annual audits of the facility and irrigation systems to ensure they are free of significant water leaks and to identify opportunities for savings.
- Our school has a smart irrigation system that adjusts watering time based on weather conditions.
- Our school's landscaping is water-efficient and/or regionally appropriate.
- Our school uses alternative water sources (i.e., grey water) for irrigation before potable water.
- Taps, faucets, and fountains at our school are cleaned at least twice annually to reduce contamination and screens and aerators are cleaned at least annually to remove particulate lead deposits.
- Our school has a program to control lead in drinking water (including voluntary testing and implementation of measures to reduce lead exposure in drinking water).

Please describe the program you have in place to control lead in drinking water. _____

Our school's drinking water comes from:

- Municipal water source Well on school property Other _____

Please describe how the water source is protected from potential contaminants: To ensure that our students are not exposed to contaminants we have installed high grade filters on all water fountains. Additionally, students on our green teams (high school and middle school) are involved in performing tests of water on the water faucets. They are looking for contaminants such as lead, mercury.

Please describe any additional progress your school has made toward improving water quality, efficiency, and conservation. To conserve all water resources, we have implemented a rain water harvesting system. The rainwater is used to water plants outside on the school playground. In addition to implementing science based strategies, we have spent resources on educating students, staff and parents on the importance of energy and water conservation. Parents and students are given informational materials regarding energy and water conservation best practices. We have also conducted monthly energy and water conservation meetings with staff and parents. This ensures that the message resonates with all stakeholders.

GROUNDS

1B3. Please provide the following information about your school's landscaping:

What percentage of your total landscaping is considered water-efficient or regionally appropriate?
100%

What types of plants are used and where are they located? Detroit Edison PSA is located in an industrial area and has limited space for landscaping, however through donations from Daimler Chrysler and Lowes, we have made significant improvement in the grounds to make it safe, appealing and ecologically friendly. During the Spring we setup a urban garden for growing food. We also establish botanical systems to support the native animal population. For example, our native plant inventory include Wild Blue Flag (Iris Vericolor) and Butterfly Weed (Asclepias tuberosa) and Stiff Goldenrod (Solidago rigida).

Please describe the alternate water sources used for irrigation. none

RESOURCES: [Fish and Wildlife Service Schoolyard Habitats](#)

1B4. What percentage of the school grounds are devoted to ecologically beneficial uses (school vegetable garden, wildlife or native plant habitats, outdoor classroom, environmental restoration projects, rain garden, etc.) or socially/culturally beneficial uses (e.g., playgrounds, outdoor spaces designed and used regularly for social interaction, athletic or recreational areas, walking or running trails, etc.)? 100% of our school grounds are devoted to ecological beneficial uses. Teachers use the schoolyard to discuss environmental restoration. To support this effort we have established a bird house system for migratory bird activity. Additionally, we have setup an urban garden where students can come to learn about food science and organic agritechology. What's more, teachers have the flexibility to educate students on native plants and the importance factors of biomes%

Element 1C: Reduced Waste Production

WASTE

- 1C1. What percentage of solid waste is diverted from landfilling or incinerating due to recycling and/or composting (i.e., recycling rate)? 13%
Monthly garbage service in cubic yards (garbage dumpster size(s) x number of collections per month x percentage full when emptied or collected). 60
Monthly recycling volume in cubic yards (recycling dumpster size(s) x number of collections per month x percentage full when emptied or collected). 8
Monthly compostable materials volume(s) in cubic yards (food scrap/food soiled paper dumpster size(s) x number of collections per month x percentage full when emptied or collected). 0
Recycling rate = $([B + C] \div [A + B + C]) \times 100$ 13%
RESOURCES: [EPA WasteWise Re-TRAC](#)
- 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: 25%
(If a paper is only 30% recycled, only 30% of the cost of that paper should be counted).
- 1C3. What percentage of total office/classroom paper content by cost is "totally chlorine-free" (TCF) or "processed-chlorine-free" (PCF)? 25%

HAZARDOUS WASTE

- 1C4. Please provide the following information about your school's hazardous waste:
How much hazardous waste does your school produce? 0 (lbs./person/year)
How is this amount calculated? n/a
List the types of hazardous waste generated: n/a
How does your school monitor hazardous waste? We have a policy for management of hazardous materials. Additionally, school staff attend workshops to learn about hazardous material handling.
RESOURCES: [CDC Hazardous Waste Self-Management Checklist](#), [Design for the Environment](#)
- 1C5. Which of the following benchmarks has your school achieved to minimize and safety manage hazardous waste? (check all that apply)
- Our school has a Hazardous Waste Policy for storage, management and disposal of chemicals that is actively enforced.
 - Our school disposes of unwanted computer and electronic products through an approved recycling facility or program.
 - All our computer purchase are Electronic Product Environmental Assessment Tool (EPEAT) certified products.
 - Our custodial program has been certified to the Green Seal Standard for Commercial and Institutional Cleaning Services (GS-42), the ISSA Cleaning Industry Management Standard - Green Building (or an equivalent standard).
- Which green cleaning standard is used? _____
RESOURCES: [ISSA Cleaning Industry and Management Standards](#), [EPEAT](#), [EPA Reducing Risk From Hazardous Waste](#)
- 1C6. Does your school use "third party certified" green cleaning products? Yes No
What percentage by volume of all cleaning products in use are "third party certified" green cleaning products? 100
What specific green cleaning product standard (Green Seal, Ecologo, etc.) does the school use?

- 1C7. What other indicators do you have of you school's reduction of solid waste and elimination of hazardous waste? _____

Element 1D: Use of Alternative Transportation To, During, and From School

- 1D1. What percentage of students walk, bike, bus, or carpool (2+ students in the car) to/from school?
3%

Describe how this information been collected and calculated: Our school is a "commuter school." All students ride (carpool where possible) in their family vehicle, ride a city bus that drops them off several blocks away from the school or walks. The school is located on the east side of Detroit.It is not an area that is conducive to students riding bicycles to school.

RESOURCES: [DOT Pedestrian & Bicycle Safety](#)

1D2. Which of the following policies or programs has your school implemented:

- Our school has designated carpool parking stalls.
- Our school has a well publicized no-idling policy that applies to all vehicles, including school buses.
- Vehicle loading and unloading areas are at least 25 feet away from all building air intakes, including doors and windows.

RESOURCES: [EPA Clean School Bus USA](#)

- Our school has established "Safe Pedestrian Routes" to school which are distributed to parents and posted in the main office.

- Our school participates in a "Safe Route to School" program.

RESOURCES: [Safe Routes to Schools](#)

1D3. 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): The school does not own any vehicles. When hire transportation from various vendors as needed.

RESOURCES: [CHPS Transportation Plan](#)

1D4. Describe any other accomplishments your school has made under Pillar I towards eliminating its negative environmental impact or improving your environmental footprint which you feel should be considered: The Detroit Edison Public School Academy is doing everything it can to eliminate any negative environmental impact. We have a school wide recycling program. We recycle paper, plastic, metal, ink cartridges and cell phones. Currently we are exploring avenues to refine our recycling program. One thought is placing two paper recycle containers in classrooms. One bin will be for the paper that is to be recycled outside of the school. The second container will collect paper that is reuseable within our school as scratch paper, note pads and for art projects. In our current recycling program everything is recycled outside of the school. DEPSA has two gardens and we have both landscaped and planted trees on the premises. Immediately west of our school the community (non-profit organization - Greening of Detroit) has placed their 3 acre market garden. This market garden is in partnership with Eastern Market, MSU and our school. DEPSA students will work the garden, learn the science of gardening, the nutrition of healthy eating, and the entrepreneurial side of agriculture. Both our wind turbine and solar pavillion are improving our environmental footprint. We have begun changing over all light switches to dimmers. We have instituted a "Watt's ON? / Turn it OFF!" program through out the school to increase awareness among all students and staff.

Pillar II: Healthy School Environments

Healthy student and staff environment goal: **The school improves the health and performance of students and staff.**

Pillar II includes two main elements. Each question in this section is designed to measure your school's progress toward Pillar II.

Element 2A: An integrated school environmental health program based on an operations and facility-wide environmental management system that considers student and staff health and safety in all practices related to design, construction, renovation, operations, and maintenance of schools and grounds.

INTEGRATED PEST MANAGEMENT

2A1. Which of the following practices does your school employ with regard to pest management? (check all that apply)

- Our school has an integrated pest management plan in place to reduce or eliminate pesticides.
- Pest control policies, methods of application and posting requirements are provided to parents and school employees.
- Copies of pesticide labels, copies of notices, MSDS, and annual summaries of pesticide application are all available and in an accessible location.
- Our school prohibits children from entering the a treated area for at least eight hours following the application or longer, if feasible, or if required by the pesticide label.

RESOURCES: [EPA Integrated Pest Management for Schools](#)

VENTILATION AND CONTAMINANT CONTROL

2A2. Which of the following practices does your school employ to improve contaminant control and ventilation?

- Our school has a comprehensive indoor air quality management program consistent with EPA's Indoor air Quality IAQ Tools for Schools
RESOURCES: [EPA Indoor Air Quality Tools for Schools](#)
- Our school meets the ASHRAE Standard 62.1-2010 (Ventilation for Acceptable Indoor Air Quality).
- Our school has installed one or more energy recovery ventilation systems to bring in fresh air while recovering the heating or cooling from the conditioned air.
RESOURCES: [EPA Indoor Air Quality Tools for Schools](#)
- Our school has eliminated mercury containing thermometers, chemical components, art chemicals, etc. and elemental mercury.
- Our school disposes of any unwanted mercury laboratory chemicals, thermometers, and others devices in accordance with federal, state, and local environmental regulations.
RESOURCES: [EPA Schools and Mercury](#)
- Our school has CO alarms installed which meet the requirements of the National Fire Protection Association code 720.
RESOURCES: [EPA Healthy Schools Environments Assessment Tool](#)
- There are no wood structures on school grounds that contain Chromated Copper Arsenate (CCA).
- Our school has an asthma management program in place that is consistent with the National Asthma Education and Prevention Program's (NAEPP) Asthma Friend Schools Guidelines.
RESOURCES: [EPA Managing Asthma in Schools](#), [CDC Tools for Making Your School Asthma-Friendly](#)
- Our school visually inspect all structures on a regular basis to ensure they are free of mold, moisture, and water leakage.
- Our school's indoor humidity is maintained below 60%.
- Our school has moisture resistant materials/protective systems installed (e.g., flooring, tub/shower, backing, and piping).
RESOURCES: [EPA Mold Remediation in Schools and Commercial Buildings](#)
- Our school has a chemical management program in place that includes the following elements:
 - Chemical purchasing policy (including low- or no-VOC products)
 - Storage and labeling
 - Training and handling
 - Hazard communication
 - Spills (clean-up and disposal)
 - Select EPA's Design for the Environment - approved cleaning products
- Our school prohibits smoking on campus and in public school buses.
RESOURCES: [CDC Guidelines for School Health Programs to Prevent Tobacco Use](#)
- All ground-contact classrooms at our school have been tested for radon within the past 24 months.

If your school has combustion appliances, is there an inventory of them and does your school annually inspect these appliances to ensure no release of Carbon Monoxide (CO)?

- Yes No No combustion appliances

What percentage of all classrooms with levels greater than 4 pCi/L have been mitigated in conformance with ASTM E2121? %

RESOURCES: [EPA Radon Information](#)

Element 2B: High Standards of Nutrition, Fitness, and Quantity of Quality Outdoor Time for Both Students and Staff

FOOD AND NUTRITION

2B1. Which practices does your school employ to promote nutrition, physical activity, and overall school health? (check all that apply)

- Our school participates in the USDA's Healthier US School Challenge or another nutrition program.
RESOURCES: [USDA HealthierUS School Challenge](#)
- Our school participates in a Farm to School program or other program to utilize local food for our cafeteria.
- Our school has an onsite food garden.
RESOURCES: [USDA Farm to School Program](#), [USDA Agriculture In the Classroom](#)
- Our school garden supplies food for our cafeteria.

PHYSICAL EDUCATION, OUTDOOR OPPORTUNITIES, AND UV SAFETY

- Our students spent an average of at least 120 minutes per week over the past year in school-supervised physical education.
- At least 50% of our students' annual physical education takes place outdoors.
- At least 50% of our students have participated in EPA's Sunwise Program.
RESOURCES: [EPA Sunwise Program](#)

Please list your school's USDA Healthier School challenge award level or describe other nutrition program. We are in the process of applying to the USDA challenge program, however, we have been recognized by several organizations involved in food service.

Please describe the type of outdoor exercise opportunities and nature-based recreation available to students. DEPSA students are very active. Their outdoor activities include running and walking. Additionally, during the Spring we regularly schedule visits to Belle Isle and the Detroit Riverwalk to allow students to participate in nature walks. This provides students with an opportunity to develop mentally through interactions with nature.

2B2. What percentage (by cost) of food purchased is certified as "environmentally preferable" (e.g. Organic, FairTrade, Food Alliance, Rainforest Alliance, etc.)? 30%

Please describe any additional progress your school has made **in terms of the school's built and natural environment** (including unique community and/or business partnerships) to promote overall student and staff health and safety. DEPSA is well known in the community. We have worked hard to develop a positive brand in the community. This has been done through business partnerships and direct outreach. We have established partnerships with numerous organizations such as Eastern Market, Ecotek Lab, Wayne State University, the Detroit Medical Center, the Michigan Department of Environmental Quality, Michigan Department of Natural Resources, Engineering Society of Detroit and the Detroit Pistons to name a few. These partnerships have provided our students and staff with developmental opportunities in medicine, global policy, college readiness, and careers in environmental science and sustainability, just to name a few. In terms of direct outreach, Detroit Edison PSA has sponsored healthy living walks in the community. Our most recent healthy living event had over 600 participants. To ensure that we are making an impact, we recognize students periodically for being good ambassadors of the school. For example, we have a group of students that have been invited to present their work on green science at the 2012 National Green School Conference in Denver, Colorado. This is quite unique because DEPSA is the only school from Michigan that will be sending a student delegation to the conference.

We believe that prevention is better than reaction. We take this seriously especially relating to our integrated pest management plan and containment control goals. Our simplistic (cost effective) but vigorous aggressive monitoring system has been a highly effective approach. The goals of the management plan consist of three key elements.

1) Manage pests that may occur on school sites to prevent interference with the learning environment of the students.

2) Eliminate injury to students, staff, and other occupants.

3) Preserve the integrity of the school buildings or structures.

Our Maintenance team has been trained especially to be the leaders of a cycle of inspecting, identifying, monitoring, evaluating, and choosing the appropriate method of control. However, unique to our school is the fundamental approach of knowledge to all. For instance, in-service to staff and parents are done frequently. The goal/perspective being many environmental watch guards will reduce incidence and exposure time. A recent example is the bed bug manifestation seen in many Detroit's housing. Detroit has the third largest manifestation rate in the country. The student health team did poster announcements on this topic and in-service to staff and parents were done. This awareness and extra monitoring then assisted our expert maintenance team. The mindset of everybody caring for this environment has led to earlier identification and a quick effective decision tree especially with bed bugs, cockroach, and early formation in mold.

Chemical management is a big priority at DEPSA. We have a 20% asthmatic rate. We must keep it clean from dust, mold, and cockroach dropping and also do this at a time in the building to not have any chemical irritants that would exacerbate an illness. Therefore, this maintenance team consults the school nurse and an outside local business for best products and best time of applications which aligns us with the 2nd key element of our plan.

Asthma care is multifactorial. At DEPSA it begins with an on-site pediatric school based health center for individual better case management. Asthmatic Students are followed closely, asthma care plans are created and adjustments to school environment are put into place. Understanding the disease process for all parents, staff and students is an essential component to asthma control and better academic success. This year students participated in "the open airway" class. Parents and staff were trained on asthma, their triggers and school and home environmental triggers. Special instruction was also conducted with our physical education teachers relating to Exercise induced asthmatics. Examples of this include additional understanding of the special needs of temperature control and appropriate exercise warm up and cool off techniques. Every student if developmentally capable may self-carry their rescue inhalers. Every Staff person at DEPSA has undergone training and understands Signs and Symptoms of an asthma attack.

Health: Classroom safety became the first priority with care plans, medication authorizations, fieldtrip safety protocol and lots of teaching. Currently, in-service professional development has become routine and often includes; allergy and epi-pen administration, seizure's and diastat administration, diabetes, nutrition/obesity, exercise programs to utilize in classrooms, (Wisercise and Action Based Learning) as well as HOPSPORTS, blood borne pathogen and asthma 101.

Extensive input from our Comprehensive school health team provided a foundation for our Wellness policy and other health related policies. We completed an HSAT (Healthy School Action Tool) which assessed our environment and created a plan of action for change. Proudly, since that first HSAT we have won two first place awards from the Michigan Surgeon General for a healthy school environment. The comprehensive school health team members consist of administrators, health/P.E. teachers, social work, food service, regular curriculum teachers, parents, students, janitorial /maintenance services, and members from a local hospital as well as a chef. We meet once a month during the school year and assess, implement and strategize ways of promoting a healthy life style. They have written 12 grants in the last 5 years that surrounding health topics and this group has assisted in their implementation. Revamping our school lunch standards and nutrient rich education were a big part of many of these grants. Last year this group helped in the organization of a family fun run. This was a Governor's Council Physical Fitness Foundation sponsored event. Over 600 individuals attended. We encouraged all community members, family, students to participate on a Saturday and walk or run the Dequindre cut and then return to the school grounds where we had a health celebration. Blood pressure checks, BMI, ultra violet safety and information on all sorts of health issues. We even provided a D.J. and many other physical challenges and had simple healthy family fun. We engaged community partnerships as well such as BCBS, Henry Ford Hospital, Oakland University nursing students, and other local businesses. We "trained" as a school before this event and built excitement. We collectively counted these miles and metaphorically walked to state capitals around the country. This gave a wonderful opportunity to give teachers the ability to utilize a concept strong in our school that health and nutrition should be a cross-curriculum concept.

Student achievement goal: **100% of the school's graduates are environmentally and sustainability literate.**

Pillar III includes three main elements. Each question in this section is designed to measure your school's progress toward Pillar III.

LEARNING AND ENVIRONMENTAL LITERACY

Element 3A: Interdisciplinary learning about the key relationships between dynamic environmental, energy and human systems

3A1. Which practices does your school employ to help ensure the environmental and sustainability literacy of your graduates? (check all that apply)

- Our school has an environmental or sustainability literacy graduation requirement
- Environmental and sustainability concepts are integrated throughout the curriculum.
RESOURCES: [State Education & Environment Roundtable](#), [Excellence in Environmental Education: Guidelines for Learning \(K-12\)](#)
- Environmental and sustainability concepts are integrated into classroom based and school wide assessments.
- Professional development opportunities in environmental and sustainability education are provide for all teachers.

Please describe your school's environmental or sustainability literacy graduation requirement.
Currently Detroit Edison PSA serves students in grades K-10. Our first graduating class will be in 2014. Though we do not have graduation class today, we have implemented solid strategies to ensure our students are prepared. We require that all students, starting in grade 5, participate in a green science in-class workshop. Over the last three years, our students have been exposed to everything from forest ecology to biofuel to wind energy. Each of these experiences are hands-on and are designed to build student capacity. In addition to the in-class learning, our students participate in a wide range of outside activities involving environmental science and sustainability. For example, our students have worked with the US Forest Service at the Baldwin Ranger Station to learn about carbon dioxide sequestration and ecosystem management. To ensure that the development cycle for our students has continuity, students in grades 5, 8 and 10 take a written exam on environmental and sustainability topics. The information in the exam are linked to the Michigan Department of Education Grade Level Content requirments and the AP Environmental Exam.

Please describe your classroom based school wide assessment in environmental and sustainability concepts and what percentage of your students scored proficient or better: Our classroom based school wide assessment in environmental and sustainability concepts examine a wide range of topics. The main thrust of the program is on water conservation, soil science, atomospheric studies, and ecosystem/habitat management. Our program examines hydrology from multiple angles. Some of the concepts that we cover include the pH scale and its relationship to water quality. We also cover issues related to global problems related to the problems some people around the world involving access to drinkable. Our students get exosed to the EPA regulations and the impact of natural and man-made contaminants. We require that our students not only understand the concepts, but they are able to perform complex protocols to validate their learning. For example, when our students go over information regarding water quality testing, they must successfully demonstrate a range of hands-on GLOBE water testing protcols and have a solid understanding of the US Clean Water Act and international water conversatin policies. This approach ensures that our students can link science to society. Our training on pedology looks at soil chemical and physical features (e.g. soil horizons). It also examines the impact pollution can have on soil (brownfields) as well as ground water. We also discuss brownfield cleanup efforts (EPA Superfund). Students must be able to successfully demonstrate a range of hands-on GLOBE soil testing protocols. In the area of atmospheric studies, we cover climate change, meterology (weather patterns, tracking), cloud cover, ozone, and particulate monitoring. To be considered proficient, our students must be able to successfully demonstrate a range of hands-on GLOBE atmospheric survey protocols. To ensure that they are problem solvers, we also cover

bioremediation strategies such phytoremediation and greywater management. Using this approach has produced a 95% proficiency rate. 95%

Please describe professional development opportunities available in environmental and sustainability standards. Include the percentage of teachers who participated in these over the past two years: We take teacher development very seriously at DEPSA. Through our business partnerships and university alignments, our staff are able to attend a wide range of environmental and sustainability training workshops. Presently nearly 75% of our staff have received green science training. This Spring and Summer our teachers (science and non-science) will be attending workshops at Ecotek Lab. They will learn about biomass to biofuel, biomaterial science, wind energy, agritechology (e.g. hydroponics), enviromental science and green chemistry. After going through this training, 100% of our staff will have gone through basic training in environmental and sustainability standards. 75%

3A2. If your school serves grades 9-12, please provide the following information:

Percentage of this year's eligible graduates who completed the AP Environmental Science course during their high school career: Our students will take the AP Environmental Science course in the 12th grade%

Percentage of these student who scored a three or higher on the AP Environmental Science exam: Our students will take the AP Environmental Science exam in the 12th grade.%

Element 3B: Use of the environment and sustainability to develop STEM content knowledge and thinking skills to prepare graduates for the 21st century technology-driven economy

3B1. Does your school's science courses frequently use sustainability and the environment as a context for learning science (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 from evidence when exploring environmental and sustainability issues? : Yes No

Please describe: Detroit Edison PSA invests in its students at an early age through in-class and out-of-class experiences. Our students are required to develop mathematical models to support their scientific analysis. They are also required to develop prototypes to support their learning outcomes. To jumpstart the learning process we use a number of teaching aids in the classroom. Currently, our students are working with the following green science kits the classroom: Bioink-in-a-box, Biofuel-in-a-box, Bioplastic-in-a-box, Environmental Science-in-a-box, Earth Battery-in-a-box and Earth Crayons. The Bioink science kit shows students how to make ink with zero volatile organic compounds (VOCs). The Biofuel kit shows students how to make biodiesel from soybean oil. The Bioplastic science kit has helped our students learn the basics of biopolymers. The Environmental Science-in-a-box kit provides our students with an opportunity to gain hands-on experience in performing water and soil quality tests. The Earth Battery science kit is used to help our students learn the science behind microbial fuel cells. The Earth Crayon science kit is used to show students how to make biodegradable crayons.

Using these science kits in the classroom has helped our students learn critical green science concepts. With this knowledge, our students have begun to take on bigger challenges. In 2010 a group of DEPSA students built a fully-functioning electric bike that was powered by a lead-acid battery. For example, we have a group of students that are building a go-kart that runs off of biodiesel. This project is a collaboration between our lead science teacher, Mr. Lincoln and Ecotek lab. When in school students are able to build up their basic knowledge of science and then apply it when at Ecotek Lab. This collaborative approach has provided our students with the independence to compete at all levels of society: local, regional, national and international. More importantly, it has given them a clear path to innovation. For example, a group of DEPSA students have developed a chemical formula that may reduce the freezing point of biofuel. This is important because it will address some of the problems faced by the bioenergy industry as it attempts to expand the use of biofuel in cold climate regions. They will be presenting this research at the 2012 National Green School Conference in Denver, Colorado. Additionally, our eighth grade students participate in a Pre-Engineering class, "Project Lead The Way (PLTW) provides another gateway to technology and engineering..

3B2. If your school is a high school, does your school curriculum make connections between classroom and college and career readiness, in particular postsecondary option in environmental and sustainability fields (i.e., CTE Green Sustainable Design and Technology course)?

Yes No

Please describe these college and career connections: Our high school curriculum provides pathways for our students to learn about careers in environmental and sustainability fields. This is achieved through field trips to business partner sites, national research labs, and internships at partner universities. Students from our high school have met with scientists from BASF, BMW, Asterand Bioscience, NOAA, US Forest Service and the Department of Energy to learn about career opportunities in polymer science, automotive engineering, human tissue banking, marine science, forestry and alternative energy. To further the development process, our high school students must participate in a summer science internship program. Through our relationship with Ecotek Lab, our students are able to work on National Science Foundation funded projects with professors at top universities around the country (e.g. Michigan Tech, University of Michigan, Cornell, University of Pittsburgh). Our commitment to ensuring that our students get quality and timely exposure to college and career readiness is firm. In February 2012, some of our high school students will be traveling to the Denver, Colorado to meet with executives and researchers at the National Renewable Energy Laboratory. This experience will give them an up close view of the career possibilities in multiple areas of alternative energy. Additionally, we are very excited about the development of our "New Leaders Discovery Center." This green ribbon application includes excerpts from the actual proposal of our plan and vision. We are particularly thrilled to partner with EcoTek, Distributive Power and Michigan State University's ADREC research and development group.

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Cultivating New Leaders

STEM Integration

Sustainable Design & Community Impact

Project Curriculum

Project Partners

1. Project Overview "You never change things by fighting the existing reality. To change something, build a new model that makes the existing model obsolete." - Buckminster Fuller

MAIN OBJECTIVES • Create a center for education based on sustainability at the Detroit Edison Public School Academy's ECE (Early College of Excellence). The center will actively demonstrate regenerative strategies to address urban challenges of education, waste, energy and food

• Establish a customized educational model integrated with the center that prepares, equips and train students for the 21st century using placed-base learning that are rooted in STEM

• Empower young individuals to become entrepreneurs and leaders in emerging industries that seek to rebuild economic and social frameworks.

Following in the tradition of the Detroit Edison Public School Academy's leadership in transforming K-12 education in Detroit, 'The New Leaders Discovery Center' will continue the legacy of educational leadership. DEPSA has accepted that conventional models of educational are not only inadequate for preparing students for the challenges of the 21st century, but are also failing to unlock the true potential of the students of Detroit. DEPSA has taken the lead in recognizing a different approach is necessary when preparing individuals for careers in an economically volatile environment. Going one step further, DEPSA is taking action by seeking to amplify creativity and innovation of its students.

The New Leaders Discovery Center will shepherd forth a new era of education with a discovery-based learning approach that connects students to emerging industries through hands-on application and the facilitation of personal ingenuity while providing the necessary technical skills for successful financial livelihoods. The structure itself will be a "living building;" meaning it will teach through its operation with all of its systems, clearly illustrated for learning purposes. The site is intended to be a utilities-neutral building with the goal of the building itself producing its own energy, food and waste handling, and eventually exporting power to the neighboring community. The center will be state of the art for the schools of the city of Detroit.

While a building is important, it is what happens in the building that really matters. Increasingly we realize that learning occurs not simply through study and contemplation, but through the active discovery and application of knowledge. Through integration of technical skills training and "living classrooms," or placed-base learning environments, students will have the opportunity to actively apply the education they are receiving to tangible projects that foster positive advancement into

higher education, internships or emerging industries. Through the active discovery and application of knowledge, students are equipped with the necessary experience, skills and mind-set to identify, pursue and achieve a successful career in the 21st century.

The "New Leaders Discovery Center," will become the first comprehensive learning facility to integrate Solar PV training, resource management technology and project development into a comprehensive entrepreneurial curriculum that fosters generational leaders in burgeoning industries. The curriculum will be centered around creating entrepreneurs and leaders in emerging industries that develop and deploy solutions that cities and countries are facing in the 21st century. Students will work with industry leaders in 2 main technical-skill fields. First, students will receive training based on North American Board of Certified Energy Practitioners (NABCEP) solar energy curriculum, having the opportunity, upon passing scores, to be certified in NABCEP level 1. Secondly, students will work directly with Michigan State University(ADREC research and development group) on waste and resource management technologies, specifically, anaerobic bi-digesters, to transform food waste into fuel.

Students will have access to lab space to experience the project development process, while developing and administering community scale recycling and waste management programs and production of electricity through solar photovoltaic systems. Complementing these industry skill trainings, students will connect the economic and social frameworks through courses in dozens of other disciplines: wind and geothermal systems, urban agricultural production, resilient economics, business generation, manufacturing, engineering and more. The site embraces the need for renewable energy sources to power our energy future and establishing behavioral changes at the root level of each student to generate solutions to our society wide economic and environmental challenges.

COMMUNITY AND CIVIC ENGAGEMENT

Element 3C: Development of civic engagement knowledge and skills, and students' application of these to address sustainability and environmental issues in their community

3C1. Are all students required to conduct an age-appropriate, self-selected civic/community engagement project at every grade level? Yes Not at all grade levels Not at all

If not all grades, please specify which grades: _____

What percentage of last year's graduates scored proficient or better on a community or civic engagement skills assessment? We do not have graduates yet, Our first class will be in 2014.

Our current portfolio of community engagements is available to all students at DEPSA. %

What percentage of these projects focused on environmental or sustainability topics? 100%

What percentage of students satisfactorily completed such a project last year: 100%

3C2. 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?

Yes Not at all grade levels Not at all

If not all grades, please specify which grades: _____

Please share how outdoor learning is used to teach an array of subjects in contexts, engage the broader community, and develop civic skills. Getting our students outside is critical to the learning process. Though a lot can be done in-doors, being outside engages all senses and increases the learning capacity of our students. One outdoor experience that our students have

participated in involved a visit to the Huron Manistee National Forest and the Gulf of Mexico-Sarasota Bay. The experience at the forest was designed to help students understand the role of ecosystem management and impact of forests as a carbon sequestration system. The visit to the Gulf of Mexico focused on helping students learn how marine animals are affected by human activity. The students did hands-on research on sea turtles, sting rays, sharks, horseshoe crabs, squid and dolphins. In March 2012 our high school students will be participating in a water quality study with

research scientists at Wayne State University and Ecotek Lab. The scope of the project will involve students learning how to perform water quality tests in the field (e.g. Detroit River, St. Clair River, Rouge River, and Huron River); how to setup a hydrology remote sensing station using satellite technology and how to utilize forensic equipment in the lab to analyze chemical concentrations of

contaminants. After the students complete their water testing activities, they will develop a 'hydro-contamination map' using GPS/GIS technology to study the contamination levels over a longer period of time. The resulting map will be used to identify sources of contaminations along the different river systems. Additional trips and activities took place at the Henry Ford Estate to study HydroPower, the Milliken State Park to identify Michigan Native Plants and the Belle Isle Arborium and Nature Center to study ecology and conservation.

- 3C3. Please describe your partnerships with the local community (e.g., academic, business, government, nonprofit, and informal science institutions) to help advance your school, other schools (especially schools with fewer resources), and the greater community toward the three Pillars: Detroit Edison PSA has many partnerships in place that enables it to provide advance learning opportunities for its students. Some of the key partnerships that it has is with Ecotek Lab, Eastern Market, Michigan State University, Wayne State University, and Project Learning Tree. Ecotek Lab is a research program located in Detroit, Michigan that focuses on developing young scientists that are interested in being inventors or innovators. The school and our students have been involved in the lab program since 2005. During the timeframe our students have been able to meet world renowned scientists; meet with heads of state at the United Nations; national wild life refuges; travel outside of the country to work with student scientists in Cape Town, South Africa; participate in summer science internship programs at top colleges and build college level portfolios in environmental and sustainability science. DEPSA teachers work with Ecotek Lab to host science fairs; organize research projects; and come up with community activities, such as Earth Day and the annual DEPSA Science Night. Through our relationship with Eastern Market, our students are able to learn about food security and agribusiness. Our relationship with Michigan State University and Wayne State University provides our students with opportunities to prepare for college. This is achieved through onsite visits and special college prep programs. Our relationship with Project Learning Tree has afforded our students and staff the ability to learn about energy conservation and environmental conservation. The impact of these partnerships have been significant. First, it has given Detroit Edison PSA and its students an opportunity to compete at a global level. Second, it has increased the confidence and capacity of our students to a level that we have seen overall increases in several grade levels with math and science scores on the MEAP, as well as other formative and summative assessments administered by the school.

Include both the scope and impact of these partnerships.

- 3C4. Please describe other methods and measurements your school uses to ensure matriculating students are environmentally and sustainability literates. To maintain with certainty that all our students are prepared, all graduating students (Class 2014) will be required to do an independent project on an environmental science and sustainability topic that will result in an innovation or invention. The best projects will be presented to diplomats at the United Nations Environmental Programme.

Additionally, we have detailed a snapshot of our proposed curriculum for our High School "New Leaders Discovery Center.

Project Curriculum

Integrating STEM and placed-based learning concepts, the New Leaders Discovery Center will provide cutting edge "sustainability" curriculums offered at the High-School level. Students will experience a universal curriculum to build a foundation on building new economic and social frameworks, based on personal skills and passions. Using resilient economies and entrepreneurship as the platform, courses, classes and trainings will seek to use the Experiential Learning Model to build occupations in project development and management, renewable energy and resource management. From this foundation students will move into the "New Leader Industry Training Tracks" to dig deep into specific industries in order to become an expert in a given field. Students will collaborate with existing organizations, businesses and institutions to solve real world problems. The courses and trainings will be instructed by individuals and organizations that are pioneering green economy industries and applications to provide the highest level of experience and education for students.

COURSE OVERVIEW & CONCEPTS *principle curriculum - students will be required to engage in these courses -

ORIENTATION: THEORY OF CHANGE* Goal is to build a foundation for careers and livelihoods in a 21st Century and to introduce critical concepts of the green economy to students. This is the first

step in educational process at the NELC. *principle curriculum - students will be required to engage in these courses -->

THEORY OF CHANGE* 1: Economical Connectivity Understanding the economic relationship between all major resource production, processing and distribution, will be the focus of this baseline course. How a economic framework, that is dependent on the ecology and ethic of processing energy, food and infrastructure and how that is transferred into financial value, operates will establish various outcomes. How do businesses interact with communities, residents and government. This course will explore the relationship of economic components, how they interact and what it means for business owners, consumers and producers. Topics Covered Triple Bottom Line Theory (Social, Environmental, Economic)

Conscious Capitalism

Relationship between our economy and contemporary global issues

21st Century Supply and Demand

2: Environmental & Human Synergy Exploring the inter-connectivity of our daily lives and that of the physical environment around us; where and how we live, work and play and what effects that has on our ability to replenish vital resources for future generations. Our natural ecology is one that can has provided basic needs for species to survive and evolve, but recent increases in consumption, resource procurement and population has strained our ability to become aware of what our relationship is to our natural environment. Daily decisions have tremendous impact on our environments ability to provide the necessary resources to maintain and evolve in a healthy, organic progression and this course will examine what we can do to listen, act and reciprocate a healthy, positive relationship with our natural landscape Topics Covered

Climate Change

Natural Ecology systems

Bio-Mimicry

Impact of Human Decision Making

Moral principles and framework of working and living.

Responsibility to our shared humanity and respect of all beings.

Implications of positive actions and thoughts on our families, communities and society.

3: Personal Livelihood In this course students will explore their inner environment and understand the impact of the personal thought process and decision making process on the world around them and how the decisions they make impact not only the world around them, but, their personal health, moods and ability to make healthy choices. Identifying, developing and achieving financial and personal success is a direct result of an individuals ability to explore, address and discover what it is that defines who they are, where their strength comes from and how they can find enjoyment on daily basis, while supporting any financial obligations, commitments or individuals. Analyzing personal behaviors, attitudes, priorities and intentions will be begin to foster the path forward for individuals seeking to be in control of their future. Through discussion, facilitated meditations and role-playing, students will launch into the deep exploration of personal authority and authenticity. Topics Covered Thought - Belief - Manifestation Model Personal Goals and Intentions Overcoming Fears and Challenges Identifying Passions, Skills and Enjoyment Meditation, Yoga and Nutrition

4: Community Wealth Building Identifying and inventory existing community assets and understanding how to leverage them will be the objective of this class. Working with anchor institutions, to increase the local circulation of goods and services as well as building community ownership over businesses and projects, are central to getting buy-in, and ultimately, wealth, for all community members. Examining existing models or systems that are stripping and damaging community needs and assets, will also be discussed, as recognizing and breaking down predatory models are important in the quest of constructing inclusive, accessible communities. Topics Covered Program Related Investment Cooperative Business Models Social Equity "Buy-Local" Campaigns and Strategies Land Trust and Neighborhood Stabilization

RESILIENT SOCIETIES*

5: Energy Efficiency and Infrastructure Efficiency, consumption and energy awareness are at the foundation to any resilient, or sustainable city. This course will set the ground work for implementing infrastructure improvements and behavior change by teaching how current energy sources are generated, distributed and consumed and moving to action on how to close building "envelopes," lower utility bills and consumption. This course also explores the materials that are installed on either new builds or remodels can significantly impact the efficiency of homes, businesses or institutions. The center itself will be a training center for the course giving students direct experience of efficient systems. Topics Covered HVAC systems Utility Bill Analysis and Carbon Footprint Residential Weatherization Retrofits Energy Audit Performance Behavioral Impacts

6: Design and Urban Planning Through this course students will explore collaborative, locally empowered, performance-oriented and truly sustainable design. Multi-disciplinary strategies allows environmental scientists and engineers to work side by side with designers and planners. This multi-disciplinary perspective gives access to solutions that extend beyond the physical realm, to include software development, environmental engineering, business management strategies and bio-engineering. Students will explore these and other skills necessary to design and plan communities that are rooted in resiliency. The Center will also provide a strong demonstration of how to design buildings in harmony with local ecology. Topics Covered Systems Thinking Symbiotic Relationship Multi-Disciplinary Integration Re-Use & Urban Redevelopment

7: Food Production and Distribution The design and administration of localized organic agriculture systems are at the core of this course. Establishing various systems, practices, techniques and strategies to cultivate, maintain, process and distribute healthy, affordable nutrition to residents will be explained, developed and implemented. Students will have the opportunity to experience the required skills to grow produce year round through hands-on application and instruction. Topics Covered Permaculture Design Design, Install and Maintenance 4-season Production(HoopHouses) Soil, Water and Pests. There are numerous additional courses, however this is meant to be a snapshot.

NEW LEADER INDUSTRY TRAINING TRACK The following 2 tracks will offer the most advanced training and education opportunity at the High School level. Through intense, comprehensive education and application, students have the opportunity to become globally recognized and certified in the emerging industry of renewable energy. From production, to design, to install, to sales, students will receive the full-cycle of skills needed to become industry leaders, either through their own business, or with existing entities.

20: Solar Photovoltaic Training, Manufacturing and Certification

SPV-11: Solar PV Design and Install The course provides a solid foundation on which to build a career in the PV industry. Basic concepts of conservation and efficiency, solar industry dynamics, fundamentals of electricity, and proceeding to cover composition of PV cells, system components, and factors that impact performance, design and installation. Electrical safety is emphasized throughout. Successful completion of this course qualifies students to take the North American Board of Certified Energy Practitioners (NABCEP) Entry Level Exam, an important credential for the solar industry. Topics Covered Conservation & Efficiency PV Market, Applications, and Advantages Fundamentals of Electricity PV Modules Safety Balance of System Factors Effecting PV Performance Grid-Tied PV System Off-Grid PV System PV Installation Maintenance and Troubleshooting of PV Systems

SPV-12: Solar PV Economics & Financing Develop greater understanding and expertise in the factors that affect the cost and profitability of a Solar PV System. Explore the deeper details on how to calculate and provide data in regard to system sizing, cost, production, and payback to present a compelling value proposition to a potential solar customer. The course begins with a discussion of the factors that affect the financial viability of an investment in a PV system and the assumptions behind financial estimates. It presents in detail the five principle ways one analyzes the finances of a PV investment and then shows how to build the financial case through cash flow modeling. Throughout the course students are given examples and practice in calculating returns using the various models. Topics Covered PV Finance Fundamentals Financial Analysis for Solar PV Investment Cash Flow Modeling - Do Nothing Cash Flow Modeling - Base Case Cash Flow Modeling - Solar Electric PV case

SPV-13: Solar PV Marketing To establish and grow a successful solar sales business, you need to go beyond the design of a PV installation and master the craft of a successful sales process, the intricacies of ROI calculations, and navigating the complex world of solar finance. These are the skills that will differentiate you from your competition and provide the competitive edge needed in this growing and dynamic industry. Topics Covered Selling and Marketing Solar PV PV Proposal Creation Residential and Commercial Sales and Marketing Case Study - Residential Sales Solar Financing

SPV-14: Solar PV Sales This course provides the essential knowledge and skills needed to enter the fast-growing field of solar sales. Beginning with an overview of the solar industry and composition of PV systems, the course proceeds to cover customer needs assessment, site analysis, economic incentives and utility rate structures. Interwoven throughout the course are the principles of a solar code of ethics and practice activities and exercises so that you can be confidently provide customers with clear and accurate information about their solar PV options based on specific needs and the site conditions. Topics Covered • PV System Overview • Customer

Requirements Analysis • Site Requirements Analysis • Solar PV Rebates and Incentives • Utility Rates & Structures • Solar Sales Code of Ethics (woven throughout the course)

SPV-15: AutoCAD For Solar PV Design Create project models in 3D using the extremely powerful Google Sketchup and can export the model to a variety of CAD formats. Utilization of a variety of other visualization techniques that assist clients in making decisions during the design process. Projects modeled in 3D convey overall site conditions, locate shade obstructions, assist in component selection, and make the drawings realistic. 4D modeling essentially adds the dimension of time to the equation, where the end-user can actually see all the different phases of project as it comes together over the life-cycle of the installation. It can be used to maximize and enhance the integration of the system, streamlining and simplifying installation logistics. Topics Covered Component Modeling 3D and 4D CAD Modeling Dynamic component Library CAD Library Visual Representations and animations

Resource Management Training

RM-1: Anaerobic Bio-Digestion Training The training program will highlight design options and optimization of system operation with a focus on safety, including an on-farm safety assessment and walkthrough. Detailed operational and trouble-shooting information will include system start-up, process control, and monitoring to provide a framework to maintain operator safety while achieving consistent biogas production. An operator panel composed of industry, municipal, and on-farm digester operators will provide real-world experience and expertise for digester operation and management. Biogas and digestate end use, regulations and permits, and environmental issues will complete the training to provide the comprehensive systems knowledge required to make informed decisions concerning digester management. The Anaerobic Digester(AD) Operator Training Program provides a systems perspective for digester operator safety and digester management critical in maintaining digester operation. This training will also have the use of a fully-functional bio-digester on site, for hands-on learning. Topics Covered Feed sources for AD including sewage sludge, agricultural wastes and other organic wastes including food waste and bioplastics. Co-digestion AD outputs including utilising gas production Principles of operation, biomethanisation, the plant and equipment used for AD and methods for optimising and monitoring the process

RM - 2: Community Resource Recovery Program Using the Center's Recycling facility, students will have the opportunity to design, develop and administer a community-wide recovery program to reclaim, re-purpose and reuse discarded materials. Through the creative "Idea 2 Install" process, students can manifest their innovation on items that are abundant and most likely heading to landfills. Through this process, in collaboration with the bio-digester, DEPSA can seek to have a zero-waste facility that includes the surrounding community; exemplifying the community driven resilient economy Topics Covered Community Outreach and Education Reclamation Strategies RePurposing and Manufacturing Waste 2 Asset Programming. As stated earlier, the above information is part of a proposal we are currently developing; however it seemed important to demonstrate our intentions. We steadfastly believe that Greening Education is the only way to go .